



Document: ISO/PC 251/N **46**

Secretariat of ISO/PC 251

Date: 10 November 2010

To the Members of
ISO/PC 251
Asset Management

Working Draft (WD) of ISO XXXX “Asset management – Requirements”

Please find attached a copy of the above WD.

This has been developed by the Chairman of ISO/PC 251 who has attempted to fit the text of BSI's PAS 55 into the “High level structure” for ISO management system standards, as proposed by the ISO/TMB/TAG13-JTTCG (at its October 2010 meeting), and following comments received both during the “preliminary meeting” (e.g. on the Scope) and also during the document review held immediately after the close of meeting (the notes from that review are also included in the table).

The draft is presented in a table to try and help delineate the source of the text for each section, and to enable the Chairman (and occasionally the Secretary) to provide commentary on the text.

This document will be a key input into the work of ISO/PC 251 for its meeting planned during 28 February to 4th March 2011.

Please review the text and submit any comments to the secretariat using the comments template given in document N47, before:

28 January 2011

Yours sincerely

Charles Corrie
For the BSI Secretariat of
ISO/PC 251

Some general issues on the draft

- 1) To be consistent with the ISO/TMB's approval of the project, all references to “International Standard” have been replaced by “Part of ISO XXXX”
- 2) At the preliminary meeting it was agreed that the scope should not be limited to “physical” assets. The text will need to be reviewed for any remaining bias towards “physical assets”.
- 3) Does “policy” come before “strategy” or vice-versa, there is some confusion in the text on this (other standards e.g. ISO 9004 put strategy first)
- 4) The ISO./TMB/TAG13-JTCG High Level Structure and identical text now makes reference to “risk” in clause 6.1. We have placed the “risk text” temporarily into clause 7. Should it remain there, or be moved, or be split across several clauses ?

We are also in discussion with other committees represented on the JTCG as to how they are dealing with risk and risk management

- 5) Similarly, the “Management of change” clause has been placed under clause 8. Should it remain there or be moved earlier in the document ?
- 6) “Evaluation of compliance” is also under discussion in the JTCG as to its placement
- 7) There are a lot of references to “documentation” and “records” that will need to be reviewed in light of the JTCG's proposed use of “documented information”
- 8) There are several references to “procedures”. The JTCG text no longer references “procedures”. Should the references be maintained ?
- 9) The JTCG permits the use of “stakeholder” as an alternate term to “interested party” in the identical text, and it has been applied here.

- 10) The text has been colour coded as follows:

JTCG text

Preliminary meeting text and comments

NWIP/PAS 55 text

Row	Text source	Text	Commentary
1	JTCC	Introduction	
2	PAS 55, with edits	<p>For the purposes of this Part of ISO XXXX, asset management is defined in ISO XXXX-X, 3.2 as the: <i>systematic and coordinated activities and practices through which an organization optimally and sustainably manages its assets and asset systems, their associated performance, risks and expenditures over their life cycles for the purpose of achieving its organizational strategic plan</i></p> <p>where an organizational strategic plan is defined in ISO XXXX-X 3.25 as the:</p> <p><i>overall long-term plan for the organization that is derived from, and embodies, its vision, mission, values, business policies, stakeholder requirements, objectives and the management of its risks</i></p> <p>Effective implementation of asset management requires a disciplined approach which enables an organization to maximise value and deliver its strategic objectives through managing its assets over their whole life cycles. This includes determination of appropriate assets to acquire or create in the first place, how best to operate and maintain them, and the adoption of optimal renewal, decommissioning and/or disposal options.</p> <p>This is the second Part of ISO XXXX on the topic of asset management, the others two Parts being:</p> <p>ISO XXXX – Part X Asset management – Overview, principles and terminology ISO XXXX – Part Z Asset management – Guidelines on the application of ISO XXXX-Y</p> <p>It is recommended that these other two Parts of ISO XXXX be read in conjunction with this one.</p> <p>This Part of ISO XXXX is applicable to:</p> <ul style="list-style-type: none"> • any asset intensive business, where significant expenditure, resources, performance dependency and/or risks are associated with the creation/acquisition, utilization, maintenance or renewal/disposal of assets; • any organization that has, or intends to manage or invest in, a significant portfolio of assets, or where the performance of asset systems and the management of assets are central to the effective delivery of service, product or other business objectives; • organizations where there is a business or public accountability requirement to demonstrate best value in the safe management of assets and provision of associated services (e.g. education and health sectors). 	

		<p>The requirements of this Part of ISO XXXX are inextricably linked together and the document should be read in its entirety. Asset management is an inherently integrated approach, and cannot be successfully implemented by applying the requirements of this Part of ISO XXXX selectively.</p> <p>It is important to note that the requirements of this International Standard are prescriptive only to the extent that they define <i>what</i> has to be done, not <i>how</i> to do it. The method of achieving each requirement is for the organization to determine, in accordance with its assessed needs. Guidelines for the application of the requirements within this Part of ISO XXXX are provided in ISO XXXX-Z. However, it is also important to note that the purpose of ISO XXXX-Z is to provide guidance only and does not add any further requirements to those contained in this Part of ISO XXXX.</p> <p>The requirements within this Part of ISO XXXX call for the organization to establish an asset management system, including an asset management policy, an asset management strategy, asset management objectives and asset management plan(s). To avoid confusion, these terms are always preceded by “asset management” if they relate to a specific clause, or appear on their own if the reference is generic, i.e. “asset management strategy” refers to a specific clause and “strategy” on its own would refer to strategy in general terms. It should also be noted that the term “asset management system” means the management system, and not a system of interdependent physical assets, which is separately referred to as an “asset system” (see ISO XXXX-X, 3.12).</p> <p>Unless explicitly required, the documentation requirements within this Part of ISO XXXX do not have to be produced as individual documents. There is no need, for example, to produce a discrete asset management policy, asset management strategy, asset management objectives and asset management plan(s). These may be integrated with other relevant documents if appropriate.</p> <p>The requirements of clause 4 can be met by adopting a process- or procedure-based approach. Procedure(s) can be simply written as descriptions of processes and, taken together with other elements of the system (such as defined responsibilities and authorities, trained and competent personnel), can provide the control required to meet the needs of the organization.</p> <p>This Part of ISO XXXX does not include requirements specific to other management systems, such as those particular to environmental management, occupational health and safety management, or quality management. However, this Part of ISO XXXX is structured according to the Plan-Do-Check-Act (PDCA) framework to enable an organization to align or integrate its own asset management system with related management system requirements (see ISO XXXX-X, 2.5). It is possible for an organization to adapt its existing management system(s) in order to establish an asset management system that complies with the requirements of this International Standard.</p> <p>Annex A shows the correspondence between this Part of ISO XXXX, ISO 14001, ISO 9001 and OHSAS 18001</p>	
3	JTCG	<p>1. Scope</p>	
4	Preliminary meeting	<p>This Part of ISO XXXX specifies requirements for a management system for the management of an organization’s assets to achieve its stated strategic objectives.</p>	<p>Scope is now as agreed at the “preliminary meeting”</p>

		<p>The principles in this Part of ISO XXXX can be applied to all types of assets. However, this Part of ISO ????? is not intended to be applied to some types of assets, e.g. those which are predominantly financial or predominantly related to human resources, although links to such assets may be required insofar as they have a direct impact on the management of the organization’s assets.</p> <p>NOTE 1 The management of some asset types is interrelated, for example, the management of physical assets is dependent upon information and knowledge, human assets and financial resources, and often has an impact on reputation and customer satisfaction</p> <p>This Part of ISO XXXX is applicable to all types and sizes of organization.</p> <p>This Part of ISO XXXX addresses what is required to be done, but not how it can be done.</p> <p>This Part of ISO XXXX does not specify financial accounting or technical requirements for the management of specific asset types.</p> <p>Example It is not in the scope of this Part of ISO XXXX to specify how valuations are to be performed, however asset valuations are normally required by an organization.</p> <p>This Part of ISO XXXX defines the requirements for an organization to:</p> <ul style="list-style-type: none"> a) establish a management system to optimally and sustainably manage its assets; b) improve the management of its assets; c) achieve alignment with its stated asset management policy and strategy. <p>Note 2 Conformity to this Part of ISO XXXX can be demonstrated by the organization by:</p> <ul style="list-style-type: none"> a) making a self-determination and self-declaration, or b) seeking confirmation of its conformance by parties having an interest in the organization, such as customers, or c) seeking confirmation of its self-declaration by a party external to the organization, or d) seeking certification/registration of its asset management system by an external organization. 	<p>and approved by ISO/TMB</p>
5	<p>ISO & Preliminary meeting</p>	<p>2. Normative references</p> <p>The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.</p> <p>ISO XXXX-X Asset management – Overview, principles and terminology</p>	

6	ISO & Preliminary meeting	<p>3. Terms and definitions</p> <p>For the purposes of this document, the terms and definitions given in ISO XXXX-X <i>Asset management – Overview, principles and terminology</i> apply</p>	ISO Text changed to comply with the latest version of ISO Directives
7	JTCG	<p>4. Context of the organization</p> <p><u>4.1 Understanding of the organization and its context</u></p> <p>The organization shall determine external and internal issues that are relevant to its purpose and that affect its ability to achieve the intended outcomes of its asset management system.</p> <p>These issues shall be taken into account when establishing, implementing, maintaining and improving the organization's asset management system.</p> <p><u>4.2 Understanding the needs and expectations of stakeholders</u></p> <p>When establishing its asset management system, the organization shall determine</p> <ul style="list-style-type: none"> - its relevant stakeholders and - their requirements (i.e. their needs and expectations whether stated, implied or obligatory) 	
8	PAS 55, Clause 4.4.8	<p>The organization shall establish, implement and maintain process(es) and/or procedure(s) for identifying and accessing the legal, regulatory, statutory and other applicable asset management requirements.</p> <p>The organization shall ensure that the applicable legal and other external obligations or requirements are identified and incorporated into the corresponding elements of its asset management system.</p> <p>The organization shall keep this information up-to date. The organization shall communicate information on legal and other requirements to all relevant stakeholders.</p>	
9	JTCG	<p><u>4.3 Determining the scope of the management system</u></p> <p>The organization shall determine the scope of the asset management system, such that the boundaries and applicability of the asset management system can be clearly communicated to relevant internal and external parties.</p> <p>When determining the scope of the management system the organization shall consider:</p> <ul style="list-style-type: none"> - the external and internal issues referred to in 4.1 - the requirements referred to in 4.2, <p>The organization shall retain documented information on the scope of the asset management system</p>	
10	JTCG	<p><u>4.4 Asset management system</u></p>	

		The organization shall, establish, implement, maintain and improve an asset management system in accordance with the requirements of this Part of ISO XXXX including the processes needed and their interactions.	
11	PAS 55	The organization shall establish, document, implement, maintain and continually improve an asset management system in accordance with the requirements of this International Standard.	Some of these words are included in the JTCCG text but I believe these are better ?
12	PAS 55	The organization shall define and document the scope of its asset management system.	
13	PAS 55	Where an organization chooses to outsource any aspect of asset management, the organization shall ensure control over such aspects in accordance with the requirements of 4.4.2.	I have suggested deleting as it is covered in full in PAS55:2008 clause 4.4.2 and has represented a duplication in PAS 55:2008
14	PAS 55	NOTE This International Standard requires that organizations establish, implement and maintain an asset management policy, strategy, objectives and plans. Figure 5 in ISO XXX0 illustrates the relationship between the organizational strategic plan and these elements of the asset management system.	This is an important distinction that may be specific to an AM standard.
15	PAS 55	<p><u>4.4 Strategy</u></p> <p>The organization shall establish, document, implement and maintain a long-term asset management strategy which shall be authorized by top management.</p> <p>NOTE 1 The time horizon for a long-term asset management strategy would normally be aligned with that of the organizational strategic plan.</p> <p>The strategy shall:</p> <ul style="list-style-type: none"> a) be derived from, and be consistent with, the asset management policy and the organizational strategic plan; b) be consistent with other organizational policies and strategies; c) identify and consider the requirements of relevant stakeholders; d) consider the life cycle management requirements of the assets; e) take account of asset-related risks (see 4.4.7), asset and asset system criticalities; f) identify the function(s), performance and condition of existing asset systems and critical assets; 	I really do NOT like this here. It breaks up the Line of Sight message which has been a huge selling point of PAS 55. Charles – can you clarify our interpretation of this. If we have interpreted it correctly then we need to raise a comment to JTCCG. PAS55:2004 did not structure itself so the line of sight message was clear. During development of PAS 55:2008 there was a LOT of comment to this effect and hence the structure of the 2008 document. I would see this as a retrograde step that the marketplace would not appreciate.

		<p>g) state the desired future function(s), performance and condition of existing and new asset systems and critical assets, on timescales aligned to those of the organizational strategic plan;</p> <p>h) clearly state the approach and principal methods by which assets and asset systems will be managed;</p> <p>NOTE 2 This may include, for example, the criteria to be adopted for determining asset criticality and value, the life cycle and sustainability basis for asset management planning, the approach to asset risk and reliability management and the methods of optimization and decision-making.</p> <p>i) provide sufficient information, direction and guidance to enable specific asset management objectives and asset management plan(s) to be produced;</p> <p>j) include criteria for optimizing and prioritizing asset management objectives and plans;</p> <p>k) be communicated to all relevant stakeholders, including contracted service providers, where there is a requirement that these persons are made aware of their asset management strategy-related obligations;</p> <p>l) be reviewed periodically to ensure that it remains effective and consistent with the asset management policy and organizational strategic plan and with other organizational policies and strategies.</p>	<p>I have also duplicated these in the new section 6. Need to decide where they sit best.</p> <p>Discussion on highlighting the whole Line of Sight message here and putting the detail in 6?</p> <p>Or include a Strategy for Asset Management with the tactical operational stuff in 6</p> <p>Some views that it should sit in section 5 Leadership? Which would maintain LoS</p> <p>Also defn from ISOIEC38500:2008 defn of Strategy</p>
16	JTCG	<p><u>5. Leadership</u></p> <p><u>5.1 General</u></p> <p>Persons in top management and other relevant management roles throughout the organization shall demonstrate leadership with respect to the asset management system.</p> <p>Note This can be shown, for example, by motivating and empowering persons to contribute to the effectiveness of the asset management system</p>	
17	Preliminary meeting	<p>Add/ reference “culture” issues</p>	<p>I agree this is useful. Didn't spot anything in PAS 55:2008. Need a form of words</p>
18	JTCG	<p><u>5.2 Management commitment</u></p>	

		<p>Top management shall demonstrate its commitment by</p> <ul style="list-style-type: none"> - ensuring the asset management system is compatible with the strategic direction of the organization - integrating the asset management system requirements into the organization’s business processes; - providing the resources to establish, implement, maintain and continually improve the asset management system - communicating the importance of effective asset management and conforming to the asset management system requirements; - ensuring that the asset management system achieves its intended outcomes - directing and supporting continual improvement <p>Note reference to “business” in this Part of ISO XXXX should be interpreted broadly to mean those activities that are core to the purposes of the organization’s existence.</p>	
19	Preliminary meeting	Add Bits of 4.4.1	
20	PAS 55	<p>4.4.1 Structure, authority and responsibilities</p> <p>The organization shall establish and maintain an organizational structure of roles, responsibilities and authorities, consistent with the achievement of its asset management policy, strategy, objectives and plans. These roles, responsibilities and authorities shall be defined, documented and communicated to the relevant individuals.</p> <p>NOTE There is no need to establish a separate organizational structure provided the organization’s structure is consistent with achieving the requirements set out in Clause 4.</p>	Addressed in 5.4
21	PAS 55	<p>Top management shall provide evidence of its commitment to the development and implementation of the asset management system and the continuous improvement of its effectiveness by:</p> <ul style="list-style-type: none"> a) appointing a member of top management who, irrespective of other responsibilities, shall be responsible for the overall design, maintenance, documentation, review and improvement of the organization’s asset management system; b) appointing member(s) of management whose responsibility is to ensure that the assets and assets systems deliver the requirements of the asset management policy, strategy, objectives and plans and who have the authority to achieve this; 	<p>Between this and the new 5.4 I think most areas are covered but we need to make sure we have not lost anything</p> <p>If “commitment” were not referred to in the first line, it could all go to 5.4</p> <p>Bullet b) uses the term “management” without a preliminary descriptor, e.g. “Top”. This is known to cause noun/ verb confusion for translators, and is recommended to be</p>

			avoided.
22	PAS 55	<p>—c) identifying and monitoring the requirements and expectations of the organization’s stakeholders and taking corresponding and timely action, to the extent that these have implications for the organization’s management of its assets;</p> <p>—d) ensuring that the asset management policy and strategy are consistent with the organizational strategic plan;</p>	<p>Addressed in the new 4.2</p> <p>Should look at words in 4.2 to ensure the “expectations” are addressed.</p> <p>Consider how expectation are addressed and IF they should be. Beware of how they link to the line of sight message</p>
23	PAS 55	<p>e) considering the adverse impact that the asset management policy, asset management strategy, asset management objectives and asset management plan(s) might have on other aspects of the organization.</p> <p>Conversely, considering whether plans generated from other parts of the organization might have an adverse affect on asset management;</p>	I think these two are addressed by the new 5.2?
24	PAS 55	f) ensuring the viability of the asset management policy, asset management strategy, asset management objectives and asset management plan(s);	I think this is an important one that is not addressed by the new 5.2 DISCUSS
25	PAS 55	g) ensuring asset-related risks are identified, assessed and controlled, and are included in the organization’s overall risk management framework;	I think this is an important one not addressed by the new 5.2. DISCUSS
26	PAS 55	—h) ensuring the availability of sufficient resources;	Addressed in new 5.2
27	PAS 55	i) communicating to all relevant stakeholders the importance of complying with the requirements of the asset management system in order to achieve its organizational strategic plan.	I think this is an important one not addressed by the new 5.2 DISCUSS
28	JTCG	<p><u>5.3 Policy</u></p> <p>Top management shall establish an asset management policy. The policy shall:</p> <ul style="list-style-type: none"> - be appropriate to the purpose of the organization, - provide the framework for setting asset management objectives; - include a commitment to satisfy applicable requirements, - include a commitment to continual improvement of the asset management system 	I think the 2 nd bullet needs to include reference to strategy and plans

		<p>- be communicated within the organization be available to stakeholders, as appropriate.</p> <p>The organization shall retain documented information on the asset management policy.</p>	
29	Preliminary meeting	Insert 4.2	
30	PAS 55	<p>The organization’s top management shall authorize an overall asset management policy. The policy shall:</p> <p>a) be derived from, and be consistent with, the organizational strategic plan;</p> <p>b) be appropriate to the nature and scale of the organization’s assets and operations;</p>	Addressed by new 5.3
31	PAS 55	c) be consistent with other organizational policies;	Not addressed by new 5.3. This clause should stay
32	PAS 55	d) be consistent with the organization’s overall risk management framework;	Not addressed by new 5.3. This clause should stay
33	PAS 55	e) provide the framework which enables the asset management strategy, objectives and plans to be produced and implemented;	Largely covered by new 5.3 but see my comments above regarding strategy and plans being omitted
34	PAS 55	f) include a commitment to comply with current applicable legislation, regulatory and statutory requirements and with other requirements to which the organization subscribes;	The new 5.3 c sort of addresses this but I think it needs to be more explicit
35	PAS 55	g) clearly state the principles to be applied, such as the organization’s approach to health and safety or sustainable development;	A useful opportunity for orgs to include other things to which they subscribe. Could be addressed in the new 4.2 but I don’t think it is explicit enough. Suggest leaving here??
36	PAS 55	h) include a commitment to continual improvement in asset management and asset management performance;	
37	PAS 55	i) be documented, implemented and maintained;	The new 5.3 only requires implemented. I think we should add “documented” and “maintained”, or is the last para of the JTCCG text now sufficient ?
38	PAS 55	j) be communicated to all relevant stakeholders, including contracted service providers, where there is a requirement that	The new 5.3 requires communication but I think

		these persons are made aware of their asset management policy-related obligations;	we need to be more explicit about wider stakeholders and specifically Contractors. Could look at merging this with bullet 6. DISCUSS
39	PAS 55	k) be reviewed periodically to ensure that it remains relevant and consistent with the organizational strategic plan.	
40	PAS 55	NOTE 1 Organizations may choose to have a detailed asset management policy for internal use which should provide sufficient information and direction to drive the asset management system (parts of which may be confidential) and have a summarized (non-confidential) version for dissemination to its stakeholders.	Keep this? ISO now prefers that “should” is not used in Notes, as this implies a recommendation, which should go as main text. The use of “may” also has to be treated extremely carefully.
41	PAS 55	NOTE 2 Organizations may also have one or more functional policies relating to specific asset management activities, such as capital investment, operation, maintenance or contracting. It is essential, however, that alignment is maintained between such functional policies and the overall asset management policy.	Personal view. I always found this a red herring that confused BUT some orgs found it useful Should it stay or should it go?? Words such as “essential” should be avoided.
42	JTCG	<u>5.4 Organizational roles, responsibilities and authorities</u> Top management shall ensure that the responsibilities and authorities for relevant roles are assigned and communicated within the organization. Top management shall assign the responsibility and authority for a) ensuring that the asset management system conforms to the requirements of this Part of ISO XXXX b) reporting on the performance of the asset management system to top management	
43	Preliminary meeting	Add bits of 4.4.1	
44	PAS 55	The organization shall establish and maintain an organizational structure of roles, responsibilities and authorities, consistent	I think there is stuff in here

		with the achievement of its asset management policy, strategy, objectives and plans. These roles, responsibilities and authorities shall be defined, documented and communicated to the relevant individuals. NOTE There is no need to establish a separate organizational structure provided the organization’s structure is consistent with achieving the requirements set out in Clause 4.	that is relevant and should be added to the new 5.4. Alternately, is para 1 of the JTCG 5.4 now sufficient ?
45	PAS 55	Top management shall provide evidence of its commitment to the development and implementation of the asset management system and the continuous improvement of its effectiveness by: a) appointing a member of top management who, irrespective of other responsibilities, shall be responsible for the overall design, maintenance, documentation, review and improvement of the organization’s asset management system; b) appointing member(s) of management whose responsibility is to ensure that the assets and assets systems deliver the requirements of the asset management policy, strategy, objectives and plans and who have the authority to achieve this;	Should consider if these two should be in 5.2 or 5.4 I think these words sit best in New 5.2
46	PAS 55	c) identifying and monitoring the requirements and expectations of the organization’s stakeholders and taking corresponding and timely action, to the extent that these have implications for the organization’s management of its assets;	I think this is addressed in the New 4.2
47	PAS 55	d) ensuring that the asset management policy and strategy are consistent with the organizational strategic plan; e) considering the adverse impact that the asset management policy, asset management strategy, asset management objectives and asset management plan(s) might have on other aspects of the organization. Conversely, considering whether plans generated from other parts of the organization might have an adverse affect on asset management;	Addressed by the new 5.2??
48	PAS 55	f) ensuring the viability of the asset management policy, asset management strategy, asset management objectives and asset management plan(s);	I think this is an important one not addressed by the new 5.2. DISCUSS Is it actually possible to “ensure the viability” ????
49	PAS 55	g) ensuring asset-related risks are identified, assessed and controlled, and are included in the organization’s overall risk management framework;	I think this is an important one not addressed by the new 5.2. DISCUSS
50	PAS 55	h) ensuring the availability of sufficient resources;	Addressed in new 5.2
51	PAS 55	i) communicating to all relevant stakeholders the importance of complying with the requirements of the asset management system in order to achieve its organizational strategic plan.	I think this is an important one not addressed by the new 5.2 or 5.4 – DISCUSS Could now be covered by JTCG 7.3
52	JTCG	6 Planning	Need to be aware of retaining the Line of Sight

			<p>message. One issue that still exists in PAS55:2008 is various level of objectives (i.e. strategic, tactical, operational). This new structure could help to alleviate this by just have “objectives”. Provided we are clear on the fact that they can exist at various levels in the org this could work.</p> <p>Interestingly there was a point in the development of PAS55:2008 where it was suggested that we just have an AM Policy, an AM Strategy and a requirement for Plans to deliver outcomes. This new structure is almost the same. However, it was rejected by the Steering committee during development of PAS55:2008. The clauses for 4.3.1, 4.3.2, 4.3.3 and 4.3.4 are included here.</p> <p>Discussion around having Strategic objectives in the Leadership section and Specific asset group objectives in this section. We think this new structure provides an opportunity for clarifying this previously difficult area.</p>
53	JTCG	6.1 Actions to address risks and opportunities	

		<p>The organization shall consider the issues referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed to</p> <ul style="list-style-type: none"> - assure the management system can achieve its intended outcome(s) - prevent undesired effects - realize opportunities for improvement. <p>The organization shall:</p> <p>a) evaluate the need to plan actions to address these risks and opportunities, and</p> <p>b) where applicable</p> <ul style="list-style-type: none"> - integrate and implement these actions into its asset management system processes (see 8.1) - ensure information will be available to evaluate if the actions have been effective (see 9.1) 	
54	Preliminary meeting	<p>When to trigger a review (see 4.6.5 (Improvement Actions), 4.7 (Management Review) and new text, and reference resilience std. 4.4.9 (Management of Change)</p>	<p>This is easy to confuse with Improvement actions and management review. After some thought, I like it more and more. It is pro-actively planning to manage risk. This could be addressed by parts of our AM Strategy?? Do we need to cross reference risk?</p>
55	PAS 55	<p>4.3.1 Asset management strategy</p> <p>The organization shall establish, document, implement and maintain a long-term asset management strategy which shall be authorized by top management.</p> <p>NOTE 1 The time horizon for a long-term asset management strategy would normally be aligned with that of the organizational strategic plan.</p> <p>The strategy shall:</p> <ul style="list-style-type: none"> a) be derived from, and be consistent with, the asset management policy and the organizational strategic plan; b) be consistent with other organizational policies and strategies; 	

		<p>c) identify and consider the requirements of relevant stakeholders;</p> <p>d) consider the life cycle management requirements of the assets;</p> <p>e) take account of asset-related risks (see 4.4.7), asset and asset system criticalities;</p> <p>f) identify the function(s), performance and condition of existing asset systems and critical assets;</p> <p>g) state the desired future function(s), performance and condition of existing and new asset systems and critical assets, on timescales aligned to those of the organizational strategic plan;</p> <p>h) clearly state the approach and principal methods by which assets and asset systems will be managed;</p> <p>NOTE 2 This may include, for example, the criteria to be adopted for determining asset criticality and value, the life cycle and sustainability basis for asset management planning, the approach to asset risk and reliability management and the methods of optimization and decision-making.</p> <p>i) provide sufficient information, direction and guidance to enable specific asset management objectives and asset management plan(s) to be produced;</p> <p>j) include criteria for optimizing and prioritizing asset management objectives and plans;</p> <p>k) be communicated to all relevant stakeholders, including contracted service providers, where there is a requirement that these persons are made aware of their asset management strategy-related obligations;</p> <p>l) be reviewed periodically to ensure that it remains effective and consistent with the asset management policy and organizational strategic plan and with other organizational policies and strategies.</p>	
56	JTCG	<p><u>6.2 Asset management objectives and plans to achieve them</u></p> <p>Top management shall ensure that asset management objectives are established and communicated for relevant functions and levels within the organization.</p> <p>The asset management objectives shall:</p> <ul style="list-style-type: none"> - be consistent with the asset management policy - be measurable (if practicable) - take into account applicable requirements - be monitored and updated as appropriate <p>The organization shall retain documented information on the asset management objectives.</p> <p>To achieve its asset management objectives, the organization shall determine:</p>	

		<ul style="list-style-type: none"> - who will be responsible - what will be done - what resources will be required - when it will be completed - how the results will be evaluated 	
57	Preliminary meeting	insert 4.3.1, 4.3.2, 4.3.3, 4.3.4 (add ref to 31000)	
58	PAS 55	<p>4.3.2 Asset management objectives</p> <p>The organization shall establish and maintain asset management objectives, which shall:</p> <ul style="list-style-type: none"> a) be measurable (i.e. quantified and/or capable of being demonstrated as achieved through objective assessment); b) be derived from, and consistent with, the asset management strategy; c) be consistent with the organization’s commitment to continual improvement; d) be communicated to all relevant stakeholders, including contracted service providers, where there is a requirement that these persons are made aware of their obligations; e) be reviewed and updated periodically by the organization to ensure that they remain relevant and consistent with the asset management strategy; f) consider legal, regulatory, statutory and other asset management requirements; g) take account of the expectations of relevant stakeholders and financial, operational and business requirements; h) take account of asset management related risks; i) consider improvement opportunities including new technologies and asset management tools, techniques and practices (see 4.6.5.2). <p>NOTE Objectives may be set for the asset management system, asset management activities and/or the performance or condition of asset systems or assets.</p>	<p>The bullets should be reviewed for overlap/merger with the JTCC 6.2 text</p> <p>Bullet i) “objectives” cannot “consider”.</p>

<p>59</p>	<p>PAS 55</p>	<p>4.3.3 Asset management plan(s)</p> <p>The organization shall establish, document and maintain asset management plan(s) to achieve the asset management strategy and deliver the asset management objectives across the following life cycle activities:</p> <ul style="list-style-type: none"> a) creation, acquisition or enhancement of assets; b) utilization of assets; c) maintenance of assets; d) decommissioning and/or disposal of assets. <p>NOTE 1 Creation, acquisition or enhancement includes design, modification, procurement, construction and commissioning.</p> <p>NOTE 2 Maintenance also includes inspection, condition monitoring, functional testing, repair, refurbishment, and/or life extension of assets. Replacement of individual assets may also be considered as maintenance of asset systems.</p> <p>NOTE 3 Asset management plan(s) can be for individual assets, asset types, asset systems, whole asset portfolios and/or the overall asset management system. However, it is essential that the plans are clearly linked to the asset management strategy and objectives that they are intended to achieve.</p> <p>The development of asset management plan(s) and life cycle activities shall include consideration of the impact of actions in one life cycle phase upon the activities necessary in other life cycle phases.</p> <p>The asset management plan(s) shall be optimized and the actions prioritized. Multiple plans (for example, covering a portfolio of asset systems or assets) shall be jointly optimized and prioritized, taking into account overall value, resource requirements, interdependencies, risks and performance impact.</p> <p>NOTE 4 Developing, optimizing, prioritizing and integrating asset management plan(s) are iterative processes that start with the development or update of the asset management strategy.</p> <p>The asset management plan(s) shall include documentation of:</p> <ul style="list-style-type: none"> a) the specific tasks and activities (actions) required to optimize costs, risks and performance of the assets and/or asset system(s); b) the designated responsibilities and authorities for the implementation of such actions and for the achievement of asset 	<p>Avoid using “essential”</p> <p>Can “optimization” be audited ?? This seems like the issue of “efficiency” which most ISO “requirements” MSS avoid.</p> <p>Bullet b) is covered by</p>
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		<p>management objectives;</p> <p>c) the means and time scales by which these actions are to be achieved.</p> <p>The asset management plan(s) shall be communicated to all relevant stakeholders to the level of detail appropriate to their participation or business interests in the delivery of the plan(s). In the development of asset management plan(s), the organization shall ensure that appropriate arrangements, functional policies, standards, process(es) and/or procedure(s), asset management enablers and resources are made available for the efficient and cost effective implementation of the plan(s).</p> <p>NOTE 5 It is essential that the plan(s) are realistic and can be implemented.</p> <p>The asset management plan(s) shall include actions to improve the asset management system (see 4.6.5 and 4.7). The asset management plan(s) shall be reviewed periodically by the organization to ensure that they remain effective and consistent with the asset management strategy and objectives.</p>	<p>JTCG 5.4</p>
<p>60</p>	<p>PAS 55</p>	<p>4.3.4 Contingency planning</p> <p>The organization shall establish, implement, and maintain plan(s) and/or procedure(s) for identifying and responding to incidents and emergency situations, and maintaining the continuity of critical asset management activities. In developing its plan(s) and procedure(s), the organization shall consider:</p> <ul style="list-style-type: none"> a) asset-related risks that, if realized, could result in incidents or emergency situations; b) potential disruptions to its critical asset management activities; c) the most appropriate actions for responding to an incident or emergency situation, and mitigating the likely consequences; d) the competence and training of personnel required to respond to emergencies; e) the needs of relevant stakeholders who may be affected by incidents or emergency situations, or who may be required to support the organization to respond to such events. <p>1. The plan(s) and/or procedure(s) shall identify how the organization will respond to, and manage, incidents and emergency situations, and shall include information on:</p> <ul style="list-style-type: none"> a) essential personnel, emergency services and external agencies, including contact details; 	<p>Is this section too oriented towards “physical assets” ??</p>

		<p>b) arrangements for internal and external communication;</p> <p>c) how the organization will maintain or restore its critical asset management activities in the event of a disruption;</p> <p>d) the provision of resources, and the maintenance of any equipment, facilities or services that could be required during disruptions, incidents or emergency situations;</p> <p>e) recording of essential information whilst responding to, and managing, incidents and emergencies;</p> <p>f) the process for returning to normal operations.</p> <p>The organization shall periodically review, test and, where deemed necessary, revise its plan(s) and/or procedure(s) for incident and emergency preparedness and response and continuity of important asset management activities.</p> <p>NOTE It is essential that the organization’s contingency plans are reviewed after testing or the occurrence of incidents, emergency situations or disruptions.</p>	
61	JTCG	<p>7. Support</p> <p><u>7.1 Resources</u></p> <p>The organization shall determine and provide the resources needed for the asset management system</p>	
62	Preliminary meeting	<p>Add bits of 4.4.1, 4.4.2, 4.5.2, 4.4.6,</p>	<p>We should see if any bits of 4.4.1 are left which are not already included in 5.2 and 5.4</p>
63	PAS 55	<p>4.4.2 Outsourcing of asset management activities</p> <p>Where an organization chooses to outsource any aspect of asset management that affects conformity with the requirements of Clause 4, the organization shall ensure control over such aspects. The organization shall determine and document how these parts will be controlled and integrated into the organizations’ asset management system. The organization shall also identify and document:</p> <p>a) the processes and activities that are to be outsourced (including the scope and boundaries of the outsourced processes and activities and their interfaces with the organization’s own processes and activities);</p> <p>b) the processes and scope for the sharing of knowledge and information between the organization and the contracted service provider(s);</p> <p>c) authorities and responsibilities within the organization for managing the outsourced processes and activities</p>	<p>There is NWIP for Outsourcing. We should get a copy and review!!</p>

64	PAS 55	<p>4.5.2 Tools, facilities and equipment</p> <p>The organization shall ensure that tools, facilities and equipment are maintained and, where appropriate, calibrated. The organization shall establish and maintain process(es) and procedure(s) to control these maintenance and calibration activities, where such tools, facilities and equipment are essential for:</p> <ul style="list-style-type: none"> a) the implementation of its asset management plan(s); b) achieving the required function(s) and performance from its assets or asset systems; c) the monitoring and measurement of performance and/or condition. 	<p>Is this clause now replaced by 9.1 third para???</p>
65	PAS 55	<p>4.4.6 Information management</p> <p>The organization shall identify the asset management information it requires to meet the requirements of Clause 4 of this specification considering all phases of the asset life cycle. The information shall be of a quality appropriate to the asset management decisions and activities it supports.</p> <p>The organization shall design, implement and maintain a system(s) for managing asset management information. Employees and other stakeholders, including contracted service providers, shall have access to the information relevant to their asset management activities or responsibilities. Where separate asset management information systems exist, the organization shall ensure that the information provided by these systems is consistent.</p> <p>The organization shall establish, implement and maintain procedure(s) for controlling all information required by Clause 4 of this specification. These procedures shall ensure:</p> <ul style="list-style-type: none"> a) the adequacy of the information is approved by authorized personnel prior to use; b) information is maintained and adequacy assured through periodic review and revision, including version control where appropriate; c) allocation of appropriate roles, responsibilities and authorities regarding the origination, generation, capture, maintenance, assurance, transmission, rights of access, retention, archiving and disposal of items of information; d) obsolete information is promptly removed from all points of issue and points of use, or otherwise assured against unintended use; e) archival information retained for legal or knowledge preservation purposes is identified; f) information is secure and, if in electronic form, is backed up and can be recovered. 	<p>Before considering this section of text look also at the new 7.5 in its entirety. Some merger between the two may be achievable.</p>

66	JTCCG	<p><u>7.2 Competence</u></p> <p>The organization shall:</p> <ul style="list-style-type: none"> - determine the necessary competence of person(s) doing work under its control that affects its asset management performance - ensure these persons are competent on the basis of appropriate education, training, or experience, - where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken - retain appropriate documented information as evidence of competence. <p>Note Applicable actions may include, for example: the provision of training to, the mentoring of, or the re-assignment of current employees; or the hiring or contracting of competent persons.</p>	
67	PAS 55	<p>4.4.3 Training, awareness and competence</p> <p>The organization shall ensure that any person(s) under its direct control undertaking asset management related activities has an appropriate level of competence in terms of education, training or experience.</p> <p>NOTE Levels of appropriate asset management competence can be ascertained through the use of a competency requirements framework (see the Bibliography for examples of relevant competency requirements frameworks).</p> <p>Where asset management activities are outsourced, the organization shall ensure that contracted service providers have arrangements in place to ascertain and demonstrate that their staff are competent.</p>	<p>I think the new 7.2 above addresses the issues of contractors but we should assure ourselves this is the case.</p> <p>Paras 1 and 4 could be covered by what is in 7.2 above</p>
68	PAS 55	<p>The organization shall develop plans for the human resources required to develop and implement its asset management system. The organization shall identify the competency requirements for these human resources and plan the training necessary for them to achieve these competencies. It shall arrange for provision of this training and retain associated records.</p>	<p>I think this needs to be addressed in the new standard</p>
69	PAS 55	<p>The organization shall establish, implement and maintain process(es) and/or procedure(s) to make persons working under its control aware of:</p> <ul style="list-style-type: none"> — a) the asset management related risks associated with their work activities and the asset management benefits of personal performance; — b) their roles and responsibilities and the importance in complying with the asset management policy, process(es) and/or procedure(s) and plan(s); c) the potential consequences of departure from specified asset management process(es) and/or procedure(s). 	<p>I think this section is all addressed in the new 7.3</p>

70	JTCCG	<p><u>7.3 Awareness</u></p> <p>Persons doing work under the organization’s control shall be aware of:</p> <ul style="list-style-type: none"> - the asset management policy - their contribution to the effectiveness of the asset management system, including the benefits of improved asset management performance - the implications of not conforming with the asset management system requirements 	
71	JTCCG	<p><u>7.4 Communication</u></p> <p>The organization shall determine the need for internal and external communications relevant to the asset management system including</p> <ul style="list-style-type: none"> - what to communicate - when to communicate - to whom it will communicate 	
72	Preliminary meeting	<p>Insert 4.4.4</p>	
73	PAS 55	<p>4.4.4 Communication, participation and consultation</p> <p>The organization shall ensure that pertinent asset management information is effectively communicated to and from employees and other stakeholders, including contracted service providers.</p> <p>The organization shall ensure consultation with stakeholders that is relevant and appropriate to their involvement in:</p> <ul style="list-style-type: none"> a) the development of the asset management strategy, objectives and plan(s); b) the development of functional policies, engineering standards, process(es) and/or procedure(s); c) risk assessments and determination of controls; d) incident investigation; e) the continual improvement of the asset management system. 	<p>While “participation” is given in the title, it is not addressed in the text. PAS 55 seems to have forgotten to copy that part from OHSAS 18001</p>
74	JTCCG	<p><u>7.5 Documented information</u></p>	
75	Preliminary meeting	<p>Insert 4.4.5, 4.4.6(?), 4.6.6</p>	<p>I think a lot of 4.4.6 is now in this section with one key</p>

			exception which is the need to design and implement an AMIS.- DISCUSS
76	JTCG	<p>7.5.1 General</p> <p>The organization’s asset management system shall include:</p> <ul style="list-style-type: none"> - documented information required by this Part of ISO XXXX - documented information determined by the organization as being required for the effectiveness of the asset management system 	It would be nice to see the phrase about things being documented where the absence of such documentation could represent a risk to the delivery of objectives
77	JTCG	<p>7.5.2 Create and update</p> <p>The process for creating and updating documented information shall ensure appropriate:</p> <ul style="list-style-type: none"> - identification and description (e.g. a title, date, author, number) - format (e.g. language, software version, graphics) and media (e.g. paper, electronic) - review and approval for adequacy <p>Note The extent of documented information for an asset management system can differ from one organization to another due to:</p> <ul style="list-style-type: none"> - the size of organization and its type of activities, processes, products and services, - the complexity of processes and their interactions, and - the competence of persons 	
78	JTCG	<p>7.5.3 Control of documented Information</p> <p>Documented information required by the asset management system and by this Part of ISO XXXX shall be controlled.</p> <p>Control of documented information shall include the following, as applicable:</p> <ul style="list-style-type: none"> - Distribution - Access - Storage and preservation - Retrieval and use 	

		<ul style="list-style-type: none"> - Control of changes (e.g. version control) - Preservation of legibility (i.e. clear enough to read) - Prevention of the unintended use of obsolete information - Retention and disposition <p>Documented information of external origin determined by the organization to be necessary for the planning and operation of the asset management system shall be identified as appropriate, and controlled.</p> <p>When establishing control of documented information, the organization shall ensure that there is adequate protection for the documented information (e.g. protection against compromise, unauthorized modification or deletion).</p> <p>Note Access implies a decision regarding the permission to view the documented information only, or the permission and authority to view and change the documented information, etc.</p>	
79	PAS 55	<p>4.4.5 Asset management system documentation</p> <p>The organization shall establish, implement and maintain up to date documentation to ensure that its asset management system can be adequately understood, communicated and operated. The asset management system documentation shall include:</p> <ul style="list-style-type: none"> a) a description of the main elements of the asset management system and their interaction, and direction to related documents; b) the asset management policy, strategy, and objectives; c) documents, including records, required by Clause 4 of this specification. 	I think this is covered?
80	PAS 55	<p>The organization shall establish documented procedure(s) and/or operating criteria if their absence could lead to failure to achieve its asset management policy, asset management strategy, asset management objectives or to control identified asset management risks.</p> <p>NOTE 1 The asset management policy, strategy and other elements of the asset management system do not have to be produced as separate documents.</p> <p>NOTE 2 It is important that documentation is proportional to the level of complexity and risks being managed. It should also be appropriate to the level at which the documentation will be used and kept to the minimum required for effectiveness and efficiency.</p>	These need to remain
81	PAS 55	<p>4.6.6 Records</p> <p>The organization shall establish and maintain records as necessary to demonstrate conformance to the requirements of its</p>	I think this is covered

		<p>asset management system and Clause 4 of this International Standard.</p> <p>Records shall be legible, identifiable and traceable.</p> <p>Records shall be maintained in accordance with the requirements of 4.4.6.</p>	
82	PAS 55	<p>4.4.7 Risk management</p>	<p>There is no specific heading for risk management in the JTCC structure. I have placed the current PAS 55 requirements (4.4.7) here under Section 7 – Support</p> <p>We should probably do a sanity check to ensure that other AM enablers that don't have a home fit neatly into this area.</p> <p>Discussion that this should go in planning?? There should definitely be an appearance in section 6. But there should also be stuff here in 7</p> <p>Discussion around referencing 31000 and changing risks. It is a fundamental basis of risk based asset management??</p> <p>Even do we beef this section up??</p>
83	PAS 55	<p>4.4.7.1 Risk management process(es)</p> <p>The organization shall establish, implement and maintain documented process(es) and/or procedure(s) for the ongoing identification and assessment of asset related and asset management-related risks, and the identification and implementation of necessary control measures throughout the life cycles of the assets.</p>	

84	PAS 55	<p>4.4.7.2 Risk management methodology</p> <p>The organization’s methodology for risk management shall:</p> <ul style="list-style-type: none"> a) be proportionate to the level of risk under consideration; b) be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive; c) include, where appropriate, the assessment of how risks change or can change over time and usage; d) provide for the classification of risks and identification of those risks that are to be avoided, eliminated or controlled by asset management objectives and plans (see 4.3.2 and 4.3.3); e) be consistent with the organization’s operating experience and the capabilities of risk control measures employed; f) provide for the monitoring of required actions to ensure both the effectiveness and the timeliness of their implementation (see 4.6.1). 	
85	PAS 55	<p>4.4.7.3 Risk identification and assessment</p> <p>The identification and assessment of risks shall consider the probability of credible events and their consequences, and shall as a minimum cover:</p> <ul style="list-style-type: none"> a) physical failure risks, such as functional failure, incidental damage, malicious damage or terrorist action; b) operational risks, including the control of the asset, human factors and all other activities which affect its performance, condition or safety; c) natural environmental events (storm, floods, etc., including the likely effects of climate change); d) factors outside of the organization’s control, such as failures in externally supplied materials and services; e) stakeholder risks, such as failure to meet regulatory performance requirements or risks to the reputation of the organization; f) risks associated with the different life cycle phases of assets (see 4.5). 	
86	PAS 55	<p>4.4.7.4 Use and maintenance of asset risk information</p> <p>The organization shall ensure that the results of risk assessments and the effects of risk control measures are considered and, as appropriate, provide input into:</p>	

		<p>a) the asset management strategy;</p> <p>b) the asset management objectives;</p> <p>c) the asset management plan(s);</p> <p>d) the identification of adequate resources including staffing levels;</p> <p>e) the identification of training and competency needs (see 4.4.3);</p> <p>f) the determination of controls for assets’ life cycle activities, and the implementation of asset management plan(s) (see 4.5);</p> <p>g) the organization’s overall risk management framework.</p> <p>The organization shall keep the results of identification of risks, risk assessments and determined controls up-to-date, and document these where not doing so could affect the delivery of the asset management objectives and the asset management strategy.</p>	
87	JTCG	8. Operation	
88	Preliminary meeting	8. Operation (of the management system)	Charles clarified that this should relate to control of all operations i.e. both management system and delivery
89	Preliminary meeting	Insert 4.5.1, 4.5.2	<p>Inserted into section on resources. Happy to move.?</p> <p>Historically this section was difficult to find a good home for. I think it could fit into either Resources or Operation.</p>
90	JTCG	<u>8.1 Operational planning and control</u>	
91		Note – Operational Control usually refers to the control over implementation of plans	Recommend adding this Note for clarity
92	JTCG	The organization shall determine, plan, implement and control those processes needed to address the risks and opportunities determined in 6.1 and to meet requirements, by:	

		<ul style="list-style-type: none"> - establishing criteria for those processes - implementing the control of these processes in accordance with the criteria - keeping documented information to demonstrate that the processes have been carried out as planned. <p>The organization shall control planned changes and review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary</p> <p>The organization shall control processes that are contracted-out or outsourced.</p>	
93	Preliminary meeting	Insert 4.4.9	
94	PAS 55	<p>4.5.1 Life cycle activities</p> <p>The organization shall establish, implement and maintain process(es) and/or procedure(s) for the implementation of its asset management plan(s) and control of activities across the whole life cycle, including:</p> <ul style="list-style-type: none"> a) creation, acquisition or enhancement of assets; b) utilization of assets; c) maintenance of assets; d) decommissioning and/or disposal of assets. <p>The requirement for documentation to control these asset life cycle activities shall be in accordance with 4.4.5. The process(es) and/or procedure(s) for the implementation of the asset management plan(s) and for the control of life cycle activities shall:</p> <ul style="list-style-type: none"> a) be sufficient to ensure that operations and activities are carried out under specified conditions; b) be consistent with the asset management policy, asset management strategy and asset management objectives; c) ensure that costs, risks and asset system performance are controlled across the asset life cycle phases. <p>The organization shall ensure that the planned arrangements, functional policies, standards, process(es) and procedure(s), asset management enablers and resources are utilized for the efficient and cost effective implementation of the asset management plan(s).</p>	

95	PAS 55	<p>4.4.9 Management of change</p> <p>Where existing arrangements are revised, or new arrangements are introduced that could have an impact on asset management activities, the organization shall assess the associated risks before the arrangements are implemented. The new or revised arrangements to be considered shall include:</p> <ul style="list-style-type: none"> a) revised organizational structure, roles or responsibilities; b) revised asset management policy, strategy, objectives or plans; c) revised process(es) or procedure(s) for asset management activities; d) the introduction of new assets, asset systems or technology; e) the introduction of new contractors or suppliers. <p>The organization shall ensure that risks are managed in accordance with 4.4.7.</p>	<p>Preliminary meeting suggested this goes here. I'm not sure it fits. Perhaps it might go better in Section 7 on support??</p>
96	JTCG	<p>9. Performance Evaluation</p>	
97	Preliminary meeting	<p>Insert 4.6.1</p>	
98	JTCG	<p><u>9.1 Monitoring, measurement, analysis and evaluation</u></p> <p>The organization shall determine:</p> <ul style="list-style-type: none"> - what needs to be measured and monitored; - the methods for monitoring, measurement, analysis and evaluation, as applicable, to ensure valid results. - when the monitoring and measuring shall be performed; - when the analysis and evaluation of monitoring and measurement results shall be performed. <p>The organization shall evaluate the asset management performance and the effectiveness of the asset management system.</p> <p>Additionally, the organization shall:</p> <ul style="list-style-type: none"> - take action when necessary to address adverse trends or results before a nonconformity occurs. - retain relevant documented information as evidence of the results. 	<p>Need to consider how we deal with both strategic and asset performance</p>
99	Preliminary meeting	<p>Insert 4.6.2, 4.6.3</p>	

100	PAS 55	<p>4.6.1 Performance and condition monitoring</p> <p>The organization shall establish, implement and maintain process(es) and/or procedure(s) to monitor and measure the performance of the asset management system and the performance and/or condition of assets and/or asset systems. The process(es) and/or procedure(s) shall provide for the consideration of:</p> <ul style="list-style-type: none"> a) reactive monitoring to identify past or existing nonconformities in the asset management system, and any asset-related deterioration, failures or incidents; b) proactive monitoring to seek assurance that the asset management system and assets and/or asset systems are operating as intended. This shall include monitoring to ascertain that the asset management policy, strategy and objectives are met, the asset management plan(s) are implemented, and that the process(es), procedure(s) or other arrangements to control asset life cycle activities are effective; c) leading performance indicators to provide warning of potential non-compliance with the performance requirements of the asset management system and/or the assets and/or asset systems; d) lagging performance indicators to enable detection of, and to provide data about, incidents and failures of the asset management system, and for incidents, failures or deficient performance of assets and/or asset systems; e) both qualitative and quantitative measures, appropriate to the needs of the organization; f) monitoring the overall effectiveness and efficiency of the asset management system; g) recording of monitoring and measurement data and results to facilitate subsequent analysis of problem causes to assist in determining corrective or preventive actions and/or to facilitate continual improvement (in accordance with 4.6.5). <p>When setting the frequency of condition or performance monitoring and the parameters for measurement the organization shall consider, at a minimum, the costs of monitoring, the risks of failure or nonconformity, and potential deterioration mechanisms and deterioration rates.</p>	<p>Bullet d) OHSAS 18001 was specifically requested not to use the term “lagging” due to translation problems. (Translators wonder why you are talking about “insulation”). OHSAS talks about “pro-active” and “re-active” indicators.</p> <p>Bullet f) is now covered by JTCG 9.1 para 2</p>
101	PAS 55	<p>4.6.2 Investigation of asset-related failures, incidents and nonconformities</p> <p>The organization shall establish, implement and maintain process(es) and/or procedure(s) for the handling and investigation of failures, incidents and nonconformities associated with assets, asset systems and the asset management system. These process(es) and/or procedure(s) shall define responsibility and authority for:</p>	<p>Consider moving this section to 10.1</p>

		<p>a) taking action to mitigate consequences arising from a failure, incident or nonconformity;</p> <p>b) investigating failures, incidents and nonconformities to determine their root cause(s);</p> <p>c) evaluating the need for preventive action(s) to avoid failures, incidents and nonconformities occurring;</p> <p>d) communicating, as appropriate to relevant stakeholders, the results of investigations and identified corrective action(s) and/or preventive action(s).</p> <p>Investigations shall be performed within a timescale commensurate with the actual and/or potential consequences of the failure, incident or nonconformity.</p>	
102	PAS 55	<p>4.6.3 Evaluation of compliance</p> <p>The organization shall establish, implement and maintain process(es) and/or procedure(s) for evaluation of its compliance with applicable legal and other regulatory or absolute requirements, and shall determine the frequency of such evaluations. The organization shall keep records of the results of these evaluations.</p>	
103	JTCG	<p><u>9.2 Internal Audit</u></p> <p>The organization shall conduct internal audits at planned intervals to provide information to assist in the determination of whether the asset management system</p> <p>a) conforms to</p> <ul style="list-style-type: none"> ▪ the organization’s own requirements for its asset management system ▪ the requirements of this Part of ISO XXXX <p>b) is effectively implemented and maintained.</p> <p>The organization shall</p> <ul style="list-style-type: none"> - plan, establish, implement and maintain an audit programme(s), including the frequency, methods, responsibilities, planning requirements and reporting, while taking into consideration the importance of the processes concerned and the results of previous audits. - define the audit criteria and scope for each audit - select auditors and conduct audits to ensure objectivity and the impartiality of the audit process. - ensure that the results of the audits are reported to relevant management 	

		- retain documented information as evidence of the results.	
104	Preliminary meeting	Insert 4.6.4	
105	PAS 55	<p>4.6.4 Audit</p> <p>The organization shall ensure that audits of the asset management system are conducted to:</p> <ul style="list-style-type: none"> — a) determine whether the asset management system: <ul style="list-style-type: none"> — 1) conforms to planned arrangements for asset management, including the requirements of Clause 4; — 2) has been implemented and is maintained; — 3) is effective in meeting the organization’s asset management policy, asset management strategy and asset management objectives. — b) provide information to management. <p>Audit programme(s) for elements of the asset management system shall be planned, established, implemented and maintained by the organization, based on the results of risk assessments of the organization’s activities, and the results of previous audits.</p> <p>Audit process(es) and/or procedure(s) shall be established, implemented and maintained to address:</p> <ul style="list-style-type: none"> — a) the responsibilities, competencies and requirements for planning and conducting audits, reporting results and retaining associated records; — b) the determination of audit criteria, scope and methods that are commensurate with the business significance and risks being managed. <p>The selection of auditors and the conduct of audits shall ensure objectivity and the impartiality of the audit process. Audits shall be conducted by personnel independent of those having direct responsibility for the activity being examined.</p> <p>NOTE 1 The term “independent” here does not necessarily mean external to the organization.</p> <p>NOTE 2 It is recommended that the selection of auditors considers their level of understanding of good practice in asset management and familiarity with the requirements of Clause 4 of this PAS.</p>	Covered by JTCG text, apart from Note 2

106	JTCG	<p><u>9.3 Management review</u></p> <p>Top management shall review the organization's asset management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.</p> <p>The management review shall include consideration of:</p> <ul style="list-style-type: none"> - the status of-actions from previous management reviews; - changes in external and internal issues that are relevant to the asset management system, - information on the asset management performance, including trends in: <ul style="list-style-type: none"> ▪ nonconformities and corrective actions ▪ monitoring and measurement evaluation results and ▪ audit results, - opportunities for continual improvement. <p>The outputs of the management review shall include decisions related to continual improvement opportunities and the possible need for changes to the asset management system</p> <p>The organization shall-retain documented information as evidence of the results of management reviews.</p>	
107	Preliminary meeting	<p>Insert 4.7</p>	
108	PAS 55	<p><u>4.7 Management review</u></p> <p>Top management shall review at intervals that it determines appropriate the organization’s asset management system to ensure its continuing suitability, adequacy and effectiveness. Reviews shall include assessing the need for changes to the asset management system, including asset management policy, asset management strategy and asset management objectives.</p> <p>Input to management reviews shall include:</p> <ul style="list-style-type: none"> a) results of internal audits and evaluations of compliance with applicable legal requirements and with other requirements to which the organization subscribes; b) the results of communication, participation and consultation with employees and other stakeholders (see 4.4.4); 	

		<p>c) relevant communication(s) from external stakeholders, including complaints;</p> <p>d) records or reports on the asset management performance of the organization;</p> <p>e) the extent to which objectives have been met;</p> <p>f) performance in addressing incident investigations, corrective actions and preventive actions;</p> <p>g) follow-up actions from previous management reviews;</p> <p>h) changing circumstances, including developments in legal and other requirements related to asset management and changes in technology.</p> <p>The management review shall also cover aspects of the asset management system, if any, that are outsourced to a contracted service provider.</p> <p>The outputs from management reviews, consistent with the organization’s commitment to continual improvement, shall include decisions and actions for possible changes to:</p> <ul style="list-style-type: none"> a) asset management policy, strategy and objectives; b) asset management performance requirements; c) resources; d) other elements of the asset management system. <p>Outputs from management reviews, which are relevant to the organizational strategic plan, shall be made available to top management for consideration in reviews of the organizational strategic plan.</p> <p>Records of management reviews shall be retained and information relevant to specific employees, contracted service providers or other stakeholders made available for communication purposes (see 4.4.4).</p>	
109	JTCG	<p>10. Improvement</p>	
110	JTCG	<p>10.1 Nonconformity and corrective action</p> <p>The organization shall:</p>	

		<ul style="list-style-type: none"> - identify nonconformities, - react to the nonconformities, and as applicable <ul style="list-style-type: none"> ▪ take action to control, contain and correct them, ▪ deal with the consequences <p>The organization shall also evaluate the need for action to eliminate the causes of nonconformities, including:</p> <ul style="list-style-type: none"> - reviewing nonconformities - determining the causes of nonconformities, - identifying if potential similar nonconformities exist elsewhere in the asset management system - Evaluating the need for action to ensure that nonconformities do not recur or occur elsewhere - determining and implementing action needed, and - reviewing the effectiveness of any corrective action taken. - making changes to the asset management system, if necessary <p>Corrective actions shall be appropriate to the effects of the nonconformities encountered.</p> <p>The organization shall retain documented information as evidence of</p> <ul style="list-style-type: none"> - the nature of the nonconformities and any subsequent actions taken, and - the results of any corrective action 	
111	Preliminary meeting	<p>Insert 4.6.5.1, and 4.6.5.2, 4.4.9</p>	<p>Have put 4.6.5.2 under 10.2 for continual improvement</p> <p>Management of Change. Need to consider where this best lives. I am more and more tempted by the Section 7 – support which maps neatly to AM Enablers in PAS 55:2008</p>
112	PAS 55	<p>4.6.5.1 Corrective and preventive action</p> <p>The organization shall establish, implement and maintain process(es) and/or procedure(s) for instigating:</p> <p>a) corrective action(s) for eliminating the causes of observed poor performance and nonconformities identified from investigations, evaluations of compliance and audits to avoid their recurrence;</p>	

		<p>b) preventive action(s) for eliminating the potential causes of nonconformities or poor performance.</p> <p>Any corrective or preventive actions taken and their timings shall be commensurate with the risk(s) encountered.</p> <p>Where a corrective or preventive action identifies new or changed risks, or the need for new or changed process(es), procedure(s) or other arrangements to control asset life cycle activities, the proposed actions shall be risk assessed prior to implementation (see 4.4.7).</p> <p>The organization shall keep records of the corrective and preventive actions (see 4.6.6) taken and communicate these to relevant stakeholders.</p> <p>The organization shall ensure that any necessary changes arising from corrective and/or preventive actions are made to the asset management system.</p>	
113	JTCG	<p><u>10.2 Continual improvement</u></p> <p>The organization shall continually improve the suitability, adequacy or effectiveness of the asset management system.</p> <p>NOTE The organization can use the processes of the asset management system such as leadership, planning and performance evaluation, to achieve improvement</p>	
114	PAS 55	<p>4.6.5.2 Continual improvement</p> <p>The organization shall establish, implement and maintain process(es) and/or procedure(s) for identifying opportunities and assessing, prioritizing and implementing actions to achieve continual improvement in:</p> <ul style="list-style-type: none"> a) the optimal combination of costs, asset related risks and the performance and condition of assets and asset systems across the whole life cycle; b) the performance of the asset management system. <p>The organization shall actively seek and acquire knowledge about new asset management-related technology and practices, including new tools and techniques, and these shall be evaluated to establish their potential benefit to the organization.</p>	