	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Customer request number	DEM-03388-X3T7a
Customer request description	Enterprise Engineering Management System(EEDMS)

PLEASE TAKE NOTE: This BRS(DEM-3388-X3T7a) is an addendum to the BRS signed on 20/04/2020. BRS name and number DEM-03388-X3T7 BRSF_Enterprise Engineering Management System, embedded in this BRS page 19 Section 8 References. This BRS must be read in conjunction with the embedded BRS file.

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Contents

1.

DOCUMENT TRACKER

3

2.

STAKEHOLDER DETAILS.....

4

2.1

Customer Stakeholder Information

4

2.2

Group IT Information.....

5

3.

GLOSSARY OF TERMS / DEFINITIONS.....

6

4.

ABBREVIATIONS

7

5.

REASON FOR THE REQUIREMENT.....

7

5.1

Current business challenges / issues that need to be addressed.....

7

5.2

High level gaps between the “As-Is” and “To-Be” state

8

6.

AS IS AND TO BE BUSINESS PROCESS ACTIVITY MAPPING

8

6.1

As-is business process.....

8

6.2

To-be business process

8

6.3

High level Requirements.....

9

6.4

Detailed requirements and Business rules.....

10

6.5

Data flow diagram / Context diagram

30

No data flow diagram required for this request.....

30

6.6

Non-functional requirements

30

7.

INFORMATION / DATA REQUIREMENTS

31

8.

USER INTERFACE REQUIREMENTS

31

9.

SYSTEM INTEGRATION REQUIREMENTS

32

10.

ACCESS REQUIREMENTS.....

32

11.

ARCHIVING REQUIREMENTS (not mandatory for change requests).....

33

12.

DISASTER RECOVERY REQUIREMENTS (not mandatory for change requests).....

33

13.

BUSINESS CONTINUITY REQUIREMENTS (not mandatory for change requests)

33

14.

LEGAL REQUIREMENTS

33

15.

INTELLECTUAL PROPERTY

34

16.

PRECONDITIONS.....

35

17.

REFERENCES

36

19.


DOCUMENT APPROVAL

38

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

1. DOCUMENT TRACKER

Date	Author Name	Changes (section changed, page number, from what to what)
31-01-2022	Nombali Mashile	Initial draft
07-02-2022	Nombali Mashile	Updating BRSF with SMEs comments
10-02-2022	Nombali Mashile	Met with business SME's, 1 st session to confirm and update their requirements
15-02-2022	Nombali Mashile	Met with business SME's , 2 nd session to confirm and update their requirements
18-02-2022	Nombali Mashile	Sent draft BRS to business SMEs for review
24-02-2022	Nombali Mashile	Updating SMEs inputs and feedback
01-03-2022	Nombali Mashile	Sent draft BRS to business for final review
03-03-2022	Nombali Mashile	Sent BRS for QA1
04-03-2022	Nombali Mashile	QA1 passed
11-03-2022	Nombali Mashile	BRS circulating for sign-off

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

2. STAKEHOLDER DETAILS


2.1 Customer Stakeholder Information

Name	Department & Division	Role / Expertise	Contact Info	Participation
Mary Mammen	Protection Telecommunication Metering & Control(PTM&C) Control & Automation Technology and Support (CATS) Tx	Business Requestor(s)/ Business Subject Matter Expert	011 800 5211 083 679 4853	To participate in all workshops and review draft BRS.
Eddie Dalbock	Computer Aided Design	Business Subject Matter Expert	011 871 3521 082 579 3242	To participate in all workshops and review draft BRS.
Mark Pepper	SE Substation Design Costal Tx	Business Subject Matter Expert	011 800 3933 082 316 5472	To participate in all workshops and review draft BRS.
Anton Naude	Civil Engineering Tx	Business Subject Matter Expert	011 800 2141	To participate in all workshops and review draft BRS.
Angus Kerr	PTM&C Protect Technology & Support Tx	Business Subject Matter Expert	031 710 5247 083 797 8832	To participate in all workshops and review draft BRS.
Nomvula Sgudu	EA Application Design Tx	Business Subject Matter Expert	013 693 4535 072 450 9729	To participate in all workshops and review draft BRS.
Kashveer Jagdaw	PTM&C Protect Technology & Support Tx	Senior Engineer Electrical	031 710 5282 084 555 9174	To participate in all workshops and review draft BRS.
Deepak Rampersad	PTM&C Substation Automation Integration Tx	Chief Technologist Electrical	011 800 6641 083 635 9028	To participate in all workshops and review draft BRS.
Nelson Luthuli	PTM&C Engineering Tx	Senior Manager PTM&C	014 565 1334 072 539 7311	To participate in all workshops and review draft BRS.
Ronny Lehutso	PTM&C Substation Automation Integration Tx	Senior Technologist Electrical	016 430 7032 073 077 1744	To participate in all workshops and review draft BRS.
Richard McCurrah	Tx Information Management	Senior Manager IM	011 871 3145 083 659	To review and approve the BRS.

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

2.2 Group IT Information

Name	Department & Division	Role / Expertise	Contact Info	Participation
Nombali Mashile	Group Information Technology Management Operations	Group IT Business Analyst	013 693 4107 082 673 1169	Compiled BRS with SMEs.
Riaan Van Wyk	Group IT Business Relationship Manager Business Solutions and Development Services	Group IT Business Process Manager	021 915 2142 082 923 6655	Review process (but not limited to)
Themba Notununu	Group IT Business Relationship Manager Business Solutions and Development Services	Group IT Business Relationship Manager	011 800 3963 083 308 9724	Review process (but not limited to)
Thabani Dhlamini	Group IT Portfolio Manager Business Solutions and Development Services	Group IT Portfolio Manager	011 800 3414 082 301 0190	Review process (but not limited to)
Shaun Solomon	Group IT Architect (for all requests except change requests) Business Solutions and Development Services	Group IT Architect	011 800 3833 083 557 2077	Review process (but not limited to)

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		


3. GLOSSARY OF TERMS / DEFINITIONS

Term	Definition
Business Continuity	Business continuity encompasses planning and preparation to ensure that an organization can continue to operate in case of serious incidents or disasters and is able to recover to an operational state within a reasonably short period.
Business Requirements Specification	Business requirements specification is the eliciting, analysing and documenting of business requirements early in the development cycle to guide the design of the solution.
Business Rule	A business rule is a rule that defines or constrains some aspect of business and always resolves to either true or false. Business rules are intended to assert business structure or to control or influence the behaviour of the business. Business rules describe the operations, definitions and constraints that apply to an organization. Business rules can apply to people, processes, corporate behaviour and computing systems in an organization, and are put in place to help the organization achieve its goals.
Checksum	A digit representing the sum of the correct digits in a piece of stored data, against which later comparisons can be made to detect errors in the data.
Configuration	An arrangement of parts, logics or elements in a particular form, figure or combination for a device
Configuration Management	This is responsible to capture and maintain engineering information that consist of functional and physical attributes, design and operational information throughout the lifecycle of Eskom’s transmission assets.
Disaster Recovery / Disaster Recovery Plan	A disaster recovery plan (DRP) is a documented process or set of procedures to recover and protect a business IT infrastructure in the event of a disaster. Such a plan, ordinarily documented in written form, specifies procedures an organization is to follow in the event of a disaster. It is "a comprehensive statement of consistent actions to be taken before, during and after a disaster".
Documents	Documents refer to all types of saved files. Documents may contain text, images, audio, video, configuration files and other types of data.
Process	Set of activities that describe how an activity is executed.
Repository	A receptacle or place where things are deposited or stored.
System	An organized, purposeful structure that consists of interrelated and interdependent elements (components, entities, factors, members, parts etc.). These elements continually influence one another (directly or indirectly) to maintain their activity and the existence of the system, in order to achieve the goal of the system

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

4. ABBREVIATIONS

Abbreviation	Description
ARIS	Architecture of Integrated Information Systems
BCP	Business Continuity Plan
BRS	Business Requirements Specification
CATS	Control & Automation Technology and Support
CAD	Computer Aided Design
CIED	Configured Intelligent Electronic Device
CR	Change Request
DR	Disaster Recovery
GIT	Group Information Technology Division, also referred to as Group IT
IED	Intelligent Electronic Device
IT	Information Technology
KPA	Key Performance Area
KPI	Key Performance Indicator
OT	Operational Technology
PCM	Process Control Manual
PDE	Power Deliver Engineering
PTM&C	Protection Telecommunication Metering & Control
Tx	Transmission

5. REASON FOR THE REQUIREMENT

5.1 Current business challenges / issues that need to be addressed

In order to ensure that suitable, cost-effective business solutions are in place, it is the best practise to survey the market for alternative solutions. Business requires an engineering and technical document management solution which will assist Tx to perform the following:

- ↳ Document management
- ↳ Creation of 3D symbols
- ↳ Wire management
- ↳ Management of interrelated diagram
- ↳ Management of electrical design tools
- ↳ Metadata management
- ↳ Cabling management

A system that will be automated and enable the engineering functions and document management to be efficient and effective.

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

5.2 High level gaps between the “As-Is” and “To-Be” state

As Is Statement	To Be Statement	Therefore the high level gap is:
There is no cost-effective business solution in place for an engineering and technical document management.	<p>A cost-effective business solution that will fulfil the requirement of an engineering and technical document management solution</p> <p>The solution should comply with International Organization for Standardisation (ISO) 55000 in relation to asset design, support and maintenance.</p>	<p>Sustained vendor support that ensures the supply / design, testing, installation, commissioning, maintenance and support of the provided application.</p> <p>There is no cost-effective business solution that will fulfil the requirement of an engineering and technical document management solution</p>

6. AS IS AND TO BE BUSINESS PROCESS ACTIVITY MAPPING

6.1 As-is business process

PCM number	Process description	Process Link
240-170000557	The current tools and management of software configurations for protection and control devices in Transmission	https://hyperwave.eskom.co.za/240-170000557
240-53458797	Process Control Manual (PCM) for Perform PTM&C Systems Engineering	https://hyperwave.eskom.co.za/240-53458797
240-46977377	Manage Engineering Interfaces	https://hyperwave.eskom.co.za/240-46977377
240-53458961	Perform Line Engineering	https://hyperwave.eskom.co.za/240-53458961
240-53459042	Perform Substation Engineering	https://hyperwave.eskom.co.za/240-53459042


6.2 To-be business process

No change in business processes required.

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

BUSINESS REQUIREMENTS

6.3 High level Requirements

In order to ensure that suitable, cost-effective business solutions are in place, it is the best practise to survey the market for alternative solutions. Business requires an engineering tool and technical management solution which will assist Tx to perform the following:

- ↳ Document management
- ↳ Creation of 3D symbols
- ↳ Wire management
- ↳ Management of interrelated diagram
- ↳ Management of electrical design tools
- ↳ Metadata management
- ↳ Cabling management

A system that will be automated and enable the engineering functions and document management to be efficient and effective See below structure diagram.

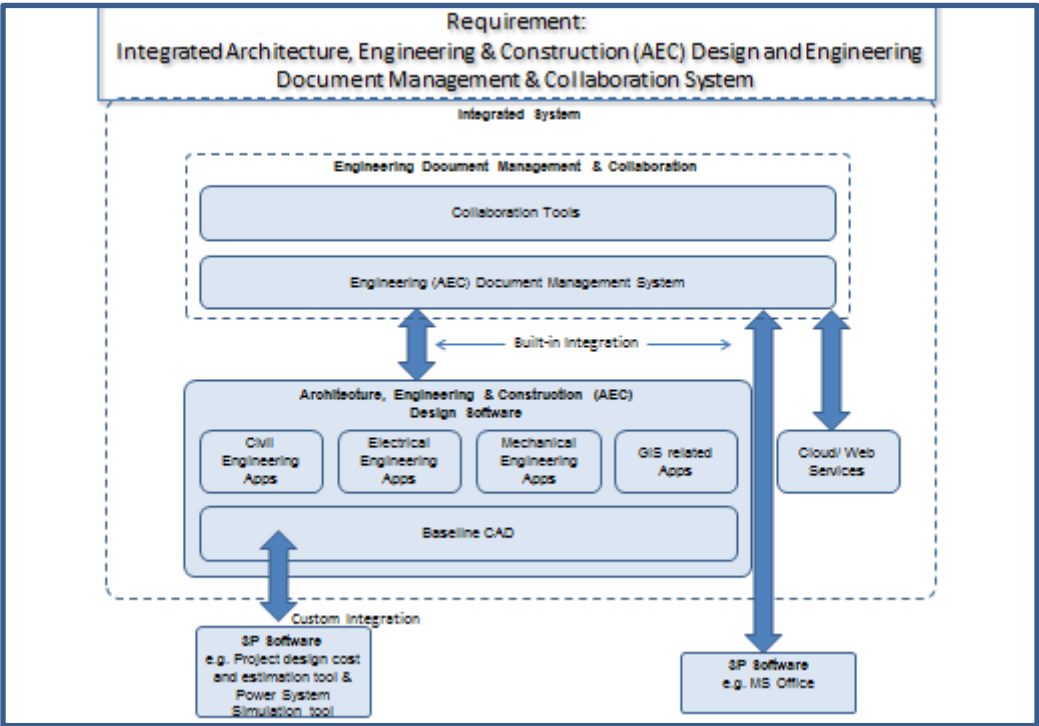



Figure 1: An overview of integrated engineering document and collaboration system





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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

According to the requestor the high level requirements support the following *strategic objective/s*:

Eskom Holdings Corporate Plan FY22–FY24 Rev 11 Unique identifier 240-56927206 Page: 25					
Eskom strategic objectives			2021–2023 SIS objectives²		
	Pursue financial and operational sustainability		Ensure and maintain a financially viable and sustainable company		
			Support transparency including divisional reporting to improve line of sight of operations and align to regulatory framework		
	Facilitate future competitive energy industry		Provide reliable, predictable and affordable electricity in line with NERSA models		
	Modernise the power system		Respond to the changing energy landscape		
	Strive for net zero emissions by 2050 with an increase in sustainable jobs		Reduce the impact of Eskom's operations on the environment		
			Consolidate socio economic contribution to ensure alignment to national imperatives for economic growth, industrialisation, skills development and job creation		


6.4 Detailed requirements and Business rules

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
Document Management	BRS1	Capability for the solution to be flexible to allow for various document types to be checked in and out. This includes but is not limited to device configuration files, drawings; word documents; excel spreadsheets, pdfs, substation configuration description, Intelligent Electronic Device (IED) description, Configured Intelligent Electronic Device (CIED) description.		5
	BRS 2	Capability for the system to be able to handle the varying document sizes, as configuration sizes are dependent on the tools being used. The document sizes are typically larger than 1Mb in size and can range up to 80GB.		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
	BRS 3	Capability for the system to allow user defined numbering conventions to be implemented		5
	BRS 4	Metadata shall be user definable during system development and includes data types, length restrictions and formats. There shouldn't be any restrictions placed on string lengths by the system.		5
	BRS 5	Capability for the solution to allow new metadata fields to be added as required by an Eskom administrator during the system life cycle.		5
	BRS 6	Capability for the system to be able to force the user to complete all mandatory fields to ensure data integrity.		5
	BRS 7	Capability for the system to be able to validate metadata information captured through the use of business rules, drop down selection boxes and dependent pick lists.		5
	BRS 8	The system to have the capability to allow for free text fields.		5
	BRS 9	The system metadata to have the capability to allow links to the plant breakdown structure.		5
	BRS 10	The system must be able to keep all revisions of technical documents.		5
	BRS 11	The system to have the capability to allow the retrieval of previous revisions of a document, i.e. in the case that the user have to roll-back to the older revision.		5
	BRS 12	The system to have the ability to allow for different retention rules to be setup per type of document.		5
	BRS 13	The system to have the capability to manage document versions, by ensuring that each new version is given a unique version number.		5
	BRS 14	The system to allow previous document version to become non-editable but remains readable and accessible.		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
	BRS 15	The system to be able to delete the latest version of the document without deleting all the previous versions		5
	BRS 16	The system to have the capability of retaining documents for the life of the plant.		5
	BRS 17	The system to have the capability to store more than one file rendition per drawing/ document number		5
	BRS 18	The system to have the capability for a mechanism to handle drawing packs. Secondary plant drawing packs can be in excess of 60 individual sheets. The requirement is that there needs to be a mechanism to handle the whole pack with regards to searching, selecting, downloading, creating pdf renditions, printing thereof, and ability to issue a transmittal for the whole pack.		5
	BRS 19	Capability for the plant breakdown structure to be aligned with SAP Plant Maintenance.		5
	BRS 20	The system to have a capability of handling “n” levels in the plant breakdown structure and have the capability of assigning documents at any level as per the <i>Capturing of information about Tx plant standard 240-133681615</i> .		5
	BRS 21	Capability of the system to have the ability to keep track key attributes linked to the plant break down structure that is not limited to: <ul style="list-style-type: none"> a. make b. model c. scheme number d. firmware version 		5
	BRS 22	Capability for the system to allow for the creation of current and completed projects’ design documentation repository. This area will be used for projects.		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
	BRS 23	Capability for the system to provide users with a personal working folder that is only accessible and visible to that user or a defined user group, to capture “work in progress” documents.	BR1: Working folder documents should not require a document number from the system.	5
	BRS 24	Ability to create external references / hyperlinks to engineering standards, minutes of project meetings and design review team approvals currently stored on external systems such as Hyperwave, Open Text or SharePoint.		5
	BRS 25	The system to have the capability to allow for cross referencing of files for example, to see where a version of a standard has been applied, cross-reference drawings and documents e.g. master drawings and standards.		5
	BRS 26	The system to have a capability to manage the check-in and check-out of technical documents for editing, by: <ul style="list-style-type: none"> a. Ensuring that only one user can check-out a specific document for modification, at a time. b. Set up a flag / icon / indication to inform other users that the document is being edited. The details such as name, unique number, contact details and email address of the specific user who checked out the document must be displayed. c. Notify the user that he/she will be responsible to check-in the document after updating. d. Keep track of the documents that are checked out with the 		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
		<p>associated users who checked it out.</p> <p>e. Allow other users to view the last approved document, even though a new revision is being worked on.</p> <p>f. Allow a few super users to over-ride the checkout, in the case of an emergency, where another user is required to make changes to this document. There must be an indication/flag that the super-user is over-riding the check-out.</p> <p>g. Allow for escalations to the responsible person, when documents are not checked-in to the system after a specified period of time. The system must allow for the check-out to be cancelled, if the user has not checked the document back in, after a specified period of time.</p> <p>h. Allow a user to complete a mandatory field describing the changes made, when checking-in a document. This note should be associated with the document revision.</p>		
	BRS 27	Capability for the system to allow users to check-in and check-out working documents daily to enable these documents to be backed up.		5
	BRS 28	Capability for the system to manage the versions of technical documents being saved by ensuring that each new version is saved with a system generated unique version number. This will mitigate the risk of users working on the local PC drive.		5
	BRS 29	To ensure file integrity, the system is to perform a checksum or hash function e.g. md5 during		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
		the file upload and down load process.		
	BRS 30	The project templates to be user definable per division and instance.		5
	BRS 31	The system to support a distributed architecture with slow remote links.		5
	BRS 32	The system to have a capability for accessibility over low bandwidth networks.		5
	BRS 33	The system to cater for registering, checking in and checking out of variable sized documents from any location across the Eskom network.		5
	BRS 34	The system to allow for user roles to be defined as required.		5
	BRS 35	The system to be configurable to allow groups to have full rights (add/ edit/ view) to their data, while providing other users with limited / only view access.		5
	BRS 36	The system to have the capability to allow for centralized user management by allowing administrators to manage users from a central point.		5
	BRS 37	The system to have the capability to manage system access using role based security.		5
	BRS 38	The system to allow the access to be defined as per workflow steps. The user access roles are: <ul style="list-style-type: none"> a. Basic user-with view and download only access b. Advanced user-with read and writes access c. Super user- with full read and write access and the ability to override a checkout e.g. if a user is ill in the case of emergencies. d. Administrator- with the ability to add/remove user access and manage the system 		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
	BRS 39	The system to have the capability to allow required workflows to be configured and used, as per the related PCMs. This should include document management; engineering change management, and stakeholder requirements management.		5
	BRS 40	The system to have the capability to allow for documents to be searched based on document number; any metadata field or combination thereof.		5
	BRS 41	The system to have the capability to provide a function for bulk uploading of data.		5
	BRS 42	The system to have the capability to allow for the required transmittals to be configured.		5
	BRS 43	Capability for the system to allow the user to identify technical documentation that will be required to be sent as a package to an internal or external contractor via transmittals. This package will contain the documents required to complete the work required.		5
	BRS 44	Transmittal capability for the system to facilitate the use of work packages to manage individual jobs or a number of jobs that could be grouped together to form a design output.		5
	BRS 45	Transmittal capability allowing for a document or group of documents to be pushed to another system or server location for the purpose of sharing with 3rd party contractors.		5
	BRS 46	The system to have the capability to allow for a historical snapshot of the system at a date specified by the user.		4
	BRS 47	The system to have the capability to send an email notification to: <div> a. Remind the user to check in the document, after a </div>		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
		specified period of time, usually about a week; b. Notify the responsible party that the document has not been checked in, after the maximum time period has expired. In most cases escalation should happen if the document has been checked out for over a week, however in the case of working directories the time period will be daily; c. All affected users when a new / updated configuration is loaded onto the system; and d. Inform all people involved in a project, when there is an update in any of the related project documents.		
	BRS 48	The system to have the capability to generate user defined reports and have the capability to save these reports. The following are examples of required reports: a. Weekly reports, indicating all the documents that are checked out, how long it has been checked out, name of the person who has check out the document by and any comments added. b. A dashboard overview of all documents flagged as being edited; along with its high-level status. i.e. within allocated time / overdue / escalated. c. A dashboard overview of all documents that are flagged as being checked out for edited, versus the allocated user. d. A design base completeness report, which indicates what documents are missing, per as-built folder, against a predefined required documents checklist.		5
	BRS 49	The system to have the capability to provide a full system audit trail		5

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Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
		that must be recorded for the actions of checking-in documents, checking-out documents and notifications, as well as administrative functions. The following information needs to be kept: a. User b. Date and time c. Action performed.		
	BRS 50	The system to have the capability to maintain an error log for all system errors.		4
	BRS 51	The system to have a capability to retain error logs for a minimum of 3 months.		5
	BRS 52	The system to have a capability to: a. Adhere to the Eskom Information Security policies, procedures and standards. b. Adhere to Eskom Operational Technology (OT) Security and OT/Information Technology (IT) remote access standard. c. Comply with Eskom's login standards and provide for a second level of authentication. d. Comply with Eskom database standards, to store all critical information loaded onto the system.		5
	BRS 53	Capability for documents to be checked-in and verified. Should there be a change in the content of the document, then the system to automatically revise that version of the document during the check-in process.		4
	BRS 54	The system to have the capability to allow for both automatic and manual version updates upon change of a document. Where there are no changes to the document, in the case of automatic version updates, the current version must remain		3

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Document Management System Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
		unchanged during the check-in process.		
	BRS 55	Capability to move documents from one location to another.	BR2: Only authorised and authenticated users are to be able to check-out, check-in, delete, and edit the document.	5

Specialised Engineering Tools Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
Drawing tools management	BRS 56	Ability to perform 3D modelling and to get 2D drawing from the 3D models.		5
	BRS 57	The capability to cross reference terminal points that interface with other sets of drawings. Cross referencing of primary plant equipment to manufactures drawings and project documentation such as not limited to scope of work, asset specification, proformas		5
	BRS 58	Capability for built- in error checking reports on drawing conditions including the: <ul style="list-style-type: none"> a. Short circuits b. Gaps in the circuit c. Duplicate device identifiers d. Duplicate wire numbers e. Missing part numbers f. Missing cross-references g. Over-assignment of contacts. 		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Specialised Engineering Tools Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
	BRS 59	Capability for the system to be able to run an electrical design rules check on the circuit in the electrical schematic design tool, in order to determine that there are no errors such as short circuits, back feeds and open circuits in the design.		5
	BRS 60	Capability to create a part number for all components used in a 2D scheme drawing such as terminal points, wire lines and contacts.		5
	BRS 61	Capability to enable an automatic and accurate generation of additional documents linked to a parts database that is linked to every object.		5
	BRS 62	Ability to set-up local and network parts databases.		5
	BRS 63	Ability to assign component parts records to symbols.		5
	BRS 64	Ability to create parts records with text to auto-fill attributes linking descriptions to the schematic.		5
	BRS 65	Ability to create parts records that define family usage such isolator contacts.		5
	BRS 66	Capability to automatically assign and formulate a system or method that can assign number parts.		5
Creation of 3D symbol	BRS 67	Capability to create 3D symbols associated with PTM&C standards <ul style="list-style-type: none"> a. Linking of symbols b. Creating a family c. Define master symbol d. Control a group of separate symbols e. Automatic cross reference symbols f. Error checking 		5
Wire Management	BRS 68	Capability to define available terminals for wiring		5
	BRS 69	The system maintains a list of wire numbers that connect the electrical components together. The system allocates a wire number according to rules set by		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Specialised Engineering Tools Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
		the user. The system also allows an override where wire numbers can be edited or changed manually by the user. Any new connection to an existing wire will result in the new connection inheriting that wire number and being added to that wire list.		
	BRS 70	Once a device has been picked from the library and placed in the design, the system keeps track of what terminals are connected to what wire numbers and is aware of all used and unused connection points.		5
Management of interrelated diagrams	BRS 71	Automatically summarize the key schematic diagrams and populate the terminal numbers and ferrule numbers onto the cabling diagrams as listed below: <ul style="list-style-type: none"> a. Relay panel cabling diagram b. Interface panel cabling diagram c. Junction box cabling diagram d. Voltage Transfer Junction Box e. Cable block 		5
	BRS 72	System to automatically maintain cross reference to any other drawings, components or elements in another part of the same drawing.		5
	BRS 73	Capability for the system to be able to automatically create and maintain a reference diagram which shows all the used components in the design, and the sheet references in the electrical diagram where various parts of the components can be found.		5
	BRS 74	Since Intelligent Electronic Device (IED) and multi-contact relays have a number of output contacts and a number of binary inputs, it is inevitable that these contacts will be shown on a different sheets of a particular drawing. The system will maintain a record		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Specialised Engineering Tools Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
		of which sheet a particular contact / input can be found, so that a reference diagram can be created and updated automatically.		
Management of electrical design tools	BRS 75	The system, in addition to draughting (lines on a piece of paper) has intelligence which maintains a database of electrical connections of all the various components used and which terminal numbers are connected to terminals of other components via wire numbers. All of the metadata associated with each component in the design is managed by the Design Tool.		5
	BRS 76	The system to provide for a schematic electrical design tool which operates a drawing view and an intelligent underlying database, which maintains a list of the components used and their electrical connections to each other. Not only does the system render a diagram of the electrical circuits, but it is aware of and retains the connectivity between components.		5
	BRS 77	Capability for the system to be able to create a scale drawing, in both 2D and 3D, of the physical layout of the front and rear of the panel and any additional view including isometric.		5
	BRS 78	Scaling and drawing should be user defined.		5
	BRS 79	Ability to select parts of components: Since IEDs and multi-contact relays have multiple input and output contacts, the user should be able to select a part, or parts, of the IED to place on a particular sheet of the drawing. Once selected, the system must be aware of the sheet location of these parts, and whether they are connected or not. The system		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Specialised Engineering Tools Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
		<p>should only allow the user to select these parts if they are not used elsewhere in the design.</p> <p>Once used, the parts should not be available for use elsewhere. Where more than 1 sub-parts (such as changeover relay contacts, binary inputs, binary outputs etc) share a common terminal all parts with the common terminal should be selected for placement in the diagram and the system should not allow them to be split.</p>		
	BRS 80	Capability for the system to be able to automatically create and updating of a table based cabling diagram, where cables to external panels and equipment are shown.		5
	BRS 81	The system to support a method of red lining and yellow lining a drawing. If a redline is accepted, then the connection database in the drawing should be updated.		5
	BRS 82	The system to support a method of deleting a component, or parts of a component from the design. If the whole component is deleted, then all parts already used in other parts of the design must be deleted, and all connections and wire numbers to that object deleted.		5
Metadata Management	BRS 83	The library system maintains a user defined list of metadata for all the component types and has the ability for the user to add new metadata fields.	BR3: An administrator should have access to add and delete metadata fields	5
	BRS 84	Each component contains a location reference, which when changed, is inherited by all parts of the component and all view renditions of the component.		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Specialised Engineering Tools Requirements				
Functionality grouping	BRS Number	Functionality	Business Rule No and Description	Weight
Cabling Management	BRS 85	Capability for a diagram which shows how cables interconnect various panels and electrical plant in the design should be automated and intelligent. It should have the ability to implement rules to automate, as much as possible, the connections of the panels and the types of cable used.		5
	BRS 86	A design of a panel is a complete document. Opening a single document will give access to all drawings and elements associated with the design including: 2D drawing view, 3D drawing, electrical schematic diagram, Reference diagrams and cabling diagrams. The user should not have to close a particular sheet of a design to open another one in order to follow a circuit.		5
	BRS 87	The system maintains a method of revision control along with a change log.		5
	BRS 88	Capability for document control, revision management and system automation		5

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Wire Number	Device Name	Device Sub-Part Ref	Device Sub Part Name	Location	Terminal Row	Terminal Number	Device Type	Sheet Ref.
K105	X1.3	NA	NA	SP	X1	1	Spring Terminal	5
	X1.3	NA	NA	SP	X1	2	Spring Terminal	5
	DCIS(M1)	Pole 1	+ve	RP 3.2	NA	3	10A DP DC MCB	5
	DCI(PIU)(M1)	Pole 1	+ve	RP 3.3	NA	4	6A DP DC MCB	5
	PIU(M1)	BI 1.7	DCFM1	RP 6.4	1D13	13	6MD85	5
	PIU(M2)	BI 1.8	OMSSDCF	RP 6.4	1D14	14	6MD85	5
	DCI(COM)	Pole 1	+ve	RP 3.2	NA	4	6A DP DC MCB	5
	DCI(MI)(C)	Pole 1	+ve	RP 3.3	NA	4	6A DP DC MCB	5
KL703	PIU(M1)	PSU	Power Supply	RP 6.3	2B	1	6MD85	5
	DCI(PIU)(M1)	Pole 1	-ve	RP 3.3	NA	3	6A DP DC MCB	5

Figure 2: Example of a Wirelist to be referenced for Wire Management functional grouping on page 20-21

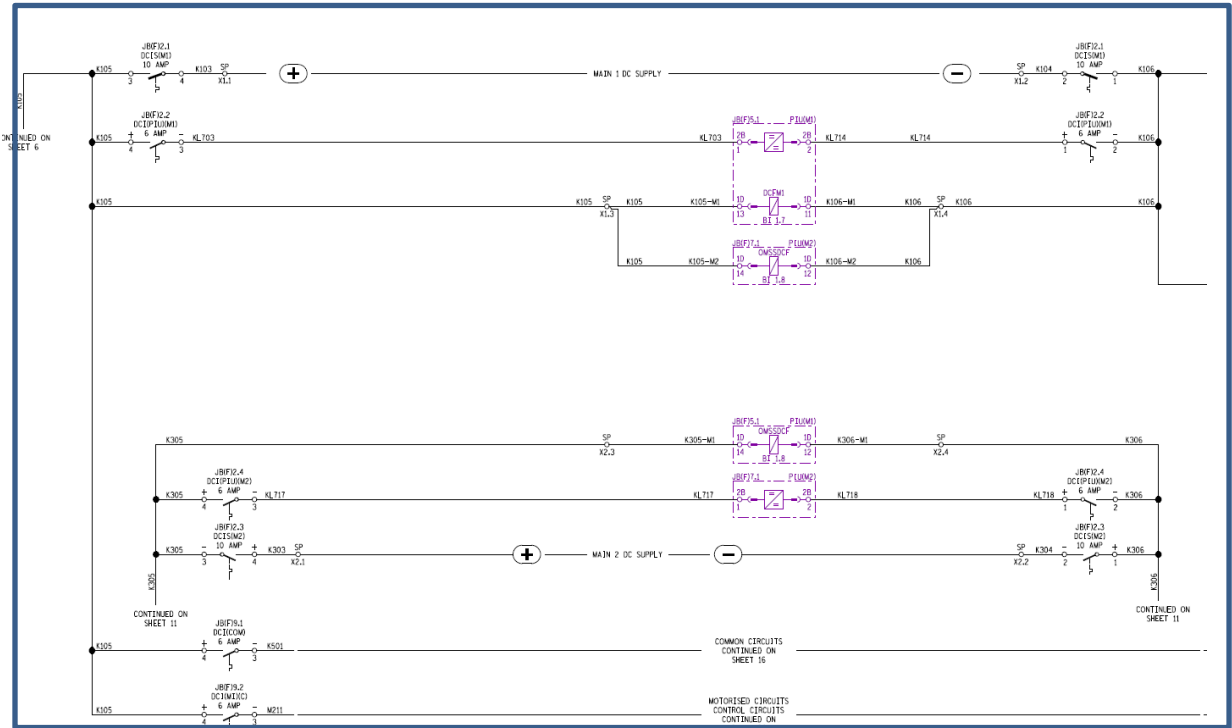



Figure 3: Drawing used to generate the Wire list in Table 1:

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Device Name	Device Type	Device Model	Device Sub-Part Name	Device Sub-Part Ref	Location	Terminal Row	Terminal Number	Wire Number	Sheet Ref.
PIU(M1)		6MD85	DCFM1	BI 1.7	RP 6.4	1D	13	K105	5
PIU(M1)	IED	6MD85	DCFM1	BI 1.7	RP 6.4	1D	11	K106	5
PIU(M1)	IED	6MD85	OMSSDCF	BI 1.8	RP 6.4	1D	14	K105	5
PIU(M1)	IED	6MD85	OMSSDCF	BI 1.8	RP 6.4	1D	14	K106	5
PIU(M1)	IED	6MD85	CB52bR	BI 5.1	RP 6.4	5A	1	K107	6
PIU(M1)	IED	6MD85	CB52bR	BI 5.1	RP 6.4	5A	5	K106-M1	6
PIU(M1)	IED	6MD85	CB52aR	BI 5.2	RP 6.4	5A	1	K109	6
PIU(M1)	IED	6MD85	CB52aR	BI 5.2	RP 6.4	5A	6	K106-M1	6
PIU(M1)	IED	6MD85	CBCH	BI 5.3	RP 6.4	5A	3	K115	6
PIU(M1)	IED	6MD85	CB52bW	BI 5.4	RP 6.4	5A	4	K117	6
PIU(M1)	IED	6MD85	CB52aW	BI 5.5	RP 6.4	5A	7	K119	6
PIU(M1)	IED	6MD85	CB52bB	BI 5.6	RP 6.4	5A	8	K121	6
PIU(M1)	IED	6MD85	CB52aB	BI 5.7	RP 6.4	5A	9	K123	6
PIU(M1)	IED	6MD85	BI 5.8	BI 5.8	RP 6.4	5A	9	Not used	Not used

Figure 4: Example of a Component List

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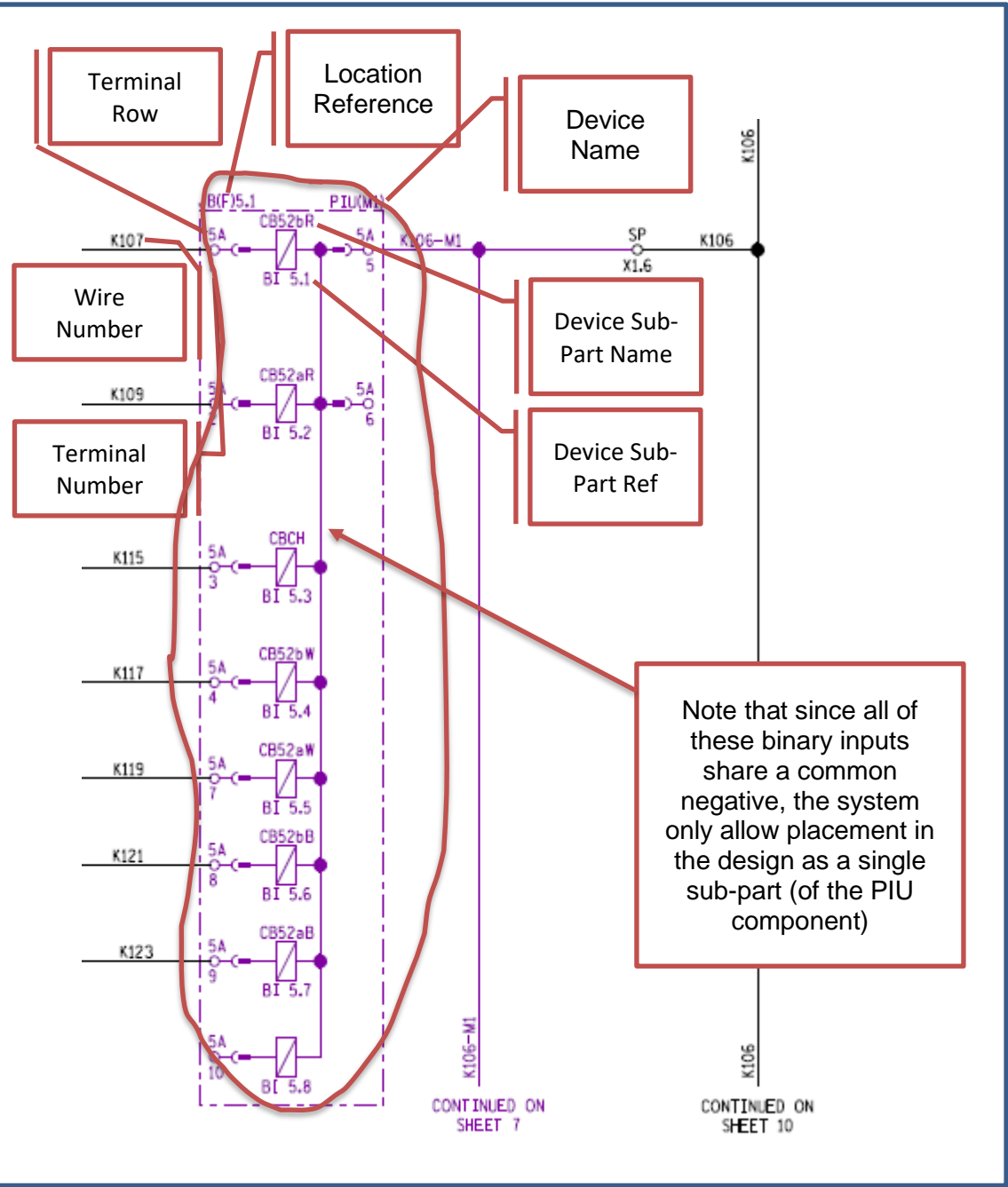


Figure 5: Drawing used to generate the component list in Figure 4:

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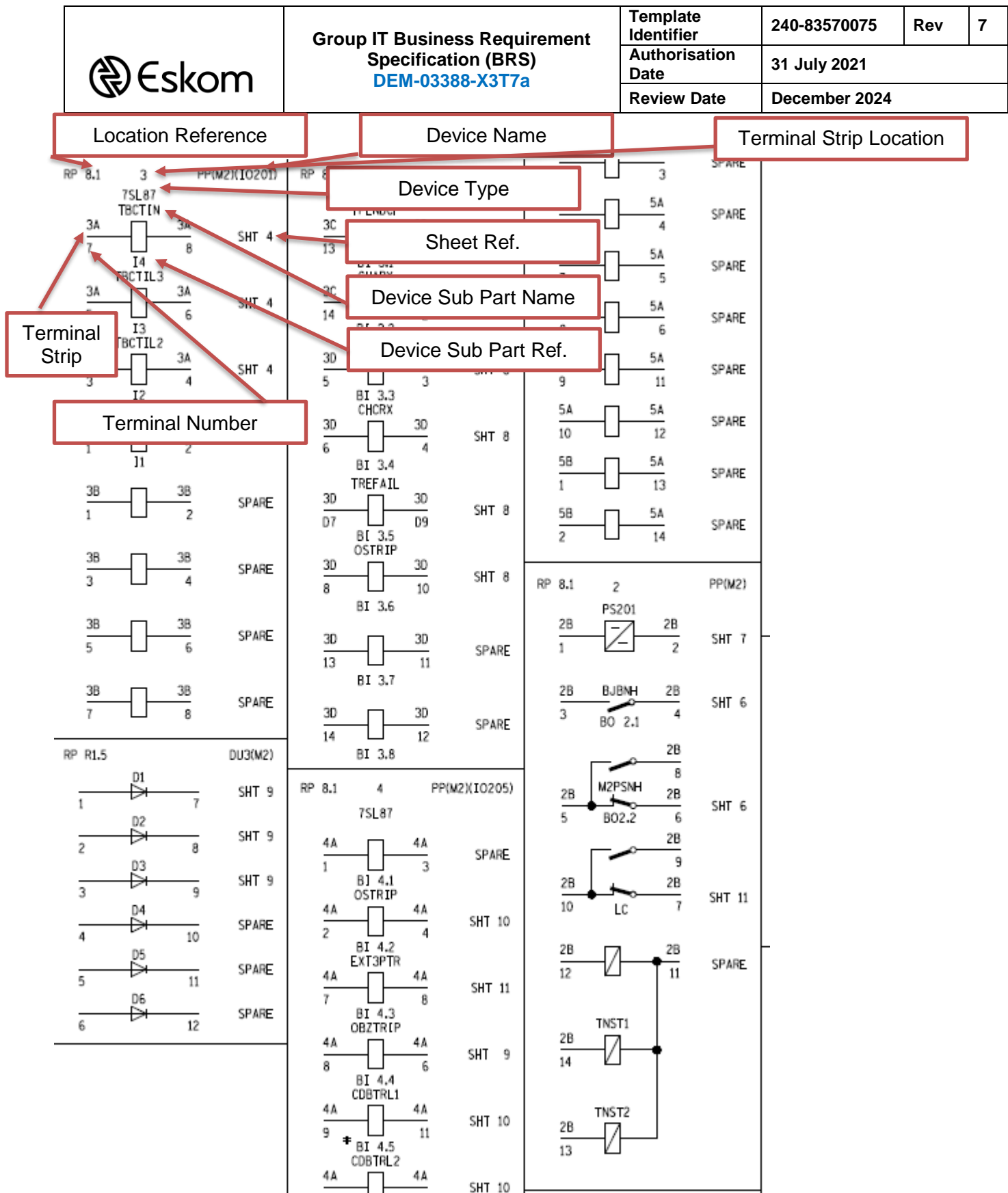



Figure 6: Example of automatically generated reference diagram

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

Weight	Rating Name	Description
0	No interest	This rating verifies the requirement has been considered by the appropriate subject matter experts, and they have no need of it now or in the future.
1	Nice to have	If satisfied, the features associated with this requirement could possibly be used. Nothing to worry about if this requirement is unsatisfied.
2	Useful	If satisfied, the features associated with this requirement are very likely to be used. If this requirement is unsatisfied, there would be no inconvenience.
3	Important	Without features to satisfy this requirement there is noticeable inconvenience, but that can be worked around with some effort.
4	Very important	If the software does not adequately meet this requirement, there would be significant effort expended in working around that limitation.
5	Critical	There would be major limitations using the software without this requirement being adequately met. If the features are missing or inadequate, this software has a significant chance of being excluded from the software selection.
6	Show stopper	If the software does not meet this requirement, the software is automatically excluded. Few requirements are true show stoppers, usually most of these are critical.

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

6.5 Data flow diagram / Context diagram

No data flow diagram required for this request

6.6 Non-functional requirements

- ↳ Adequate training shall be made available to users prior to the system rollout and on an “as and when”
- ↳ Eskom Information Security policies, procedures and standards shall be abided to.
- ↳ The identified system to be available and accessible at all times, during and outside of normal business hours.
- ↳ The system to maintain a log of all system related errors. In the event of any audit, full audit details to be provided namely: the complete user details, date, time as well as the process followed by the user to either check-out or check-in the configuration.
- ↳ Users to update/revise the configuration history in the configuration, where the facility exists.
- ↳ User application access to the system to be managed in conjunction with the line manager of that specific user. Access requirements should follow the e-form process.
- ↳ In the event that no e-form is available for the identified system, an e-form process will have to be created in conjunction with Group IT.

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

7. INFORMATION / DATA REQUIREMENTS

Classification of data / information	Data / Information type	Confidentiality of information (refer to previous page for quick reference)	Confidentiality level of information (refer to previous page for quick reference)	Availability of data	Migration of data
Operational, governance and legislative requirements	<ul style="list-style-type: none"> ↳ Structural data ↳ Process mechanical & piping ↳ Instrumentation data ↳ Electrical data ↳ Building data ↳ Drafting and deliverables ↳ Construction and commissioning data ↳ Visualisation data ↳ Project collaboration & document management data ↳ Asset management & performance data ↳ Site and structure design data ↳ Data analysis 	Controlled disclosure	High	24/7/365	<p>Data Migration is required for all EEMS suite applications</p> <p>All data required to migrate from the current Eskom configuration to the cloud based version</p>


8. USER INTERFACE REQUIREMENTS

User interface requirements are included in the detailed requirements section of this document – refer to section 6.4 above

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		Authorisation Date	31 July 2021		
		Review Date	December 2024		

9. SYSTEM INTEGRATION REQUIREMENTS

BRS Number	Functionality	Impacted Systems (if known)	Sending System Owner (if known)	Receiving System Owner (if known)	What information needs to be integrated
SIR 1	<p>Data migration is not limited to drawing files but to all file types currently in the system.</p> <p>Each version of Metadata associated with each version of the file should be migrated correctly</p>	EEMS Document Management System	EEMS	Document Management System	<ul style="list-style-type: none"> Documents Drawing files Metadata
SIR 2	The document management system to be able to integrate with engineering design tools including but not limited to specialized CAD tools like Microstation.	EEMS CAD software platform	EEMS	CAD software platform	<ul style="list-style-type: none"> Design and drafting 2D and 3D designs Drawings which include schematics(single-line diagrams, operating diagrams, protection scheme schematics, geographical drawings such as servitude and way-leave diagrams and site plans Substation primary plant Clash resolutions Subsurface utilities design and analysis Sewer, water and storm

10. ACCESS REQUIREMENTS

- ↳ Be configurable to allow groups to have full rights (add/edit/view) to their own data, while providing other users limited/only view access.
- ↳ Allow for centralized user management.
- ↳ User/Grid/Group access control to be managed: Viewing rights only, read and edit, override any file that may be checked out by a user.
- ↳ The system to have the capability to be able to manage system access using role based security and the system to for the access to be defined per workflow step. The typical user access control roles are:
 - A basic user - with view and download only access;
 - An advanced user - with read and write access;
 - Super user – with full read and write access and the ability to override a check out e.g. if a user is ill or in the case of emergencies

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		Authorisation Date	31 July 2021		
		Review Date	December 2024		

- Administrator – with the ability to add / remove user access and manage the system.

11. ARCHIVING REQUIREMENTS (not mandatory for change requests)

Retention Period
In the event of a system disaster/failure, the recovery time should be within 24 hours to limit impact to the business

12. DISASTER RECOVERY REQUIREMENTS (not mandatory for change requests)

Data loss	Time to recover
<ul style="list-style-type: none"> ↳ Off-site back up data to be provided for in the event of system failure. ↳ Daily back-ups of data to be enabled to the off-site back-up. 	<ul style="list-style-type: none"> ↳ System to be available 24/7/365 ↳ In the event of a system disaster/failure, the recovery time should be within 24 hours to limit impact to the business. ↳ Physically isolate production & Disaster Recovery (DR) environments. ↳ Be automatically replicated to a DR site and be setup, such that it switches automatically between the operational and the DR system, as the need arises. ↳ Have a separate test environment.

13. BUSINESS CONTINUITY REQUIREMENTS (not mandatory for change requests)

Business continuity plan exists	Y
Name of BCP	BCP 32-385 rev 1.3 240-49448549: Group IT ProjectWise Continuity Plan
Name of BCP owner	Group IT
If BCP does not exist, what plans are in place from a customer view to define a BCP	n/a
If BCP needs to change, what plans are in place from a customer view to update the BCP	n/a


14. LEGAL REQUIREMENTS

BRS Number	Functionality	Legal Requirement. Response Y/N If Yes, provide legal document number / clauses
BRS1 - BRS88	Provide reliable, predictable and affordable electricity in line with the approvals and the regulatory model by the National Electricity Regulator	Yes As per the Transmission codes, OSH Act, Electricity Regulations Act, ISO 9001 and South African Grid Code

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

15. INTELLECTUAL PROPERTY

All intellectual property (requirements) belongs to Eskom.

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
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16. PRECONDITIONS

Unique identifier number	Business Activities	Processes	Projects (IT and Business)	Technology (if known)	Other (define)
PD1	Change management to ensure users buy into the new solution.	Change Management	Project management resource in IT and business to implement new solution.	Existing system	Precondition
PD2	Eskom shall adopt and use standard out of the box product functionality with minimal customization.	Support	Project management resource in IT and business to implement new solution.	N/A	Dependency
PD3	Latest editions of all policies, procedures, standards, etc. to be available.	Process Management	New solution to ensure adherence to the relevant policies, procedures, standards, etc./	N/A	Dependency
PD4	The required training material to be developed by Eskom Academy of Learning with the support of the vendor. Ensure all system users attend training.	Training process	Training of users and support staff.	N/A	Precondition

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	7
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

17. REFERENCES


The following documents have been referenced or used to compile this Business Requirements Specification including Process Control Manuals.

Number	Name	Location
240-170000557	The current tools and management of software configurations for protection and control devices in Transmission	https://hyperwave.eskom.co.za/240-170000557
240-1333681615	Transmission Maintenance Planning, Scheduling and Control Standard	https://hyperwave.eskom.co.za/240-1333681615
240-53458797	PCM for Perform PTM&C Systems Engineering	https://hyperwave.eskom.co.za/240-53458797
240-46977377	Manage Engineering Interfaces	https://hyperwave.eskom.co.za/240-46977377
240-53458961	Perform Line Engineering	https://hyperwave.eskom.co.za/240-53458961
240-53459042	Perform Substation Engineering	https://hyperwave.eskom.co.za/240-53459042
DEM-03388-X3T7	BRSF_ Enterprise Engineering Management System	 DEM-03388-X3T7_B RSF_Enterprise Engi Embedded file

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	Group IT Business Requirement Specification (BRS) DEM-03388-X3T7a	Template Identifier	240-83570075	Rev	6
		Authorisation Date	31 July 2021		
		Review Date	December 2024		

18. DOCUMENT- ACKNOWLEDGEMENT

By signing this document, the people listed record their agreement on the contents of this document.

Disclaimer: Formal governance processes will need to be followed prior to obtaining approval for the implementation of the business requirements specification and the initiation of a project plan.

Name	Role	Signature	Date
Nombali Mashile	Group IT Business Process Management Business Analyst Business Solutions and Development Services		18/03/2022
Marry Mammen	Business Requestor		18/03/2022
Mark Pepper	Business Subject Matter Expert		24/03/2022
Anton Naude	Business Subject Matter Expert		24/03/2022
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Angus Kerr	Business Subject Matter Expert		25/03/2022
Nomvula Sgudu	Business Subject Matter Expert		25/03/2022
Deepak Rampersad	Chief Technologist Electrical		18/03/2022
Kashveer Jaqdaw	Senior Engineer Electrical		18/03/2022




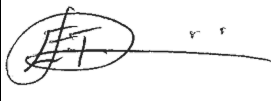

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19. DOCUMENT APPROVAL

By signing this document, the people listed record their approval on the contents of this document.

Disclaimer: Formal governance processes will need to be followed prior to obtaining approval for the implementation of the business requirements specification and the initiation of a project plan.

Name	Role	Signature	Date
Riaan Van Wyk	Group IT Business Process Management Manager Business Solutions and Development Services Part of the review process		29/3/2022
Themba Notununu	Group IT Business Relationship Manager Business Solutions and Development Services Part of the review process		29/03/2022
Shaun Solomon	Group IT Enterprise Architecture (for all requests except change requests) Business Solutions and Development Services The architect acknowledges that there is enough information to proceed to the next step in the process (statement of architecture work) as per the services delivered by BPM.		30/03/2022
Thabani Dhlamini	Group IT Portfolio Manager Business Solutions and Development Services Part of the review process		29/03/2022
Richard Mcurrach	Senior Business Manager / Business Sponsor Senior Manager IM		31/3/2022
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