**PROJECT MANAGEMENT**

**MGMT-6062- (01)-24W – Project Risk and Quality**

**Assignment 1 – Module 4** A black text on a white background

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**INDIVIDUAL RISK & OPPORTUNITY REPORT**

By

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**Table of Contents**

[1. Project Quality Purpose 1](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350069)

2. [Company Quality Policy………………………………………………………..1](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350070)

[3. Quality Management Method 2](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350071)

[3.1 Quality Plan Processes 2](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350072)

[3.2 Project Overview 3](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350073)

3.3 Sustainability Topics……………………………………………………….4

[3.4 Quality Standards 3](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350074)

[3.5 Quality Tools 3](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350075)

[3.6 Quality Manager’s Responsibilities 7](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350076)

[4. Project Quality Assurance 7](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350077)

[4.1 Quality Assurance Procedures 7](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350078)

[4.2 Project Monitoring Processes 8](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350079)

[4.3 Project In-Process Quality Monitoring  9](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350080)

[5. Project Quality Control 10](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350081)

[5.1 Project Deliverables 10](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350082)

[5.2 Project Quality Control Procedures 10](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350083)

[5.3 Project Deliverables Test & Acceptance Process…………………………12](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350084)

5.4 Project Deliverables Acceptance Criteria…………………………………15

[6. Project Audits and Quality Reviews 21](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350085)

[6.1 Quality Team Roles and Responsibilities………………………………....22](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350086)

[6.2 Quality Plan Audit Log……………………………………………………24](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350087)

[6.3 Quality Plan Approvals…………………………………………………. 25](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350088)

[7. Appendices 25](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350089)

[8. References 27](file:///C:\Users\divya\AppData\Local\Temp\8fcc0221-d5c1-4c74-af9d-bb29a3775ba1_ProjectManagement_2ndSEM_NishantGautam%20(1).zip.ba1\ProjectManagement_2ndSEM_NishantGautam\Risk&amp;Quality\MGMT6062_QualityAssignment_GROUP11.docx#_Toc121350090)

# Project Quality Purpose

# The Adelaide Underpass Project's project quality plan aims to ensure that all aspects of the project meet predetermined quality standards. This includes paying close attention to material selection, stakeholder preferences, risk management, and infrastructure development as a whole. The main goal is to provide an infrastructure solution of the finest quality that not only satisfies stakeholder expectations but also conforms with regulatory requirements. The project's emphasis on adhering to quality standards is intended to guarantee the constructed underpass's longevity, safety, and functionality. This dedication to quality control is necessary to build stakeholders' confidence and confidence in the endeavor's ability to fulfill its objectives.

# The Adelaide Underpass Project's project quality plan aims to ensure that all aspects of the project meet predetermined quality standards. This includes paying close attention to material selection, stakeholder preferences, risk management, and infrastructure development as a whole. The main goal is to provide an infrastructure solution of the finest quality that not only satisfies stakeholder expectations but also conforms with regulatory requirements. The project's emphasis on adhering to quality standards is intended to guarantee the constructed underpass's longevity, safety, and functionality. This dedication to quality control is necessary to build stakeholders' confidence and confidence in the endeavor's ability to fulfill its objectives.

# Successful risk management techniques are essential to the project's success because they minimize possible setbacks and maximize chances for advancement. In order to ensure alignment with the needs and expectations of the community, it is imperative that the project quality plan also takes stakeholder preferences into account. Additionally, painstaking material selection processes are put in place to ensure that the materials selected adhere to industry standards and guidelines, protecting the infrastructure's longevity and integrity. The Adelaide Underpass Project strives to overcome challenges and achieve its goal of providing a high-quality infrastructure solution that surpasses stakeholder expectations and regulatory requirements by means of proactive risk minimization and strategic resource allocation.

# 2. Company Quality Policy

# The goal of quality policy is to continuously deliver infrastructure projects that either match or surpass stakeholder expectations, legal requirements, and industry standards. In order to guarantee project success and stakeholder satisfaction, we are dedicated to proactive risk management, effective resource allocation, and continuous improvement.

# As Smith (2020) points out, the company's quality policy is firmly anchored in its dedication to excellence. Smith highlights the importance of meeting or surpassing stakeholder expectations, regulatory standards, and industry norms. This methodology guarantees that projects are carried out with great care, paying close attention to details, and adhering to predetermined standards. Furthermore, proactive risk management techniques are highlighted by Jones et al. (2019), who contend that project success depends on foreseeing and reducing risks before they arise. Johnson (2021) agrees, highlighting the significance of effective resource allocation in accomplishing project goals and reducing waste. Furthermore, the company's commitment to continuous improvement is consistent with the ideas promoted by Brown (2018), who asserts that businesses that prioritize continuous learning and innovation are better equipped to navigate challenges and deliver exceptional results. Through these guiding principles, the company upholds its quality policy, ensuring stakeholder satisfaction and project success.

# 3. Quality Management Method

The Adelaide Underpass Project's quality management approach closely follows the guidelines found in the ISO 9000 series of standards, which offer an organized framework for accomplishing quality goals inside an organization. Fundamentally, a quality policy is a succinct statement that bolsters the organization's overarching objectives, missions, and strategic plans (Huckabone, 2020). It lays out a framework for quality objectives and pledges to meet all requests, including those from clients, legal and regulatory agencies, and ISO 9001 requirements. Within the framework of our organization's quality policy statements, a number of fundamental ideas are apparent:

*Sustainability*: By reducing adverse effects on the environment, the project is dedicated to sustainability. This demonstrates an understanding of environmental responsibilities and is consistent with the larger objective of sustainable development (ISO 9001).

*Workplace Safety*: Wearing the proper construction safety gear is a requirement for employees, underscoring the significance of upholding a safe working environment. This dedication to safety is in line with industry best practices and legal requirements.

*Compliance and Approvals*: Getting all required permissions and approvals is a must before starting the project. By ensuring adherence to legal and regulatory requirements, this helps to reduce the risks that could arise from non-compliance.

*Quality Assurance*: Throughout the course of a project, quality standards are maintained through the periodic quality checks of building materials. By proactively identifying and addressing any deviations from specifications at an early stage, this proactive approach to quality assurance helps avoid delays and rework.

*Waste Management*: Before workers depart the site, waste from construction sites must be properly disposed of. This guarantees adherence to waste management regulations and demonstrates a commitment to environmental responsibility.

*Design Authorization:* Before being implemented, architectural design documents need to be approved and certified by the appropriate department heads. This guarantees that, prior to the start of construction, designs comply with project specifications and legal requirements.

*Inspection and Handover*: The project undergoes thorough inspection and authorization by the technical team before being handed over to the client. This final step in the project lifecycle ensures that deliverables meet quality standards and stakeholder expectations before acceptance.

The Adelaide Underpass Project demonstrates a commitment to quality excellence, risk management, stakeholder engagement, and compliance with industry norms and guidelines by following these quality policy declarations and putting the ideas found in the ISO 9000 series standards into practice. The project's chances of success are increased and stakeholder confidence is fostered by this methodical approach.

# 3.1 Quality Plan Processes

# The Adelaide Underpass Project's Quality Plan procedures include a thorough method for making sure that all project activities follow predetermined quality standards. From initial planning to final delivery, these processes provide the framework for managing quality throughout the project lifecycle. Establishing precise project objectives and quality goals that are in line with stakeholder expectations and legal requirements is a crucial component of the Quality Plan processes. This entails creating metrics to gauge the success of the project, defining quality standards, and determining key performance indicators. The Quality Plan offers a road map for accomplishing quality goals and upholding accountability throughout the project by defining these procedures.

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# The incorporation of risk management strategies to proactively identify and mitigate potential quality issues is a critical aspect of the Quality Plan processes. This include carrying out in-depth risk assessments, spotting possible dangers and opportunities, and creating effective mitigation plans to deal with them. The project can minimize disruptions and maximize project outcomes by anticipating and mitigating quality-related challenges before they escalate through the integration of risk management into the Quality Plan processes. The Quality Plan procedures also incorporate methods for communicating with and engaging stakeholders, guaranteeing that their opinions and preferences are taken into account during the planning and decision-making stages of the process. This increases stakeholder satisfaction and overall project quality by fostering collaboration, transparency, and trust.

# Moreover, continuous improvement programs are included in the Quality Plan procedures to promote ongoing improvements in project performance and quality. This entails keeping an eye on and assessing project activities, pinpointing areas in need of development, and putting corrective measures in place to deal with deviations in quality. The Quality Plan procedures enable the project team to adjust to changing conditions, draw lessons from the past, and improve project results over time by promoting a culture of continuous improvement. The Adelaide Underpass Project can meet its quality goals, provide a top-notch infrastructure solution, and guarantee stakeholder satisfaction at every stage of the project's lifecycle with these iterative processes.

# 3.2 Project Overview

# The Adelaide Underpass Project, as outlined by Smith et al. (2023), represents a concerted effort to tackle the pressing issue of traffic congestion in the Adelaide area. By constructing an underpass infrastructure solution, the project aims to minimize disruptions to traffic flow and optimize transportation efficiency. This initiative is vital for enhancing accessibility and mobility for residents and commuters, as emphasized by Johnson (2022), who underscores the importance of infrastructure improvements in urban areas. Furthermore, as noted by Brown and Davis (2021), the project calls for cooperation between a number of stakeholders, including local communities, government organizations, and transportation authorities. Throughout the project lifecycle, this multi-stakeholder approach fosters accountability and transparency while ensuring that the project addresses a variety of needs and priorities. All things considered, the Adelaide Underpass Project has a great deal of potential to reduce traffic jams and enhance transportation systems, which will benefit the community of Adelaide's general prosperity.

# 3.3 Sustainability Topics

# The Adelaide Underpass Project prioritizes sustainability, as evidenced by its emphasis on resource efficiency, social responsibility towards the local community, environmental impact assessments, and energy efficiency. In order to minimize environmental effects and foster long-term resilience, infrastructure projects must incorporate sustainability considerations, according to Patel et al. (2023). Environmental impact assessments are essential for assessing the project's possible ecological ramifications and for proposing mitigation strategies for nearby ecosystems. Furthermore, as highlighted by Lee and Kim (2021), the project seeks to minimize waste generation and optimize the efficient use of materials by placing a high priority on resource utilization. In the long run, this method improves project sustainability and cost-effectiveness in addition to lowering environmental impact.

# Furthermore, the Adelaide Underpass Project places a strong emphasis on energy efficiency, supporting international initiatives to mitigate climate change and cut greenhouse gas emissions. The initiative seeks to reduce energy use and its carbon footprint by implementing sustainable design principles and energy-efficient technologies. According to Smith and Jones (2022), this dedication to energy efficiency lowers operating costs while also promoting environmental protection and climate resilience. Moreover, as highlighted by Brown et al. (2020), social responsibility towards the local community is crucial. Through efforts for skill development, community engagement, and job creation, the project aims to interact with local stakeholders, solve issues facing the community, and have a positive social impact. The Adelaide Underpass Project prioritizes sustainability in order to deliver infrastructure solutions that are environmentally responsible, socially inclusive, and economically viable, thus ensuring a legacy of sustainability for future generations.

# 3.4 Quality Standards

# The project will adhere to relevant quality standards, including but not limited to ISO 9001:2015 for quality management systems and industry-specific regulations for infrastructure projects

# Adherence to ISO Standards for Quality Management:

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# *Establishing Rigorous Quality Management Systems*: ISO 9001:2015 serves as the cornerstone for establishing robust quality management systems within the Adelaide Underpass Project. These systems ensure that quality is prioritized throughout the project's lifecycle.

# *Systematic Processes for Quality Planning and Control*: Compliance with ISO 9001:2015 signifies a commitment to systematic processes for quality planning, control, and improvement. This involves establishing clear quality objectives, monitoring project performance, and continuously enhancing processes to meet stakeholder expectations.

# *Continuous Improvement:* ISO 9001:2015 promotes a culture of continuous improvement, encouraging organizations to regularly evaluate their processes and implement corrective actions to enhance performance. This ensures that the Adelaide Underpass Project is constantly striving for excellence and adapting to changing circumstances.

# Adherence to Industry-Specific Regulations and Best Practices:

# *Alignment with Industry-Specific Standards:* In addition to ISO standards, the Adelaide Underpass Project will adhere to industry-specific regulations and standards for infrastructure projects. This ensures that construction activities align with best practices and safety guidelines specific to the infrastructure sector.

# *Compliance with Safety Guidelines:* The project makes sure that all construction activities prioritize safety and follow applicable safety guidelines by abiding by industry-specific regulations. In order to safeguard employees and reduce the possibility of mishaps or incidents on the building site, this dedication to safety is crucial.

# *Enhanced Quality and Reliability*: The Adelaide Underpass Project strives to provide infrastructure solutions that are dependable, safe, and of the highest calibre by adhering to ISO standards and industry-specific laws. This guarantees that the finished infrastructure solution meets or surpasses expectations and increases stakeholder confidence in the project's ability to achieve its goals.

# *Positive Stakeholder Outcomes:* By showcasing a dedication to completing projects that meet or surpass expectations, adherence to industry-specific regulations and quality standards increases stakeholder satisfaction and confidence. This fosters positive relationships with stakeholders and contributes to the overall success of the project.

# To sum up, the Adelaide Underpass Project maintains strict quality control systems and provides infrastructure solutions that are dependable, secure, and of the highest calibre thanks to adherence to ISO standards, industry-specific laws, and best practices. This methodology cultivates favourable outcomes for stakeholders and enhances the project's overall effectiveness.

# 3.5 Quality Tools

# Throughout the course of the Adelaide Underpass Project, a number of quality tools will be used to efficiently manage project risks and guarantee adherence to quality standards. These tools are essential for locating, ranking, and resolving possible problems in order to preserve project quality and produce favorable results. Let's examine the different instruments in use:

# *Failure Mode and Effects Analysis (FMEA)* is a methodical process that helps to determine which possible failure modes within a system, process, or design to prioritize. The project team can anticipate risks and create mitigation plans to reduce the possibility of unfavorable outcomes by examining possible failure

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# modes and their implications on project goals. By addressing possible problems before they become more serious, FMEA improves project resilience and helps to maintain quality standards and project success.

# *Risk Registers:* Risk registers are centralized databases that are used to track and record project risks that have been identified, as well as their possible consequences and probability of occurrence. The project team can monitor risks over time and put appropriate risk response strategies into action by keeping an extensive risk register. Frequent updates and evaluations of the risk register guarantee that risk management endeavors stay in line with project goals and quality benchmarks, protecting the project from possible setbacks and maintaining quality throughout its implementation.

# *Stakeholder Analysis Matrices:* By methodically examining the interests, expectations, and levels of influence of stakeholders, stakeholder analysis matrices help to facilitate effective stakeholder engagement and communication. The project team can effectively manage stakeholder relationships by customizing communication strategies and engagement approaches based on a thorough understanding of stakeholders' perspectives. This proactive involvement improves collaboration, cultivates buy-in from stakeholders, and mitigates potential conflicts that could impact project quality and outcomes.

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# *Quality Control Charts:* Quality control charts are graphical tools that are used to track and examine changes in project outcomes and processes over time. The project team can spot trends, patterns, and departures from quality standards by charting data points on control charts. The team can take corrective action as needed to maintain project quality and meet quality standards thanks to the insightful information provided by quality control charts about process stability and capability.

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# The Adelaide Underpass Project can efficiently manage project risks, guarantee adherence to quality standards, and produce an infrastructure solution that satisfies stakeholder expectations by utilizing various quality tools, such as risk registers, quality control charts, FMEAs, and stakeholder analysis matrices. Every tool has a distinct function in improving project quality and reducing risks, which ultimately helps to project's overall success.

# 3.6 Quality Manager’s Responsibilities

# As the overseer of all quality-related activities, the Quality Manager holds a pivotal role in ensuring that the Adelaide Underpass Project maintains rigorous adherence to quality standards throughout its lifecycle. One of the primary responsibilities of the Quality Manager is to spearhead risk management efforts. This involves identifying potential risks that could impact project objectives, assessing their likelihood and potential impact, and developing comprehensive mitigation strategies (Smith et al., 2023). By proactively addressing risks, the Quality Manager safeguards the project against potential disruptions and ensures that quality standards are upheld even in the face of adversity.

# In order to guarantee that project activities and deliverables adhere to set quality standards, the Quality Manager is also responsible for supervising quality assurance procedures. This entails putting quality control procedures into place, carrying out routine audits and inspections, and confirming that legal requirements are being followed (Johnson, 2022). By means of rigorous supervision and close attention to detail, the Quality Manager guarantees that quality stays at the forefront of the project's operation. Furthermore, the Quality Manager is essential in encouraging a continuous improvement mindset among the project team members. The Quality Manager promotes continuous improvements in project performance and quality by seeing areas for improvement, carrying out corrective actions, and encouraging a learning and innovative mindset (Brown & Davis, 2021).

# In addition, the Quality Manager bears the responsibility of guaranteeing adherence to pertinent regulations and standards that oversee the project. This entails keeping up with the latest developments in the industry, keeping an eye on modifications to regulatory requirements, and making sure that project activities comply with relevant standards (Pritchard & PMP, 2021). The Quality Manager demonstrates the project's commitment to producing high-quality results and inspires confidence in stakeholders by upholding compliance with quality standards. The Quality Manager is responsible for a variety of duties, including risk management, quality assurance, compliance, and continuous improvement. These are all critical to the success of the Adelaide Underpass Project and the provision of infrastructure solutions that satisfy stakeholders.

# 4. Project Quality Assurance

# Project quality assurance is a systematic method used in the Adelaide Underpass Project to ensure that all project deliverables and activities continuously meet the predetermined quality standards. This procedure entails a number of methodical techniques and procedures to guarantee that the project upholds its quality standards throughout its entirety.

# *Frequent Audits:* To evaluate adherence to quality standards and spot any deviations or potential improvement areas, regular audits are a crucial part of project quality assurance. These audits could cover a range of project components, such as documentation, procedures, and performance indicators (Smith et al., 2023).

# *Inspections*: Throughout the project, routine inspections are carried out to confirm the calibre of the materials, labour, and procedures used. Inspections entail thorough assessments of building sites, machinery, and finished projects to ensure adherence to specifications and standards (Johnson, 2022).

# *Reviews*: In order to evaluate the quality of project activities and deliverables and find areas for improvement, project quality assurance also entails routine reviews. In order to make sure that they meet stakeholder expectations and quality objectives, reviews may involve assessments of project plans, progress reports, and documentation (Brown & Davis, 2021).

# Project quality assurance uses organized procedures like frequent audits, inspections, and reviews to make sure the Adelaide Underpass Project stays true to its goal of producing results that are of the highest calibre. Project quality assurance helps reduce risks, boost stakeholder satisfaction, and improve project performance by promptly identifying and resolving any quality issues. All things considered, putting in place strong quality assurance procedures is crucial to guaranteeing the project's successful conclusion and the provision of infrastructure solutions that fulfil or exceed quality requirements.

# 4.1 Quality Assurance Procedures

# The Adelaide Underpass Project's quality assurance procedures are a set of methodical steps that are used to make sure that project deliverables and activities always meet predetermined quality standards. Regular quality audits, which entail thorough evaluations of project procedures, documentation, and performance in comparison to predetermined quality criteria, are an essential procedure. These audits help identify any areas that need improvement or corrective action, and they offer insightful information about how well the project adheres to quality standards (Smith et al., 2023).

# The methodical review of project documentation to confirm accuracy, completeness, and compliance with quality standards and legal requirements is another step in the project quality assurance procedures. To make sure they match project goals and stakeholder expectations, this involves reviewing project plans, specifications, progress thorough reviews of project documentation, the project team can identify any discrepancies or deficiencies early on and take appropriate measures to address them, thereby ensuring the integrity and reliability of project deliverables (Johnson, 2022).

# Moreover, routine site inspections are part of quality assurance protocols, which confirm the calibre of the materials, labor, and project management techniques used. In order to verify compliance with specifications, standards, and regulatory requirements, these inspections comprise on-site assessments of construction activities, machinery, and finished work. The project team can maintain project quality and integrity by performing inspections to find any deviations from quality standards and taking corrective action. Overall, ensuring the Adelaide Underpass Project's successful completion and the delivery of high-quality infrastructure solutions that meet or exceed stakeholder expectations will require the implementation of strong quality assurance procedures, such as audits, reviews of project documentation, inspections of construction sites, and verification of compliance with regulatory requirements.

# 4.2 Project Monitoring Processes

# Through continuous oversight and control over project activities, project monitoring procedures are essential to the Adelaide Underpass Project's successful completion. In order to evaluate project performance in relation to predetermined benchmarks and objectives, these procedures entail monitoring key performance indicators (KPIs). The project team can obtain insights into the project's progress and identify areas requiring attention or improvement by tracking key performance indicators (KPIs) such as cost, schedule adherence, quality metrics, and stakeholder satisfaction (Smith et al., 2023). The team can identify possible problems early on and take corrective action to reduce risks and keep the project moving forward thanks to this proactive approach to project monitoring.

# Project monitoring procedures include tracking KPIs as well as continuously observing project progress to make sure that things are moving forward as planned and within predetermined deadlines. This means keeping a close eye on project schedules, deliverables, and milestones in order to spot any changes or delays. The project team can minimize disruptions and guarantee project completion on schedule by keeping a close eye on the project's progress and identifying any potential bottlenecks or obstacles and taking proactive measures to address them (Johnson, 2022). In order to preserve project quality and integrity, project monitoring procedures also entail spotting deviations from quality standards and taking appropriate corrective action. To evaluate adherence to quality standards and spot any inconsistencies or shortcomings, this may entail performing routine inspections, audits, or reviews. When deviations from quality standards are addressed quickly, the project team can uphold the project's reputation for delivering high-quality outcomes and enhance stakeholder confidence and satisfaction (Brown & Davis, 2021).

# Overall, project monitoring processes are essential for maintaining control over project activities, identifying and addressing potential risks or issues, and ensuring the successful completion of the Adelaide Underpass Project. By tracking KPIs, monitoring project progress, and implementing corrective actions as necessary, the project team can optimize project performance, minimize risks, and deliver infrastructure solutions that meet or exceed stakeholder expectations.

# 4.3 Project In-Process Quality Monitoring

The Adelaide Underpass Project employs a multifaceted approach to in-process quality monitoring during key project lifecycle phases, such as design, construction, and commissioning. In order to guarantee adherence to quality standards and the provision of high-quality infrastructure solutions, this proactive monitoring strategy includes several crucial components:

|  |  |  |  |
| --- | --- | --- | --- |
| Process Action | Acceptable Process Standards | Process Phase | Assessment Interval |
| Design Review | Compliance with project requirements and regulatory standards. | Design Phase | Ongoing throughout design process |
| Construction Inspection | Adherence to construction specifications, safety regulations, and quality standards. | Construction Phase | Regular intervals as per construction schedule |
| Material Testing | Testing materials for quality, durability, and suitability for the project. | Construction Phase | Before usage and periodically during construction |
| Commissioning Validation | Validation of infrastructure components, systems, and equipment for functionality and performance. | Commissioning Phase | Upon completion of commissioning activities |

*Monitoring the Design Phase:*

To ensure compliance with project requirements and regulatory standards, design documents and specifications undergo regular reviews.

* Verification of the accuracy and viability of the design calculations and assumptions.
* Cooperation with all parties involved, such as engineers, architects, and designers, to resolve any problems or concerns pertaining to the design.

*Monitoring the Construction Phase:*

* Inspecting building sites on a regular basis to evaluate craftsmanship, adherence to specifications, and compliance with safety rules.
* Testing is done to ensure the quality and durability of building materials like asphalt, steel, and concrete.

In order to spot any delays or deviations, construction progress is being tracked against project schedules and milestones.

*Monitoring during the Commissioning Phase:*

* Equipment, systems, and infrastructure components are validated to guarantee functionality and performance.
* Crucial systems, including lighting, ventilation, and electrical systems, should be tested and commissioning to ensure that they meet design specifications.
* Coordinating with suppliers, subcontractors, and contractors to resolve any problems found during commissioning procedures.

*Commissioning and Validation:*

* Documentation of all monitoring activities, including inspection reports, test results, and validation records.
* Regular reporting to project stakeholders, including project managers, clients, and regulatory authorities, on the status of in-process quality monitoring activities and any findings or recommendations for improvement.

By implementing in-process quality monitoring at various stages of the project, the Adelaide Underpass Project can identify and address quality issues early on, thereby minimizing the risk of costly rework or delays. This proactive approach ensures that infrastructure components meet or exceed quality standards, leading to the successful delivery of a reliable and durable underpass solution that meets stakeholder expectations.

# 5. Project Quality Control

# Project quality control is a critical aspect of any construction endeavour, ensuring that the final deliverables meet predefined standards and specifications. It encompasses a comprehensive set of processes, procedures, and measures designed to monitor and evaluate the quality of workmanship, materials, and outcomes throughout the project lifecycle. By implementing effective quality control mechanisms, construction projects can mitigate risks, enhance efficiency, and ultimately deliver successful outcomes that meet or exceed stakeholders' expectations.

# In the context of the Adelaide Underpass project, quality control assumes paramount importance, given the project's scale, complexity, and significance to the community. As a major infrastructure initiative aimed at improving transportation and urban mobility, the Adelaide Underpass project requires rigorous quality control procedures to ensure that construction activities adhere to regulatory requirements, engineering standards, and project specifications. This includes monitoring various aspects such as structural integrity, safety compliance, environmental sustainability, and stakeholder satisfaction.

# Effective project quality control involves collaboration among various stakeholders, including project managers, engineers, contractors, quality assurance professionals, and regulatory authorities. It requires meticulous planning, implementation, and monitoring of quality control measures at every stage of the project, from initial planning and design to construction, testing, and commissioning. By maintaining strict adherence to quality control protocols, the Adelaide Underpass project can minimize rework, delays, and cost overruns while maximizing the overall quality and reliability of the infrastructure.

# This section outlines the project quality control procedures for the Adelaide Underpass project, providing a systematic framework for ensuring that quality standards are met and maintained throughout the project lifecycle. It delineates the roles and responsibilities of key stakeholders, outlines the processes for quality planning, inspection, testing, and corrective action, and establishes criteria for acceptance and approval of project deliverables. Through proactive quality control measures, the Adelaide Underpass project aims to achieve its objectives of enhancing transportation efficiency, improving urban connectivity, and delivering lasting value to the community.

# 5.1 Project Deliverables

# *Underpass Structure:* The primary deliverable of the project is the construction of the underpass structure itself. This includes all components such as foundations, retaining walls, bridge beams, deck slabs, and approach roads.

# *Drainage System:* Implementing an effective drainage system is crucial to prevent water accumulation and ensure the longevity of the underpass. Deliverables include stormwater drains, culverts, catch basins, and associated infrastructure.

# *Lighting Fixtures:* Install LED lighting fixtures to provide adequate illumination inside the underpass for safety and visibility purposes. This includes fixtures mounted on the walls, ceiling, and along the approach roads.

# *Traffic Signage and Markings:* Install signage and road markings to guide traffic safely through the underpass. This includes directional signs, lane markings, pedestrian crossings, and other traffic control devices.

# *Landscaping and Beautification:* Enhance the aesthetic appeal of the underpass surroundings through landscaping and beautification efforts. Deliverables may include greenery, trees, shrubs, decorative elements, and hardscaping features.

# *Safety Features:* Implement safety features such as guardrails, barriers, fencing, and emergency exits to ensure the protection of pedestrians and vehicles using the underpass.

# *Utilities Integration:* Coordinate with utility companies to integrate necessary infrastructure such as water supply lines, sewerage systems, electrical conduits, and telecommunications cables within the underpass design.

# *Documentation and As-Built Drawings:* Provide comprehensive documentation, including engineering drawings, specifications, and operation manuals. As-built drawings reflecting the actual construction and layout of the underpass are essential for future maintenance and modifications.

# *Quality Assurance Records:* Maintain records of quality assurance activities, including inspection reports, test results, and compliance documentation. These records serve as evidence of adherence to quality standards and regulatory requirements.

# *Final Inspection and Handover:* Conduct a final inspection of the completed underpass to verify compliance with design specifications and safety standards. Upon successful inspection, formally hand over the underpass to the relevant authorities or stakeholders for operational use.

# These project deliverables collectively contribute to the successful completion of the Adelaide underpass project, meeting the transportation needs of the community while ensuring safety, functionality, and aesthetic appeal.

# 5.2 Project Quality Control Procedures

# By implementing bellow project quality control procedures, the Adelaide underpass project can ensure that construction activities adhere to established quality standards, resulting in a safe, durable, and high-quality infrastructure asset for the community.

# *Quality Planning:* Develop a comprehensive quality management plan outlining the project's quality objectives, standards, and procedures. Identify key quality control checkpoints and assign responsibilities to project team members.

# *Quality Assurance Audits:* Conduct periodic quality assurance audits to assess compliance with established quality standards and processes. These audits may include reviews of design documents, construction activities, and materials testing results.

# *Inspection and Testing:* Implement a robust inspection and testing regime to verify the quality of materials, workmanship, and finished components. Inspections should occur at critical stages of construction, including foundation laying, structural assembly, and final finishing.

# *Non-Conformance Management:* Establish procedures for identifying, documenting, and addressing non-conformance issues encountered during construction. Develop corrective and preventive actions to rectify deficiencies and prevent recurrence.

# *Supplier and Contractor Management:* Evaluate the performance of suppliers and contractors to ensure they meet quality requirements and contractual obligations. Maintain open communication channels to address quality concerns promptly.

# *Documentation Control:* Maintain accurate and up-to-date documentation related to quality control activities, including inspection reports, test results, and certification records. Establish a centralized repository for easy access and retrieval of quality documentation.

# *Training and Skill Development:* Provide training and skill development opportunities for project personnel involved in quality control activities. Ensure that team members are competent in their roles and familiar with relevant quality standards and procedures.

# *Continuous Improvement:* Foster a culture of continuous improvement by regularly reviewing quality performance metrics, soliciting feedback from stakeholders, and implementing corrective actions as necessary. Identify opportunities to enhance processes and optimize quality outcomes.

# *Compliance Monitoring:* Monitor compliance with regulatory requirements, industry standards, and contractual obligations throughout the project lifecycle. Stay abreast of any changes or updates to relevant regulations and standards to ensure ongoing compliance.

# *Customer Satisfaction Surveys:* Solicit feedback from project stakeholders, including end-users and community members, to assess their satisfaction with the quality of the completed underpass. Use survey results to identify areas for improvement and prioritize future quality initiatives.

# 5.3 Project Deliverables Test & Acceptance Process

# By following this structured test and acceptance process, the project can ensure that the deliverables meet the specified requirements, adhere to quality standards, and satisfy the needs of the stakeholders.

# The Project Deliverables Test & Acceptance Process is a comprehensive approach to ensure the quality and functionality of project deliverables. It begins by clearly defining the deliverables, including specifications, standards, and acceptance criteria, to establish a mutual understanding among stakeholders. Test planning involves developing a detailed test plan outlining testing methodologies, approaches, and resource requirements, as well as identifying specific test cases and scenarios. During test execution, various testing activities such as functional, integration, and performance testing are conducted to validate that the deliverables meet the specified requirements. Any defects or discrepancies identified during testing are documented and addressed promptly in collaboration with the project team.

# Verification of acceptance criteria ensures that the project deliverables meet predefined standards, with user acceptance testing involving stakeholders to validate usability, functionality, and overall satisfaction. Comprehensive documentation of testing activities, including test plans, test cases, and test results, is maintained to ensure thorough record-keeping. Formal acceptance is sought from relevant stakeholders, indicating their approval of the deliverables and readiness to proceed.

# A final quality assurance review is conducted to ensure that all testing activities have been completed satisfactorily and that the project deliverables meet the required quality standards. Upon successful acceptance, the testing process is formally closed out, and preparations are made for the handover of deliverables to end-users or clients, including training and ongoing support to facilitate a smooth transition.

# 5.4 Project Deliverables Acceptance Criteria

# These acceptance criteria outline the standards and procedures for evaluating the quality and performance of key project deliverables. They ensure that each component or system meets the required specifications and regulatory requirements before being accepted for use or integration into the Adelaide Underpass project.

|  |  |  |  |
| --- | --- | --- | --- |
| Product or Service | Physical Standard or  Performance Standard | Quality Assessment  Actions | Assessment Interval |
| Structural Components | Compliance with engineering drawings and specifications; sufficient load-bearing capacity; absence of defects such as cracks, deformations, or corrosion | Visual inspection by qualified structural engineers; Non-destructive testing (e.g., ultrasonic testing, magnetic particle inspection); Load testing if required | Before installation, during fabrication, and post-installation |
| Concrete Mixtures | Consistency with approved mix design (e.g., compressive strength, slump, air content); absence of segregation, bleeding, or honeycombing. | Sampling and testing of concrete batches by certified technicians; Slump tests; Compression tests; Air content tests; Visual inspection of finished surfaces. | Before pouring, during placement, and after curing. |
| Electrical Systems | Compliance with electrical codes and standards; proper installation, grounding, and insulation; absence of short circuits or electrical faults. | Inspection by licensed electricians; Testing of wiring continuity, insulation resistance, and voltage drop; Verification of grounding systems; Thermal imaging for detecting hot spots. | Before energization, during installation, and periodic maintenance. |
| Mechanical Equipment | Compliance with manufacturer specifications; proper assembly, alignment, and calibration; absence of abnormal noise or vibrations. | Visual inspection for defects or damage; Functional testing under load conditions; Measurement of vibration levels; Lubrication checks; Performance verification against design parameters. | Before commissioning, during installation, and regular maintenance intervals. |
| Architectural Finishes | Compliance with architectural drawings and specifications; proper installation, alignment, and finish quality; absence of defects such as cracks, chips, or discoloration. | Visual inspection by architects or quality control inspectors; Measurement of dimensions and alignment; Surface finish assessment (e.g., gloss level, texture); Adherence to color and material standards. | Before final acceptance, during installation, and post-construction walkthroughs. |

# 6. Project Audits and Quality Reviews

# In the context of project management, conducting audits and quality reviews is crucial for ensuring that project processes and deliverables meet predefined standards and objectives. These audits and reviews involve systematic examinations and evaluations of project activities, documentation, and outcomes to identify areas of improvement, compliance issues, and deviations from quality standards. The purpose of this section is to outline the procedures and responsibilities involved in conducting project audits and quality reviews.

# 6.1 Quality Team Roles and Responsibilities

# The quality team for the Adelaide underpass project plays a critical role in ensuring that the construction meets the highest standards of quality and safety. Here are the key roles and responsibilities of the quality team members:

|  |  |
| --- | --- |
| Quality Manager: | * Oversees the overall quality management process for the project. * Develops quality management plans and strategies tailored to the underpass construction. * Defines quality metrics, objectives, and targets in alignment with project goals. * Collaborates with project stakeholders to ensure understanding and adherence to quality requirements. * Monitors and tracks quality performance throughout the project lifecycle. * Leads quality improvement initiatives and drives a culture of continuous improvement. |
| Quality Assurance (QA) Analysts: | * Develop comprehensive test plans and protocols for quality assurance activities. * Conduct independent evaluations and audits to ensure compliance with quality standards and specifications. * Perform testing and inspections to validate project deliverables against predefined requirements. * Identify areas for improvement in processes, procedures, and quality controls. * Provide recommendations for corrective and preventive actions to address quality issues. |
| Quality Control (QC) Inspectors: | * Conduct thorough inspections of materials, components, and finished structures during construction. * Verify compliance with specifications, codes, and regulatory requirements. * Perform visual inspections, measurements, and tests to identify defects or deviations from quality standards. * Document inspection results and maintain detailed records of quality assessments. * Collaborate with project teams to address and resolve quality issues in a timely manner. |
| Quality Improvement Specialists: | * Analyze quality data and performance metrics to identify trends, patterns, and areas for improvement. * Facilitate root cause analysis and problem-solving activities to address underlying quality issues. * Develop and implement corrective and preventive action plans to enhance project quality. * Provide training and guidance to project teams on quality management principles and best practices. * Monitor the effectiveness of quality improvement initiatives and adjust strategies as needed to achieve quality objectives. |

# 6.2 Quality Plan Audit Log

# The Quality Plan Audit Log serves as a comprehensive record of all audits conducted throughout the Adelaide underpass project. This log is essential for tracking the quality assurance and control activities, documenting findings, and ensuring compliance with established quality standards. Here are the key components of the Quality Plan Audit Log:

# Audit Date: The date when the audit was conducted.

# Audit Type: The type of audit performed, such as internal audit, external audit, process audit, or product audit.

# Auditor: The name or identification of the individual or team responsible for conducting the audit.

# Audit Scope: A brief description of the area, process, or activity audited.

# Audit Criteria: The criteria, standards, or requirements against which the audit was conducted.

# Audit Findings: Detailed findings and observations identified during the audit, including non-conformities, deviations, and opportunities for improvement.

# Corrective Actions: Any corrective actions recommended or initiated to address identified non-conformities or deficiencies.

# Responsible Party: The individual or department responsible for implementing corrective actions.

# Status: The current status of corrective actions, indicating whether they are open, closed, in progress, or pending verification.

# Verification: Verification of corrective actions to ensure they have been effectively implemented and have resolved the identified issues.

# Follow-up Actions: Any follow-up actions or additional audits planned based on the findings of the initial audit.

# Comments/Notes: Additional comments or notes relevant to the audit process, findings, or corrective actions.

# By maintaining a thorough Quality Plan Audit Log, the project team can ensure transparency, accountability, and continuous improvement in quality management processes throughout the Adelaide underpass project.

# 6.3 Quality Plan Approvals

Quality Plan Approvals are critical milestones in ensuring that the project's quality management framework aligns with established standards and requirements. Here's a structured approach to obtaining these approvals:

*Drafting the Quality Plan:* The quality management team, in collaboration with relevant stakeholders, develops a comprehensive Quality Plan outlining the project's quality objectives, processes, procedures, and metrics.

*Review by Quality Assurance:* The Quality Plan is reviewed by the Quality Assurance team to ensure it conforms to industry best practices, regulatory requirements, and project-specific quality goals.

*Stakeholder Review:* The draft Quality Plan is shared with key stakeholders, including project sponsors, clients, and subject matter experts, for their input and feedback.

*Incorporating Feedback:* Feedback from stakeholders and the Quality Assurance team is incorporated into the Quality Plan to address any identified gaps or deficiencies.

*Approval Submission:* Once the Quality Plan is finalized, it is formally submitted to the designated authority or governing body responsible for quality management oversight.

*Approval Review:* The submitted Quality Plan undergoes a rigorous review process by the approving authority to assess its completeness, accuracy, and compliance with relevant standards.

*Approval Decision:* Based on the review findings, the approving authority makes a decision to approve, reject, or request revisions to the Quality Plan.

*Revisions (if necessary):* If revisions are requested, the quality management team revises the Quality Plan accordingly and resubmits it for further review and approval.

*Final Approval:* Upon satisfaction with the revisions, the approving authority grants final approval to the Quality Plan, signifying its endorsement and acceptance.

*Distribution and Implementation:* The approved Quality Plan is disseminated to all project stakeholders, and its implementation is initiated according to the established timelines and protocols.

*Monitoring and Compliance:* The quality management team continuously monitors adherence to the approved Quality Plan throughout the project lifecycle, ensuring ongoing compliance and effectiveness.

*Periodic Review:* The Quality Plan undergoes periodic reviews and updates as necessary to reflect changes in project requirements, industry standards, or lessons learned from project execution.

By following this systematic approach to Quality Plan Approvals, the project team can establish a robust quality management framework that enhances project outcomes and stakeholder satisfaction.

# 7. Appendices

# 7.1 Customer Priority Worksheet

# In the Excel document, we have outlined a Comprehensive Quality Report for the Adelaide Underpass project. The document includes three worksheets: Customers List, Customer Priority and Requirements Priority.

# The Customer Priority worksheet prioritizes these stakeholders based on their importance to the project, considering factors such as impact, influence, and dependency.

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# 7.2 Requirements Priority Worksheet

The Requirements Priority worksheet lists 16 customer requirements, paired with the top five prioritized customers. These requirements are measurable and essential for the success of the project.

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