



State of New Hampshire

DEPARTMENT OF ADMINISTRATIVE SERVICES

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November 15, 2023

His Excellency, Governor Christopher T. Sununu
and the Honorable Council
State House
Concord, New Hampshire 03301

Re: Statewide Mechanical Engineering Services Consultant Agreement – McFarland-Johnson, Inc. for Professional Design and Construction Documents, On-site Observation, and Inspection for Mechanical Engineering Services for Public Works' Projects.

REQUESTED ACTION

Authorize the Department of Administrative Services, Division of Public Works Design and Construction to enter into an agreement with McFarland-Johnson, Inc. (Vendor Code 164736) 53 Regional Drive, Box 3, Concord, NH 03301 for Mechanical Engineering Services required for planning, design and construction of various Public Works' Projects as necessary and required by the Department. The contract is effective from the date of Governor and Council approval through June 30, 2027. The amount expended under this agreement shall not exceed \$500,000.

EXPLANATION

The Department proposes to retain the private consulting firm to expedite the current project workload and provide appropriate technical expertise as required for specific projects. This is one (1) of five (5) open-ended agreements for Mechanical Engineering Services that will be presented for approval. The agreement will enable the Department to respond quickly to unscheduled project requests and possible emergencies regarding Mechanical Engineering issues. The decision as to which projects will be assigned will be made on a case-by-case basis depending on the particular expertise required and the firm's current workload.

This type of consulting agreement will be funded from the monies for each project. The majority of projects needing this type of Mechanical Engineering Services consultant work are maintenance and capital funded projects.

This agreement is a proposed contract with the Mechanical Engineering Services firm selected to provide on-call Mechanical Engineering Services. It is anticipated that Mechanical Engineering Services can be handled by five (5) Engineering firms through the contract period.

The consultant selection process employed by the Department for this project is in accordance with RSAs 21-I:22, 21-I:22-c, and 21-I:22-d, all applicable Federal Laws and the Department's procedures for "Selection of Engineers, Architects and Surveyors" dated July 28, 2005. Consensus scoring was used in this selection process in order to assure that the perspective of each committee member received proper consideration during scoring deliberations. The following members of the NH Division of Public Works Design and Construction were on the selection committee: Theodore Kupper, P.E – Director; Michelle Juliano, P.E. – Deputy Director; and David Goulet – Public Works Project Manager III. Each member brings different strengths and knowledge to the table. This allows thorough discussion and weighing of the different perspectives during the scoring process. This process also makes follow-up explanations to the unselected firms easier.

In June 2023, the Division of Public Works Design & Construction solicited Registered Mechanical Engineers, by public announcement in the State, for interest in providing on-call Mechanical Engineering Services. The following eight (8) consultant firms submitted letters of interest.

B2Q
CHA Architecture, P. C.
DuBois & King
Harriman Associates

HL Turner Group
McFarland-Johnson, Inc.
Oak Point Associates
SMRT, Inc.

These firms were evaluated based on years of experience, experience on relative projects and past experience with the Division of Public Works, if any. The seven (7) rated firms listed below, were sent a Request for Technical Proposals:

B2Q
CHA Architecture, P. C.
DuBois & King
Harriman Associates

McFarland-Johnson, Inc.
Oak Point Associates
SMRT, Inc.

The proposals were rated on the comprehension of the assignment, clarity of the proposal, capacity to perform in a timely manner, quality and experience of the project manager and team, and overall suitability for the assignment.

It is now the Department's intent to enter into Statewide Consultant Service Agreements with the five (5) highest rated firms as their legal documentation and Certificate of Insurance become available.

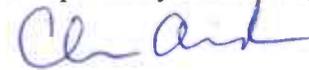
CHA
DuBois & King
Harriman Associates

McFarland-Johnson, Inc.
SMRT, Inc.

A copy of McFarland-Johnson, Inc.'s Statement of Qualifications is provided, herewith, for your information and convenience.

The subject agreement has been approved by the Attorney General as to form and execution. Copies of the fully executed agreement are on file at the Secretary of State's Office and the Department of Administrative Services, Division of Public Works Design & Construction.

Respectfully submitted,



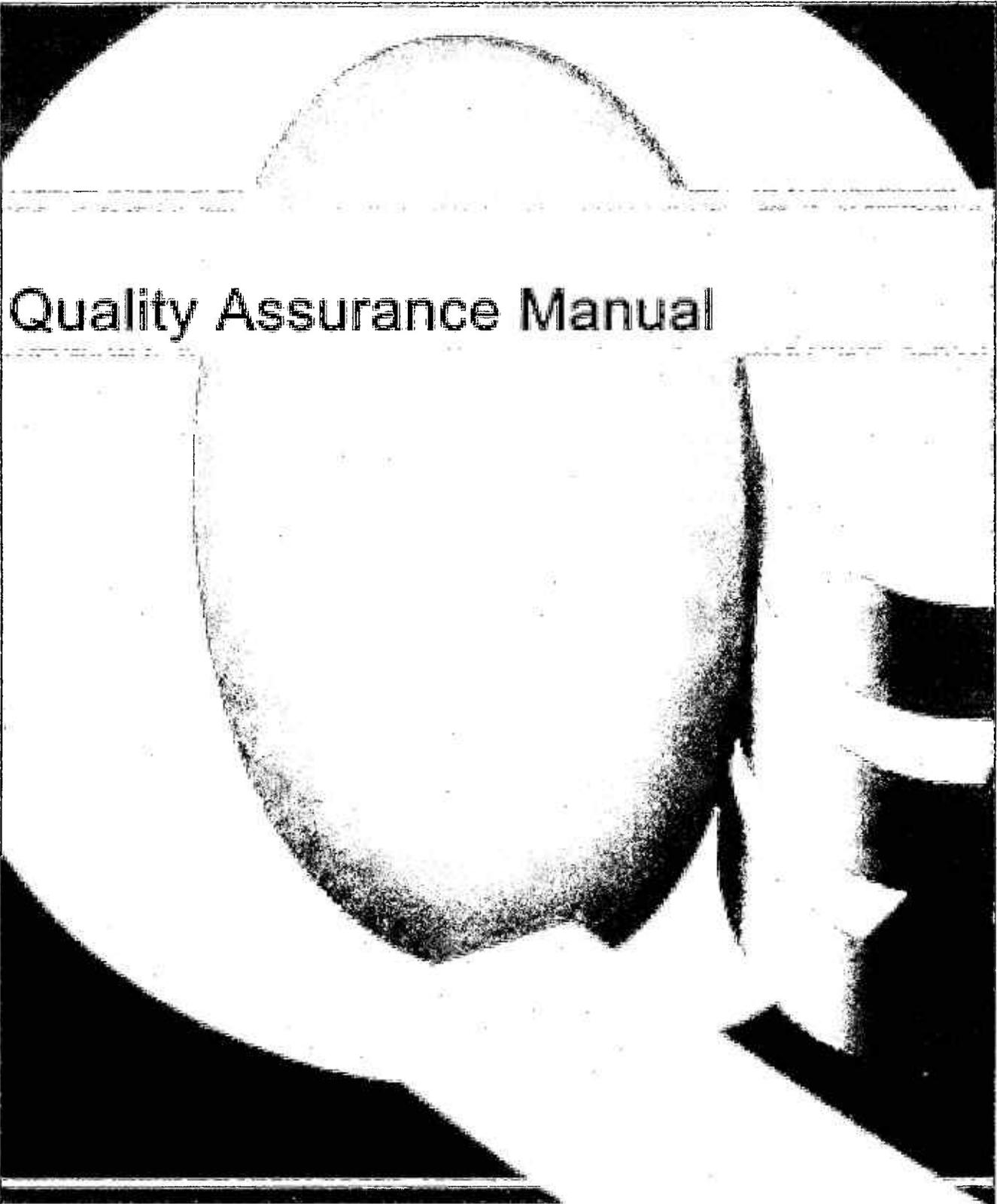
Charles M. Arlinghaus,
Commissioner

Attachments: McFarland-Johnson, Inc.'s Statement of Qualifications

cc: Theodore Kupper, P. E.,
Director

**COMMITTEE PROPOSAL RATING FOR
Mechanical Statewide Agreement**

Consultant Name	Comprehension of Assignment	Clarity of Proposal	Capacity to Perform in a Timely Manner	Quality and Experience of PM/Team	Overall Suitability for the Assignment	Total Score	Cumulative Score	
B2Q							43.0	
Ted Kupper	3	3	3	2	2	13		
Michelle Juliano	3	4	3	3	3	16		
David Goulet	3	3	3	2	3	14		
CHA							58.0	<===== Highest Rating
Ted Kupper	3	4	3	4	3	17		
Michelle Juliano	4.5	5	4.5	5	5	24		
David Goulet	3	4	3	4	3	17		
DuBois & King							54.5	<===== Highest Rating
Ted Kupper	3	3	3	3	4	16		
Michelle Juliano	4.5	4.5	4.5	4.5	4.5	22.5		
David Goulet	3	3	4	3	3	16		
Harriman							56.5	<===== Highest Rating
Ted Kupper	3	3	4	3	3	16		
Michelle Juliano	4.5	5	5	5	5	24.5		
David Goulet	3	3	4	3	3	16		
McFarland Johnson							66.0	<===== Highest Rating
Ted Kupper	4	4	4	4	5	21		
Michelle Juliano	5	5	5	5	5	25		
David Goulet	4	4	4	4	4	20		
Oak Point							49.5	
Ted Kupper	3	3	3	3	2	14		
Michelle Juliano	4	4.5	4.5	4.5	4	21.5		
David Goulet	3	3	3	3	2	14		
SMRT							55.0	<===== Highest Rating
Ted Kupper	3	3	3	2	4	15		
Michelle Juliano	5	5	5	5	5	25		
David Goulet	3	3	3	3	3	15		



Quality Assurance Manual



McFarland Johnson

Quality Assurance Manual

Table of Contents

1.0 ADMINISTRATION

- 1.1 VISION STATEMENT
- 1.2 MISSION STATEMENT
- 1.3 MCFARLAND-JOHNSON CORE VALUES
- 1.4 POLICIES AND PROCEDURES
 - 1.4.1 Quality Assurance Policy
 - 1.4.2 Proposal / Contracts Procedure
 - 1.4.3 Risk Management Policy
 - 1.4.4 Plan / Document Stamping Policy
 - 1.4.5 Electronic Media Policy
- 1.5 GOALS AND OBJECTIVES
 - 1.5.1 Goals
 - 1.5.2 Objectives
- 1.6 PROGRAM OVERVIEW (FLOW CHART)
- 1.7 ROLES, RESPONSIBILITIES AND AUTHORITY
- 1.8 PROJECT ORGANIZATION
- 1.9 TRAINING

2.0 QUALITY ASSURANCE PROGRAM

- 2.1 PURPOSE
- 2.2 QUALITY ASSURANCE PROGRAM DOCUMENTS
- 2.3 SUPPLEMENTARY PROGRAM, PROCEDURES AND INSTRUCTIONS
- 2.4 PROJECT QUALITY ASSURANCE PLAN

3.0 ENGINEERING / PROJECT CONTROL

- 3.1 PROJECT MANAGEMENT
 - 3.1.1 Purpose
 - 3.1.2 Project Set-Up
 - 3.1.3 Project Management Plan
 - 3.1.4 Teamwork
 - 3.1.5 Records/Document Control
 - 3.1.6 Liability and Technical Risk Assessment
 - 3.1.7 Financial Risk Assessment
 - 3.1.8 Engineering Change Notice or Contract Amendment

- 3.1.9 Independent Technical Review
- 3.2 APPLICABLE CODES, STANDARDS, AND REGULATIONS
- 3.3 DATA COLLECTION
- 3.4 CALCULATIONS
- 3.5 DESIGN DRAWINGS
- 3.6 SPECIFICATIONS
 - 3.6.1 Technical Specifications
 - 3.6.2 Legal and Procedural Specifications
 - 3.6.3 Startup, Demonstration and Training
 - 3.6.4 Checking and Coordination
- 3.7 STUDIES AND REPORTS
- 3.8 OPINION OF PROBABLE PROJECT COST
- 3.9 PROGRESS / WORKING DOCUMENTS
- 3.10 ENGINEERING RESOURCE UPDATES

4.0 PROCUREMENT

- 4.1 SUBCONSULTANT'S CONTROLS
- 4.2 PROCEDURES
 - 4.2.1 Content of Procurement Documents
 - 4.2.2 Review and Approval of Procurement Documents
 - 4.2.3 Review/Coordination and Approval of Subconsultant's Work

5.0 CONSTRUCTION ADMINISTRATION

- 5.1 CONSTRUCTION ADMINISTRATION
- 5.2 DESIGN SUPPORT DURING CONSTRUCTION
- 5.3 STARTUP, TESTING, DEMONSTRATING AND TRAINING
- 5.4 PROJECT CLOSURE
- 5.5 CONSTRUCTION MONITORING / OBSERVATION
- 5.6 SUBMITTAL PROCEDURE
 - 5.6.1 Submittal Review
 - 5.6.2 Submittal If No Client Guidelines Exist
 - 5.6.3 Submittal Stamp (If no Client Stamp Exists)
 - 5.6.4 Record Documents
 - 5.6.5 Operation and Maintenance Manual

6.0 AUDITS AND MANAGEMENT REPORTS

- 6.1 AUDITS
- 6.2 CORRECTIVE ACTION
- 6.3 QUALITY ASSURANCE MANAGEMENT REPORTS
- 6.4 MANAGEMENT REVIEWS

7.0 FEEDBACK/PROCEDURE MODIFICATION

7.1 FEEDBACK

7.1.1 Client / Owner

7.1.2 Contractor

7.1.3 Project Team Members

7.2 MODIFICATIONS TO QC/QA PROCEDURES

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1.0 ADMINISTRATION

1.1 VISION STATEMENT

"MJ will be recognized as a progressive company driven by innovative employee-owners working together as one team in a fun and learning environment, who are dedicated to achieving our Customer's goals while improving our communities, our families and ourselves."

1.2 MISSION STATEMENT

"McFarland Johnson exists to create value for our clients and our employees while maximizing our opportunity to positively impact our world, by improving the built environment".

1.3 McFARLAND JOHNSON CORE VALUES

Core values are "deeply held beliefs or ideals that guide or affect our behaviors and actions". Upon completion of the Values Assessment by over 75% of the staff there was consensus that these values would constitute MJ's Core Values to which we will aspire to achieve Employee Engagement, One Company, Entrepreneurial, Client Service, Sustainability and Innovation. See Appendix for more details on **McFarland Johnson Core Values**.

1.4 POLICIES AND PROCEDURES

1.4.1 Quality Assurance Policy

It is McFarland-Johnson, Inc.'s (MJ) policy and objective to meet or exceed our clients' expectations for quality service and deliverables. To achieve this, MJ will manage our project requirements in a timely, efficient, responsive, cost effective and professional manner.

In support of this policy, the firm has a **Quality Assurance Program** where procedures and systematic actions are established to assist in ensuring that MJ provides high quality services and products consistent with clients' expectations.

The firm also has a **Quality Control Program**, which consists of a system of procedures, including independent checking of work and use of control points (approvals) to instill a high level of confidence that our

services and deliverables will meet clients' expectations and conform to statutory, regulatory, and best practices when practicable.

Lastly, to monitor the execution and effectiveness of this policy, a **Management Review and Audit Program** will be conducted annually of each operating office's quality assurance procedures and controls to document program compliance and corrective actions. In addition, where appropriate, continuous improvements will be identified and implemented as part of the on-going process.

Achievement of the objective of this policy involves the efforts of all staff that are individually responsible for the quality of their work. In addition, each member of MJ's management, through their decisions and actions, creates a culture that reinforces that quality is a primary value at MJ.

1.4.2 Proposal / Contracts Procedure

McFarland-Johnson, Inc. has established the following procedures for price proposals and contracts.

1. All contracts, supplemental agreements, task orders, and price proposals, leases or any other document committing the company to provide or receive services in exchange for money must be reviewed by one of the following before they are sent out and before the price is quoted to the Client – President, Vice Presidents, or ROM's, subject to price limitation.
2. Officers of the Company, are authorized to execute any agreements on behalf of the Company, subject to #1 above.
3. ROM's of the Company are authorized to execute project related agreements only, for the Company, as long as the value of any agreement does not exceed \$25,000, and as long as #1 above has been followed. In rare cases, where unusual circumstances occur, a ROM may be authorized by a Corporate Officer to execute a project related agreement with a fee greater than \$25,000. In those cases, a written authorization from a Corporate Officer shall be sent to the signing ROM, with a copy placed in the project file.

1.4.3 Risk Management Policy

Before MJ begins to spend the time necessary to develop a scope of services and fee estimate for a new project, certain advance preparation is needed. We should always be cognizant of who our client is, how real the proposed project is, and our client's ability to compensate MJ for the effort needed to successfully complete the project. Often, Public sector clients pose less risk with regard to ability to pay, but may pose other risks like being inflexible about paying for supplements for out of scope services or demand redesign at no cost if contractor bids come in over a predetermined budget.

With Private sector clients, developers, non-profits, healthcare, architects, etc., it is necessary to get to **know** the client. Is the client an owner or another design professional? Find out how reliable the client/owner is with regard to paying for services, does the client have the financial resources to complete the project, what level of experience does the client/owner have with projects of a similar nature, what expectations does the client/owner have with regard to project budget, how realistic is the schedule, are the design services being bid, what level of hand-holding will be necessary to see the project through to completion? All these items can have an impact on how successful the project will be for MJ.

The following are the guidelines MJ has developed to help minimize the risks associated with the business of consulting.

1. First-time Client Selection (Private Clients)
 - a. The ROM or individual making the go/no-go decision shall ask the Accounting Department to obtain and review Dunn & Bradstreet report to determine client payment history and financials.
 - b. The Project Manager or his/her supervisor shall obtain and check past project references.
 - c. The Project Manager shall do a web search on the client's name or past names to learn more about your client; this may also provide additional names to check for references.
 - d. If the results of a, b and c above are inconclusive and the ROM wishes to pursue, the proposal/contract for the effort shall require retainer or escrow funds. The amount of the retainer should be 20% of the contract value, or 45 days of estimated labor effort plus ODCs, whichever is less.

2. Clients with whom MJ has had issues

Sometimes projects overrun for reasons not attributable to the client. Other times the client has some culpability in MJ's loss on a project. For clients where MJ has experienced past problems with accounts receivable, budget overruns or professional liability claims, it is important to get prior written approval from the COO prior to starting to develop an offer of service. If the ROM is uncertain of past client history, he/she shall contact the COO and CFO to determine if prior problems exist with a client.

3. Contract / Agreement (All Clients)

The policy for MJ starting work is as follows:

- a. For all projects, MJ shall prepare a sufficiently detailed scope / fee and schedule. Do not begin work until MJ receives a signed agreement or signed commitment letter from client, or written authorization to proceed from the COO. In most cases, Municipal Law prohibits Public clients from retaining professional services without a contract, or an authorizing resolution.
- b. In the rare cases where it is necessary to begin without any signed documentation from the client, after approval from the COO to proceed, a **confirming letter or email must be sent to the client, prior to our beginning any work by an Officer or ROM**, conveying our agreement to proceed based on verbal commitments made by the client and our expectations of receipt of a formal contract within a stipulated timeframe (a sample of a Pre-Project Agreement authorization letter is located at Q/Standard Agreements/017).

This document shall be developed by a Project Manager or Group Manager, sent out by a Regional Office Manager or Officer, and approved by the COO. At a minimum, this document shall include:

- 1) Document exceptions, stipulations and reason for starting w/o contract.
- 2) Develop and document maximum exposure threshold.

For projects with a fee < \$25K, no more than \$5K worth of effort shall be expended w/o a formal contract agreement.

For projects with a fee > \$25K and < \$75K, no more than \$10K of effort may be expended w/o a formal contract agreement.

For projects > \$75K, develop and document trigger points (i.e.; % of contract value when stop work order is issued). This document shall state that MJ must have written authorization from the client before MJ will advance the project beyond \$10K worth of effort, and MJ must have an executed agreement for the complete project before MJ advances the work beyond the 50% point.

In all cases where we are working at risk, without a signed contract, no deliverables are to be given to the client if accounts receivable are greater than \$5K or 45 days. All work must stop on the project if accounts receivable exceed \$30K or 60 days.

The ROM's shall monitor all such "at risk" projects and keep the COO aware of their status.

4. Project Schedule / Scope / Fee Impact after Contract Execution
 - a. Where possible, include a change order process within contract.
 - b. When an event occurs that will affect the project scope, schedule or fee, Project Managers must document the event and discuss the situation with their next level of management. If the change is outside the original scope of services, will cause MJ's costs to increase and/or cause the project schedule to lengthen, the Project Manager must develop a contract amendment identifying the changed condition and fee impact, have it approved by the next level of management, then submit it to the client for execution before proceeding with the work.
 - c. In situations where we are asked to proceed with "extra" work before a formal contract amendment can be put into place, the Project Manager must make their ROM aware of the situation. Should the ROM decide that it is in MJ's best interest to proceed in advance of a contract amendment:

- 1) The ROM must quantify the out of scope effort. If the effort is less than \$10K, the ROM shall send an email to the COO seeking approval by explaining the situation, quantifying the effort at risk and stating when MJ can expect to receive a signed amendment for the work.
- 2) A copy of this email shall be sent to the project accounting file in Binghamton.
- 3) A letter shall be sent to the client describing the out of scope services and stating that MJ is proceeding with the requested out of scope work with the understanding that a formal contract amendment will be executed by (insert date). A copy of this letter must be forwarded to Accounting when it is sent to the client, and when the executed amendment is received back from the client.
- 4) If the out of scope effort is expected to exceed \$10K, prior approval must be received from the COO. Such approval shall be documented by the approving party signing off on the email issued by the ROM in 1) above, and forwarding copies to Accounting.

5. Deviations From Risk Management Policy

Any requested deviations or exceptions from the above policy shall be put in writing and submitted to the COO for approval.

1.4.4 Plan / Document Stamping Policy

Licensed employees (engineers, surveyors, architects, planners, etc.) of Project Engineer (PØ5) level and above may be required to affix their seal to those documents (plans, specifications, reports, etc.) which are prepared by them or under their direct supervision in accordance with the state having jurisdiction over a project.

All states in which McFarland-Johnson, Inc. currently operates requires documents be sealed by a licensed individual under whose direct responsible charge said documents were prepared.

In those instances where a stamp / seal is required and where the professional in responsible charge of the project is either not licensed in that particular state, or not licensed at all, another senior employee in the firm can stamp/seal the document, when given sufficient notice to be able to perform necessary reviews of calculations, check prints, etc. No construction documents will be sealed without properly complying with State licensing regulations. It shall be the responsibility of the ROM, Division or Group Manager to provide oversight to this policy.

1.4.5 Electronic Media Policy

Because data stored on electronic media can deteriorate undetected over time or be modified without McFarland Johnson's knowledge, it is the policy of McFarland Johnson not to convey any product data in final form to clients or any third party, via Electronic Form only. McFarland Johnson is responsible for, and stands by, the accuracy of our final sealed drawings and reports (hard copies only). McFarland Johnson should avoid entering into a contract that requires the submittal of final documentation via Electronic Media. When this cannot be avoided, the COO or ROM should be contacted so appropriate indemnification language can be included in the contract. In cases where a client requested final copies on electronic media, even though it is not required by contract, the COO must be contacted to decide if the request is appropriate, and to send a transmittal letter with appropriate indemnification language (see attached sample in Appendix A of the Operational Manual or found electronically in Forms under the Q: drive).

In no cases should copies of documentation be transmitted, via electronic media or otherwise, to third parties without written authorization from the client, and appropriate indemnification from the client and third party. **This policy is under review and will be reissued upon revision.**

1.5 GOALS AND OBJECTIVES

1.5.1 Goals

The goal of the Quality Assurance Program is to enhance quality by applying the framework of the program to each individual project. Success in its implementation requires a technically competent staff; talented and dedicated project managers, engineers, and planners; and senior management commitment.

Each of these individuals is encouraged to become aware of the criteria used by our clients in assessing the quality of our work and comparing it to their standards, as well as to the work of our peers. These basic evaluation criteria are as follows:

- Understanding of the clients' requirements
- Knowledge of and correct usage of design criteria, standards, and specifications
- Knowledge of and use of current state-of-the-art technology when applicable
- Organization and clarity of our work product
- Organization of project files, records, and data retrieval systems
- Commitment to continued self-assessment and improvement of services
- Delivering quality products in a timely manner (maintaining quality while on a tight schedule)

1.5.2 Objectives

To achieve the quality assurance program goal of enhanced quality, specific objectives are as follows:

- Client Satisfaction/Awareness of Quality - Employees should become aware of the acceptable and the desirable standards for their tasks and services. Management should explain to them the implications of carelessness, errors, and failure to produce a quality project. The ultimate objective is to provide good designs, plans, and specifications that meet the requirements of the client for the project, and that meet professional standards of care.
- Minimize Risk - All steps shall be taken to minimize the project's exposure to risk, i.e. lack of specific project experience by staff, lack

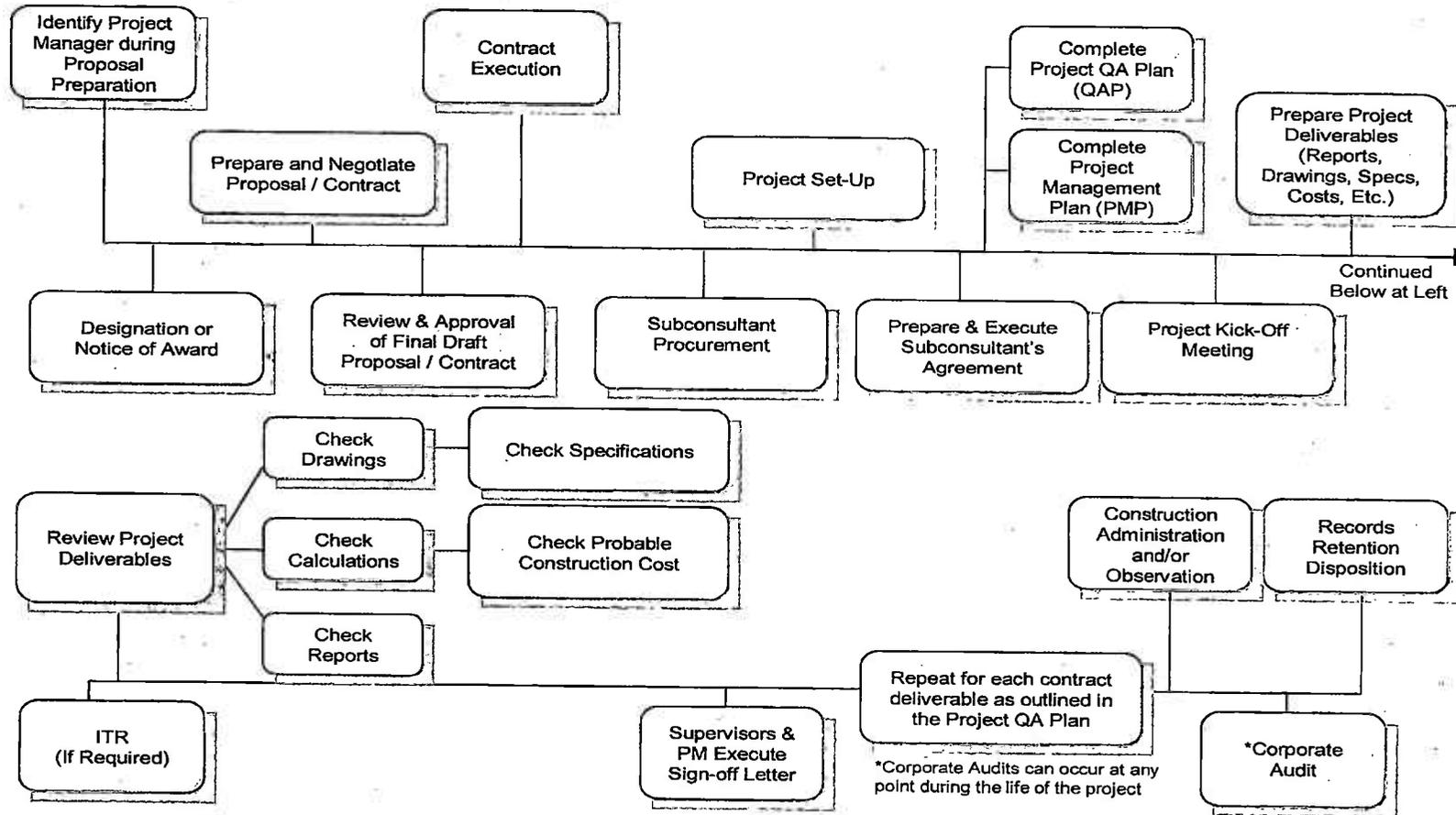
of technology, heavy staff workload, lack of reviewers and checkers, significant project complexity, fast-track projects, project scale and cost are significant. These risks must be assessed and may call for an Independent Technical Review (ITR) or the use of external consultants.

- Training New Employees to Facilitate Technical Competence - Continuous upgrading of professional skills and education in current and new techniques is actively encouraged.
- Standard of Care - To maintain a standard of care consistent with the profession, periodic reviews of project plans, designs, calculations, specifications, and reports are to be made by senior experienced personnel. Strengths and weaknesses should be identified, and each professional should be given guidance, critique, or commendation as appropriate.
- Legal Implications - All technical and administrative managers and staff members should be fully cognizant of general standards of professional liability that may be applied to the firm with respect to work prepared under his/her direction.
- Continuous Improvement - Each technology (area of expertise) shall be responsible for keeping abreast of, or in the forefront of the standard of care for that technology. Attendance at technical meetings, seminars, and courses is encouraged.



1.6 PROGRAM OVERVIEW

QUALITY ASSURANCE PROGRAM FLOWCHART



1.7 ROLES, RESPONSIBILITIES AND AUTHORITY

President / Chief Executive Officer: The President / CEO reports to the Board of Directors and is responsible for directing the company towards its vision. The CEO has a fundamental interest in the company utilizing sound engineering principles and related scientific methodologies in all its projects.

Chief Operating Officer (COO): The Chief Operating Officer reports to the President / CEO and is responsible for managing the day-to-day company-wide operations. The COO's focus shall be the development, implementation, operation and improvement of the systems that create and deliver the firm's services, including the dissemination of company policies, the review and execution of all major contracts and projects, operations improvement to include quality control and continuous improvement, the handling of legal issues, and the management of professional liability insurance and related issues.

Quality Assurance Team: The Quality Assurance Team working closely with the office / division / group managers is responsible for ensuring that the project managers are adhering to the company Quality Assurance Manual. The role of this team is to help maintain the Quality Assurance Manuals, act as a resource to the users of the manual, and to conduct and oversee audits of the quality assurance program. The team shall also select and train all auditors. This team would help to clarify any questions about the quality assurance protocols and to document that the policies are, or are not complied with uniformly across the company. See Appendix for a listing of **team members**.

Office / Division / Group Leader: The Office / Division Manager would assist the Quality Assurance Team in the performance of their duties and be responsible for making sure that codes, standards, and regulations available to the project managers are current with the standards of the industry. The role of the Office / Division is to approve Project Management Plans, Quality Assurance Plans, and verify that project managers are following quality assurance protocols, group personnel are trained, ensuring audit report corrective actions are implemented and assist the Quality Assurance Team in the conduct of any audits.

Project Manager: The Project Manager has the primary responsibility for converting the Client's and/or Owner's

requirements into project information in the form of specifications, drawings, reports, procedures, and data sheets. The Project Manager is also the focal point for communications among the project team members and the client, consultants, regulatory agencies, and the next level of management. The Project Manager has the additional responsibility of seeing that projects are completed following the quality assurance protocols of the company as described in this manual.

Lead Professional (Discipline): The Lead Professional is responsible for the elements of the project as delegated by the Project Manager. The delegated items are normally technical in nature. The Lead Professional reports to the Project Manager and is responsible to the Project Manager for the task completion and quality of the work, but the ultimate responsibility of the task completion and quality remain with the Project Manager. On projects requiring multiple disciplines, Lead Professionals are selected as needed by the Project Manager to act as the senior expert for each discipline. In this role the lead professional should be:

- The key contact person for a specific discipline / technology.
- Instrumental in developing or accepting the project management plan for the specific discipline / technology.
- Accountable for the discipline / technologies product and process.
- The local / division / discipline champion for the project.
- Knowledgeable of project and construction budgets and schedules.
- The "PM" for the local / divisional discipline work.
- The "go-to" person for the PM.

Project CAD Facilitator and Coordinators: The Project CAD Facilitator and coordinators are responsible for maintaining CAD files and associated file documentation for the given project. At the onset of a project the Project Manager and Project CAD Facilitator should work together to determine the CAD standards and protocols required for a given project or a particular client. It is the responsibility of the Project CAD Facilitator to notify the Project Manager when project files are not conforming to the parameters established for the project. It remains the responsibility of the Project Manager to arbitrate any CAD issues and oversee the Project CAD Facilitator in their role.

1.8 PROJECT ORGANIZATION

All projects, even those involving more than one MJ office, department, or division will have one designated Project Manager. This provides for continuity throughout the entire project. Quality Assurance responsibilities are as described in other sections.

The remainder of the project team is made up of qualified and experienced engineers, planners, environmental analysts, designers, or technicians drawn from the various MJ offices, departments, or divisions. The offices, departments, or divisions represented will be selected to satisfy the needs of the project, but each technology will be headed by a lead professional reporting to the Project Manager.

Project staff members report to the assigned Project Manager or designated lead professional for technical and administrative direction. Each project staff member has responsibility for performance of assigned quality duties, which include:

- Completing an assigned project or project task on or ahead of schedule, within budget, and in a quality manner in accordance with established procedures, the Scope of Work, and the expectations of the Client.
- Ascertaining that work is technically correct and conforms to the company's Quality Assurance Program.

Another key group whose impact is vital to the success of the project is the CAD Coordinators and Facilitator. It is essential that each discipline be represented by a CAD Coordinator, and that a CAD Facilitator usually from the project's home office oversees the entire group. As the name implies, the CAD coordinators are responsible for coordinating all CAD-related matters (standards, file updates, compatibility issues, etc.) for their discipline.

Additionally, the project team may include outside subconsultants, who will report to either the Project Manager or a designated lead professional. See Appendix for a **Sample Project Organization Structure.**

1.09 TRAINING

An effective QA/QC program is dependent on a training program to ensure that personnel who plan, implement and review a project have the skills needed to perform their respective responsibilities. The depth of each team member's knowledge and

skills contributes to MJ's ability to achieve its mission and goals. Thus all MJ's personnel should be trained to a level that advances MJ's commitment to quality as well as company strategic initiatives.

MJ's procedures require staffing a project with individuals appropriately trained and having the requisite experience for their assignments. The selection of properly trained and experienced personnel to staff the project team is an important aspect of a written project management plan. The need for project specific training can be identified during the proposal phase or at the initial stages of the project and provided for in the written project management plan. When a need is identified for project specific training, training is provided to address the need. To keep up with changes in procedures and technologies MJ encourages continuing education programs and provides financial assistance to our staff for advanced degrees and attendance at workshops. It is the responsibility of each operating office to establish an annual training budget to support the above.

Training includes:

- Training in specific areas or disciplines as required by market forces and strategic initiatives.
- Training on a regular basis in order to review program elements or system procedures.
- Training by instructors selected from within the company based on their area of expertise.
- Training for specialized areas of expertise by guest instructors from outside the discipline or company.
- Training by participation in outside courses and seminars.
- Training for technology development and career development.

All training given will be recorded for audit purposes and personnel records will be maintained accordingly.

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2.0. QUALITY ASSURANCE PROGRAM

2.1. PURPOSE

This section describes the elements that comprise the Quality Assurance Program and the manner in which the requirements of the program are applied to a project as described in a Project Quality Assurance Plan. This program has been developed keeping in mind every aspect of the business cycle, as they may apply, and made provisions at every point to stipulate specific performance requirements, the parties responsible for said performance, a detailed methodology, a method of documenting the activity and a means to verify performance compliance.

2.2. QUALITY ASSURANCE PROGRAM DOCUMENTS

The Quality Assurance Program requirements described in this manual are intended to provide guidance for the preparation of Quality Assurance Programs for all of MJ's projects. The program verifies compliance with the contract requirements and the appropriate professional standard of care. The Quality Assurance Program provides for the generation of documentation necessary to establish objective evidence of the achievement of quality goals in all phases of the project including the following processes:

- The design, report writing and construction administration processes are accomplished in accordance with established standard practices or procedures.
- Procurement documents contain appropriate quality requirements.
- Non-conformances are identified and disposition provided.
- Construction inspection and record retention/disposition functions are performed in accordance with established procedures.
- Review of activities, written work products, and documentation is performed.
- Contract requirements are being met.
- Audits of quality-affecting activities are performed on a scheduled basis.
- A Project Central File shall be established and maintained, within which a quality assurance folder is established and maintained.



PROJECT QUALITY ASSURANCE PLAN

2.3. **SUPPLEMENTARY PROGRAMS, PROCEDURES, AND INSTRUCTIONS**

The Quality Assurance Manual is supported, as required, by project-specific quality assurance programs, and supplementary procedures and instructions that address specific regulatory or contractual requirements and amplify the procedures described herein.

2.4. **PROJECT QUALITY ASSURANCE PLAN**

All projects vary depending on the type of contract, type of service to be rendered, scope of work, project phasing, etc. Therefore, the application of the requirements of the Quality Assurance Program is tailored to each specific project by means of the Project Quality Assurance Plan.

The Project Manager shall develop a written Project Quality Assurance Plan for each project during the Project Management Plan Development Phase (Section 3.1.3). This Plan identifies which elements of this program are applicable to the project and is supplemented by a schedule of deliverables, planned Independent Technical Reviews, and reviewers (if known). The Exhibit titled "Project Quality Assurance Plan" may be used for this purpose with attached memorandum as necessary. The Project Quality Assurance Plan could incorporate all applicable elements of the MJ Quality Assurance Manual; it could incorporate only specific applicable elements; or it could incorporate additional elements or procedures required by the contract conditions.

The Project Quality Assurance Plan shall be reviewed and approved by the Project Managers next level of supervision and become part of the Project Management Plan.

Revisions to the Project Quality Assurance Plan shall require the same level of review and approval as the original document. The Project Manager shall insert the revised Plan in the Project Management Plan (Section 3.1.3).

Q:[quality assurance]section2.doc



PROJECT QUALITY ASSURANCE PLAN

Project Number: _____

Project Name: _____

Client: _____

Any sections of the manual or parts thereof that are not required or applicable must have a written explanation and be approved by the Project Managers direct supervisor.

Yes No

1.0 ADMINISTRATION

- | | | | |
|--------------------------|--------------------------|-------|---------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 1.1 | VISION STATEMENT |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.2 | MISSION STATEMENT |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.3 | MCFARLAND-JOHNSON CORE VALUES |
| | | 1.4 | POLICIES AND PROCEDURES |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.4.1 | Quality Assurance Policy |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.4.2 | Proposal / Contracts Procedure |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.4.3 | Risk Management Policy |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.4.4 | Plan / Document Stamping Policy |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.4.5 | Electronic Media Policy |
| | | 1.5 | GOALS AND OBJECTIVES |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.5.1 | Goals |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.5.2 | Objectives |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.6 | PROGRAM OVERVIEW (FLOW CHART) |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.7 | ROLES, RESPONSIBILITIES AND AUTHORITY |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.8 | PROJECT ORGANIZATION |
| <input type="checkbox"/> | <input type="checkbox"/> | 1.9 | TRAINING |

2.0 QUALITY ASSURANCE PROGRAM

- | | | | |
|--------------------------|--------------------------|-----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 2.1 | PURPOSE |
| <input type="checkbox"/> | <input type="checkbox"/> | 2.2 | QUALITY ASSURANCE PROGRAM DOCUMENTS |
| <input type="checkbox"/> | <input type="checkbox"/> | 2.3 | SUPPLEMENTARY PROGRAM, PROCEDURES AND INSTRUCTIONS |
| <input type="checkbox"/> | <input type="checkbox"/> | 2.4 | PROJECT QUALITY ASSURANCE PLAN |

3.0 ENGINEERING / PROJECT CONTROL

- | | | | |
|--------------------------|--------------------------|-------|---|
| | | 3.1 | PROJECT MANAGEMENT |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.1 | Purpose |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.2 | Project Set-Up |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.3 | Project Management Plan |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.4 | Teamwork |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.5 | Records/Document Control |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.6 | Liability and Technical Risk Assessment |



PROJECT QUALITY ASSURANCE PLAN

- | Yes | No | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.7 Financial Risk Assessment |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.8 Engineering Change Notice or Contract Amendment |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.1.9 Independent Technical Review |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.2 APPLICABLE CODES, STANDARDS, AND REGULATIONS |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.3 DATA COLLECTION |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.4 CALCULATIONS |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.5 DESIGN DRAWINGS |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.6 SPECIFICATIONS |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.6.1 Technical Specifications |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.6.2 Legal and Procedural Specifications |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.6.3 Startup, Demonstration and Training |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.6.4 Checking and Coordination |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.7 STUDIES AND REPORTS |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.8 OPINION OF PROBABLE PROJECT COST |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.9 PROGRESS / WORKING DOCUMENTS |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.10 ENGINEERING RESOURCE UPDATES |
| <input type="checkbox"/> | <input type="checkbox"/> | 4.0 <u>PROCUREMENT</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | 4.1 SUBCONSULTANT'S CONTROLS |
| <input type="checkbox"/> | <input type="checkbox"/> | 4.2 PROCEDURES |
| <input type="checkbox"/> | <input type="checkbox"/> | 4.2.1 Content of Procurement Documents |
| <input type="checkbox"/> | <input type="checkbox"/> | 4.2.2 Review and Approval of Procurement Documents |
| <input type="checkbox"/> | <input type="checkbox"/> | 4.2.3 Review/Coordination and Approval of Subconsultant's Work |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.0 <u>CONSTRUCTION ADMINISTRATION</u> |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.1 CONSTRUCTION ADMINISTRATION |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.2 DESIGN SUPPORT DURING CONSTRUCTION |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.3 STARTUP, TESTING, DEMONSTRATING AND TRAINING |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.4 PROJECT CLOSURE |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.5 CONSTRUCTION MONITORING / OBSERVATION |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.6 SUBMITTAL PROCEDURE |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.6.1 Submittal Review |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.6.2 Submittal If No Client Guidelines Exist |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.6.3 Submittal Stamp (If no Client Stamp Exists) |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.6.4 Record Documents |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.6.5 Operation and Maintenance Manual |



PROJECT QUALITY ASSURANCE PLAN

Yes No

6.0 AUDITS AND MANAGEMENT REPORTS

- | | | | |
|--------------------------|--------------------------|-----|--------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 6.1 | AUDITS |
| <input type="checkbox"/> | <input type="checkbox"/> | 6.2 | CORRECTIVE ACTION |
| <input type="checkbox"/> | <input type="checkbox"/> | 6.3 | QUALITY ASSURANCE MANAGEMENT REPORTS |
| <input type="checkbox"/> | <input type="checkbox"/> | 6.4 | MANAGEMENT REVIEWS |

7.0 FEEDBACK/PROCEDURE MODIFICATION

- | | | | |
|--------------------------|--------------------------|-------|-----------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | 7.1 | FEEDBACK |
| <input type="checkbox"/> | <input type="checkbox"/> | 7.1.1 | Client / Owner |
| <input type="checkbox"/> | <input type="checkbox"/> | 7.1.2 | Contractor |
| <input type="checkbox"/> | <input type="checkbox"/> | 7.1.3 | Project Team Members |
| <input type="checkbox"/> | <input type="checkbox"/> | 7.2 | MODIFICATIONS TO QC/QA PROCEDURES |

Prepared by: _____ Date: _____
Project Manager

Approved by: _____ Date: _____
Division / Office Manager or
Designee

** All contractual deliverables (and calculations) shall be prepared and checked in accordance with the manual.

3.0 ENGINEERING / PROJECT CONTROL

3.1 PROJECT MANAGEMENT

3.1.1 Purpose

The Project Manager has the primary responsibility for converting the Client's and/or Owner's requirements into deliverables in the form of specifications, drawings, reports, procedures, and data sheets. The Project Manager is also the focal point for communications among the project team members and the client, consultants, regulatory agencies, and the next level of management.

The critical elements of Project Management include negotiating and contracting; project planning and management; team building and teamwork; conformance to company policies and procedures; subcontracting; project communication and records; construction phase services and project closeout.

3.1.2 Project Set-up

The Project Manager should obtain a copy of the proposal, relevant backup materials (i.e. subconsultant proposals, notes from site visits, etc.) and fully executed contract. The Project Manager is responsible for obtaining the project number from the accounting department, setting up the Project Input Form (PMF), providing this information to the accounting department, and contacting the IT department to establish a directory on the appropriate server. After the above set-up is complete the Project Manager will communicate with accounting personnel to discuss and finalize billing procedures including method of compensation, schedules, invoice format (including a sample invoice), and reimbursable items.

The Project Manager shall prepare subconsultant agreements and work with the next level of management to get the subconsultants under contract.

Upon reviewing the proposal and contract the Project Manager will identify specific members of a project team with requisite technical backgrounds associated with the project.

The Project Manager shall prepare and regularly update a schedule for any project longer in duration than four (4) weeks and involving two (2) or more people.

3.1.3 Project Management Plan

During the initial phase of a project, when the work authorization process is initiated and before significant project work commences, the Project Manager with assistance from team members shall develop a Project Management Plan for the project. A Project Management Plan is not required for a project with a fee less than \$2,500. This document may be compiled with excerpts from existing documents and must include at a minimum the following sections:

- Client information (i.e., contact names, phone numbers and email addresses)
- Subconsultant information
- Fully executed contract and budget information (to include cost to complete reporting process)
- Project program or scope (including scope change process)
- Controlling conditions and special risks unique to the Project
- Basis for Design and Technical approach to the Project
- Project Quality Assurance Plan (See Section 2.4)
- Project schedule (contractually required software, other software, or a list of milestone dates)
- Plantrax (required for every project with a fee greater than \$2,500 or a duration greater than one month)
- Project Team / Organization (See Appendix for a sample project team structure) (include subconsultants and their responsibilities)
- Definition of methods of communication and documentation
- Project CAD Standards
- Code Requirements
- Value Proposition

Two (2) sample Project Management Plan templates have been developed for Project Managers to use or reference. They can be found on the Binghamton Q drive at Q:\Quality Assurance\Public Use, or on the Corporate page of the Intranet under Quality Assurance.

A Lead Professional for each required discipline shall be identified by the Project Manager as the single point of contact for their

discipline. This single point of contact shall in person or by way of teleconference be included in all internal project meetings. This person shall be responsible for schedule and fee assigned to that discipline and report on same as required by the Project Manager.

The Project Manager shall outline the effort of each discipline by component parts (reports, drawings, estimate, etc.). This will include a general description of the scope of services to be performed for the project, the specific scope of services to be performed by the discipline and the budget and schedule for those services. This information shall be part of the Project Management Plan.

The Project Manager shall require each Lead Professional to analyze the project as follows:

1. List basic information (i.e. design information, staffing requirements, software/hardware needs) required to accomplish the outlined tasks and schedule.
2. Identify other Lead Professionals who must furnish information to permit accomplishment of their outlined tasks.

The Project Manager shall establish milestones for all exchanges of information among each Lead Professional and shall assign a specific date for each milestone to fulfill project time requirements.

1. Established dates will determine manpower requirements for each Lead Professional.

2. The date for each milestone will be used to measure progress of project (if required information is not exchanged on the designated date, the project is behind schedule and a corrective action plan must be created by the appropriate Lead Professional with minimum effect on project deliverables).

Format and distribution of each exchange of information should be clearly documented in the Project Management Plan.

1. All information exchanges (i.e. drawings; sketches; memoranda; correspondence; equipment literature; etc.) should go through the Project Manager.
2. Distribution should be to all affected Lead Professionals on the project team including outside consultants.
3. Any change regardless of apparent magnitude should be documented and provided to the Project Manager for distribution to the appropriate Lead Professionals.

The Project Management Plan is reviewed and adjusted with comments from the project team, next level of management, or designee.

Approval of the **Project Management Plan** by the next level of management is required (See Appendix). The Project Management Plan shall be available for review by the project team members. Once the circulation among the project team is complete, the Project Management Plan is to be filed by the Project Manager electronically in the project directory in a location accessible to all team members. Any changes to the Project Management Plan shall be made to by the Project Manager and major changes shall also be approved / initialed by the next level of management.

The Project Manager will also receive an email at 20% of project budget requesting the following:

TO: Project Manager
FROM: Supervisor
CC: Administrative Assistant
DATE:

Have you completed your PMP for project number xxxxxxxx?

Yes No

If no, there will be oversight follow-up by the Project Manager's supervisor.

3.1.4 Teamwork

Project Kick-Off Meetings shall be held by the Project Manager internally with key staff members and subconsultants and externally with the client. Where appropriate, the subconsultant shall be included in the client meeting. During the meetings, the Project Manager shall review and discuss the project scope, critical areas of concern, schedule, changes and requirements that may need special attention. Team members must be aware of Scope of Services and have a clear understanding of the schedule, tasks, and budget assigned to them. The Project Manager shall make specific work task assignments and inform each team member of the budgeted hours for said task(s). The Project Manager shall explain the process of reporting any changes of scope or schedule directly to the Project Manager before the work is undertaken to ensure that the work is necessary and so that the appropriate action can be taken. See Section Entitled "Engineering Change Notice or Contract Amendment".

The Project Manager shall meet with team members as needed to discuss and resolve critical areas of concern including budget, schedule, scope changes, technical, and administrative issues. The Project Manager, or designee, shall prepare a record of all the meetings, conclusions and action items. The minutes shall be available for review by all team members documenting the cross exchange of data. In addition, the Project Manager shall meet informally with key team members frequently to monitor progress, performance, and budget for the assigned project. Team members must understand that if their assignments do not

progress proportionately to the budget used, or if they feel the budgeted hours are insufficient for the task, they need to notify the Project Manager in writing as soon as possible.

The Project Manager working with key staff will be responsible for ensuring that all contractual deliverables and supporting data are created and checked in accordance with the appropriate sections of this manual.

3.1.5 Records/Document Control

It is the responsibility of the Project Manager to see that a project central file is initiated and maintained. All project communications to include electronic media are recorded and **originals** filed in the office project central file. The project central file shall have a folder structure similar to the electronic file. Those documents of interest to other project personnel shall be copied and routed in accordance with established project document distribution lists defined by the Project Manager. Engineering decisions, regardless of their origin, are similarly documented and communicated to the Project Manager. Minutes of project meetings are prepared, approved by the Project Manager (or senior project team member in attendance), distributed to all attendees for implementation of action items, and filed.

The Project Manager shall maintain a detailed record of all design parameters and criteria used as the basis of design. Any revisions and changes from the original work scope or project schedule negotiated with the Client and/or Owner shall also be documented and distributed to the relevant team members, even if the fee is not affected.

Upon completion of design, the Project Manager shall retain the Project Management Plan for convenient reference during the bidding and/or Construction Phase of the project.

3.1.6 Liability and Technical Risk Assessment

The Project Manager is responsible for mitigating the liability and technical risk of the firm by: understanding the scope of work; using staff that is technically qualified to perform the tasks they are assigned; having knowledge of the codes and standards inherent to the work being done; documenting any deviations to those standards; and following the company and Client QA/QC protocols. In addition, the Project Manager shall notify the next level of management as soon as possible upon gaining knowledge that the Client may seek a monetary settlement for omission or commission by MJ. This information shall be communicated through the chain of command to the ROM and COO.

3.1.7 Financial Risk Assessment

The Project Manager must understand the project budget, scope, and schedule such that tasks and staff can be managed to meet client expectations within the schedule and budget allocated. The Project Manager shall give written notice to the next level of management as soon as possible if the project budget or schedule is going to experience variations. The Project Manager shall review project progress against the project budget and report anticipated level of effort to complete using the cost to complete process. It is imperative and the responsibility of the Project Manager to lead this process. This information shall be communicated through the chain of command to the ROM and COO. As a minimum, the Project Manager must review and update the project cost to completes and schedule every reporting period.

In addition, no work shall commence until a fully executed agreement has been received. If the Client requests otherwise, the Project Manager shall follow the requirements of the Risk Management Policy located in the Operational Manual and in Section 1.0 of the QAM.

3.1.8 Engineering Change Notice or Contract Amendment

When an event occurs that affects the project scope, schedule, or fee the Project Manager must follow the **Engineering Change Notice or Contract Amendment Procedure** located in the Appendix and the Risk Management Policy located in the Operational Manual and in Section 1.0 of the QAM.

3.1.9 Independent Technical Review

The size or complexity of certain projects as well as the project teams experience level may necessitate a special independent review at key intervals of the project. The Project Manager, Group Manager, and Regional Office Manager jointly determine the need for a special design review and the extent of the review required. See Appendix for **Guidelines for an Independent Technical Review**. The Project Manager may convene a meeting with the reviewer(s) or may send data to them for review and comment. The independent technical review includes a critical evaluation of the basis and validity of significant conclusions, opinions, assumptions, evaluations, recommendations, designs, and other items that are required as a result of the project services. It emphasizes establishing the validity of the technical approach, constructability and other procedures used to form an opinion of the suitability of the end result. The review does not include a complete detailed check of calculations, or a detailed check of plans.

3.2 APPLICABLE CODES, STANDARDS, AND REGULATIONS

It is the responsibility of the Project Manager to ensure the project is in compliance with all applicable local, state, and federal codes, standards and regulations. In areas outside the expertise of the Project Manager or project team, it is the responsibility of the Project Manager to obtain the necessary requirements through the respective Group Manager(s), ROM(s), appropriate technical specialist or subconsultant.

Codes, standards and regulations shall be updated as the industry requires. Each Group or Division Manager is responsible for input from designated individuals and for ensuring that the applicable codes, standards and regulations necessary to produce a quality product are available and current for their discipline. Old codes, standards and regulations shall also be maintained as necessary

to back up older or on-going projects governed by these dated materials. At least annually, the designated technical specialist shall make recommendations to the appropriate level of management as to what codes require updating and which ones can be discarded.

3.3 DATA COLLECTION

In order to perform the necessary engineering analysis and/or to prepare appropriate engineering drawings, it is essential, as a function of the nature of the project, to collect Client and/or Owner site data.

Field information collected must be gathered and documented. All reference information should be noted and attached to the field report. Field documentation should be filed and incorporated into the project design file.

The format of any data (i.e. field survey, archeological resources, historical resources, etc.) that will ultimately be turned over to the client as work product should be determined prior to the collection of the data whether collected by staff or subconsultants. Many clients require specific formats that can be costly to translate after initial collection. It is desirable that even if clients do not require a specific format, that projects adhere to an internal format that can be easily translated if the client desires it in the future.

3.4 CONTRACT DELIVERABLES

Contract deliverables are electronic or hard copy document(s) (i.e. reports, opinions of probable cost, drawings, specifications, etc) specifically itemized for submittal in the executed agreement with the client.

The Program Manager shall have contract deliverables checked in accordance with the applicable sections of this manual. In addition, the following document shall be retained as a permanent project record.

- The most recently submitted contract deliverable check set
or
- A memo to record, signed by the Project Manager, stating that the QA checking procedure has been completed prior to submitting the contract deliverables to the client. The memo should also list the checker and back checker.

In addition, the Project Manager will also receive an email at 40% and 75% of project budget requesting the following:

TO: Project Manager
FROM: Supervisor
CC: Administrative Assistant
DATE:

Have you made a contract deliverable during the period?

Yes No

If no, there will be oversight follow-up by the Project Manager's supervisor.

If yes, there is no need to retain a set of checked documents.

3.5 CALCULATIONS

ALL CALCULATIONS PRODUCED BY THE COMPANY ARE TO BE CHECKED PRIOR TO SUBMISSION OF CONTRACT DELIVERABLES* TO THE CLIENT

The Project Manager is responsible for Quality Control for the design function. The Project Manager establishes the design parameters, is responsible for the accuracy of all design, and must provide guidance to other designers on the project. The Project Manager should obtain the necessary expertise from other company resources and team members to assist in establishing design parameters and providing guidance to designers.

Design calculations must be completed by competent qualified personnel selected by the Project Manager and must be checked

by an independent checker with equal or greater competence in the subject matter. The checker shall verify reasonableness of assumptions, approach, formulas and mathematics.

Calculations shall be legible, neat and easy to follow:

1. All references used shall be listed or a copy of appropriate references shall be filed with the calculations.
2. Assumptions made, short cuts used and interpretation of codes must be recorded and back up for such decisions, assumptions and interpretation must be given.
3. Calculations shall be on the firm's standard computation sheet and shall be numbered with all blocks such as Subject, Designer, Checker, Project Title and Number, etc. completed. When analytical software is used the same information must be attached to input and output results.
4. The checker shall use RED to indicate corrections and additions. The preparer of the calculation shall use GREEN for all revisions. The original checker shall verify in BLUE with signature.
5. Computations (design calculations) shall be filed in a bound volume, shall have a table of contents for easy reference and follow-up; and must be divided in logical sections or dividers.
6. Computation volumes or books must have an identification label with Project Name, Project Number and Volume Title.

3.6 DESIGN DRAWINGS

ALL CONTRACT DELIVERABLE DESIGN DRAWINGS PRODUCED BY THE COMPANY ARE TO BE CHECKED PRIOR TO SUBMISSION TO CLIENTS

The minimum level of checking shall use red, yellow, and a third color process. The checking of drawings requires a minimum of two individuals: a checker/verifier, and an originator/backchecker. A third individual may also be utilized.

The checker shall use red to indicate correction and additions. The checker can also use yellow to indicate agreement.

The CADD Tech/drafter shall indicate with a third color that the corrections have been made to the drawing.

The verifier shall use yellow to verify that changes to the drawing have been made.

In addition to the color-coded checking process, all check prints should be formalized through the addition of a check print stamp. On the stamp, each participant in the checking process initials on the appropriate line indicating that stage of the process is complete.

To avoid obliterating information on the plans or when half-size check prints are utilized, the check print stamp can be placed on the back side of the design drawing.

An example of a **check print stamp** is provided in the appendix.

An optional procedure for the **checking of design drawings** is defined and illustrated in the Appendix.

Staff involved in the design process is expected to be familiar with these procedures. If you do not thoroughly understand the process, talk with your supervisor, the Project Manager, or others in your office that are experienced and knowledgeable with the checking process.

The Project CAD (drafting) Facilitator is responsible for Quality Control for the drafting function. He/she establishes the drafting parameters together with the Project Manager with input from key discipline leads. He/she is responsible for the accuracy of all drafting and must provide guidance to other drafters on the project.

CAD standards and guidelines provided by the Client should be strictly followed. In the absence of drafting standards and guidelines from the Client, a standard MJ format should be adopted and followed. No project should be progressed without an established file format.

The Project Manager together with the Project CAD Facilitator shall prepare a list of drawings prior to commencing project drafting.

Contract plans shall have a title sheet in accordance with the Client/Agency requirements. The title sheet shall be laid out early in the project and submitted to client for a review and approval.

Client or MJ standard details shall be reviewed and revised for the specific project requirements.

Subconsultants, particularly surveyors, shall be aware of CAD requirements, computer compatibility, data format, drawing scales, etc. to achieve a smooth uninterrupted workflow.

The Project Manager is responsible for the technical accuracy of project plans. The Project CAD Facilitator is responsible for the quality of CAD and for making technical CAD decisions. The Project Manager or designee should coordinate all drafting (CAD) work through the Project CAD Facilitator and Coordinators.

Engineers may complete their own CAD work when doing so creates greater project efficiencies. The quantity of CAD work completed by engineers will vary by discipline. The Project Manager should determine which tasks will be done on CAD by the engineers. The Project CAD Facilitator and Coordinators should be notified of these decisions.

Completed drawings must be reviewed by each CAD technician/drafter for completeness and accuracy. Then, a print will be made and given to the designer, for review, correction and update. The Project Manager, Lead Professional or designee will review the designer's / engineer's marked-up print prior to returning it to CAD technician/drafter for correction.

The Project Manager will be responsible for resolving conflicts between engineer / designer or Lead Professional and the Project CAD Technician, Coordinator or Facilitator.

If uncertainties develop, the next level of management shall be consulted by the Project Manager when setting up major project CAD/drafting standards and procedures.

3.7 SPECIFICATIONS

ALL CONTRACT DELIVERABLE SPECIFICATIONS PRODUCED BY THE COMPANY ARE TO BE CHECKED PRIOR TO SUBMISSION TO CLIENTS

3.7.1 Technical Specifications

Technical Specifications will be completed in accordance with the Clients guidelines. In the absence of standard Client specifications, MasterSpec or a third party standard specification (i.e.; State DOT specifications for local municipal road or bridge work) approved by the Project Manager shall be used as the primary platform for standard reference specifications that define basic design conditions, criteria, equipment, materials, and/or activities which will act as a stand alone reference document. The project specification shall be generated using the above and shall not allow the use / reuse of another existing project specification or office standard specifications.

Specification Editing: MasterSpec sections shall be edited by the designer / specification writer through the MasterSpec LINX on-screen editor or hard copy and redline editing. LINX offers editing of MasterSpec's edit-by-deletion structure.

The designer / specification writer shall locate and remove text through the on-screen question and answer approach through the LINX "interactive edit" icon to quickly remove text.

The designer / specification writer shall further edit the specifications through the LINX "manual edit" icon.

The specifications shall then be formatted and minor edits performed by the Technical Typist. The designer / specification writer may include equipment specific inserts for insertion by the Technical Typist.

3.7.2 Legal and Procedural Specifications

The front-end documents in general shall consist of the bidding, contracting, and general requirements. For the majority of projects, the front-end specifications are developed and prepared by the Client. In the event that MJ is required to develop the front-end specifications, the Engineer's Joint Documents

Committee Design (EJCDC) and Construction Related Documents shall be the primary platform. See **checklist** in Appendix.

3.7.3 Startup, Demonstration and Training

The Project Manager and their design team shall be responsible for specifying an appropriate start-up, demonstration and training program based upon the project complexity and the Clients requirements. MasterSpec Section 01820 shall be used as a guidance document as well as the Startup subsection for each piece of equipment, system or subsystem.

3.7.4 Checking and Coordination

All technical, legal, and procedural specifications shall be reviewed by an independent checker with equal to or greater competence of the preparer on the subject matter. A non-technical person can check for grammar, formatting and spelling. The color scheme used shall be the same as for checking calculations.

3.8 STUDIES AND REPORTS

ALL CONTRACT DELIVERABLE STUDIES AND REPORTS PRODUCED BY THE COMPANY ARE TO BE CHECKED PRIOR TO SUBMISSION TO CLIENTS

Studies or reports are prepared by or under the direction of a Project Manager. The study's written documentation contains the purpose of the study, assumptions used, methodology, results, conclusions and recommendations. Calculations or other resources used in conjunction with a study are developed and checked in accordance with the applicable procedures developed as part of this Quality Assurance Manual. The Project Manager is responsible for conducting the study; preparing the report; and identifying a qualified Independent Technical Reviewer to review the technical content of the report. The checking process is to follow the color-coded marking procedure contained in checking calculations.

Every report, as appropriate shall try to include a disclaimer set forth in conspicuous place, if possible such that it is not likely to be separated from the report.

Depending upon project circumstances, the disclaimer will specifically address some or all of the general elements listed in the Appendix. The Project Manager should decide which elements

and the appropriate verbiage to include for the specific report involved. (The Project Manager should consult with the Chief Operating Officer / ROM or the appropriate Group Manager). Often, it will be appropriate to cover the disclaimer elements in the relevant parts of the report text, rather than in a single location. In other cases, a formal statement containing some or all of the disclaimer elements will be required by the purpose and content of the report. See Appendix for **examples of disclaimers.**

3.9 OPINION OF PROBABLE PROJECT COST

ALL CONTRACT DELIVERABLE OPINIONS OF PROBABLE PROJECT COST PRODUCED BY THE COMPANY ARE TO BE CHECKED PRIOR TO SUBMISSION TO CLIENTS

An Engineer's opinion of probable project cost shall be prepared in accordance with the requirements of the contract and Project Management Plan.

The Lead Professional shall be responsible for selecting competent individuals to prepare and check its portion of the opinion of probable project cost. The opinion of probable project cost shall be checked by a qualified independent individual other than the original preparer. The checking process is to follow the color-coded marking procedure contained in the calculation section. Every Opinion of Probable Project Cost, unless expressly prohibited by the client, shall contain the **company disclaimer**, see Appendix for example.

The Project Manager shall be responsible for assigning an individual to assemble the opinion of probable project cost for the entire project and checking against the Contract Documents for accuracy and completeness.

3.10 PROGRESS / WORKING DOCUMENTS

Progress or working documents produced by the Company that are not contractual deliverables and submitted to the Client or any other entities shall be clearly identified as not having been reviewed for conformance with the Company Quality Assurance Program or Manual. All contractual deliverables shall conform to the requirements of this manual.

The following text shall be stamped, written, or included on each sheet of the submitted progress or working documents:

This document has not been reviewed for conformance with McFarland-Johnson's Quality Assurance Program. It has been provided to the Client for informational purposes only and for the Client's use only.

3.11 ENGINEERING RESOURCE UPDATES

Technical software should be updated on a schedule that will keep us current with our clients that use the same products, especially where the software is required to generate work product and deliverables as defined within a contract (i.e. Microstation, AutoCAD, Inroads, etc.).

It is the company's intent to maintain the software to within six months of new technology. All software shall be reviewed on an annual basis by the applicable technical specialist, and / or the IT Manager to see that the most current updates and revisions are available to the technical staff.

IT personnel should schedule software upgrades to occur in all offices on similar timelines to maintain efficiency with work-sharing and training.

Offices shall coordinate software purchases such that offices whenever possible are using the same products (drainage software, structural analysis programs, etc). Although it is recognized that some clients require unique software, for the efficiency of training and job-sharing the same products and versions should be used. Prior to new software purchases, it is the responsibility of the Office Managers to research the products being used in other offices and justify when an outside product purchase is necessary.

All vendor catalogs shall be reviewed by the vendor's representative on an annual basis to assure that all catalog information is correct and current. The vendor's representative shall sign and date the Catalog indicating the most recent revision of the subject catalog information. Catalogs which have a blue dot on the binder of the book are current. All other catalogs are for reference only and should not be used for design basis.

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4.0 PROCUREMENT

A number of factors are typically considered in selecting a Subconsultant. Firms should be considered on the basis of professional ability, quality and their ability to meet contract requirements.

The evaluation and selection of Subconsultants generally occurs during the proposal phase. MJ shall provide, where feasible, all potential Subconsultants with the RFQ and Client contractual terms during the proposal phase. Prior to MJ considering or teaming with a Subconsultant, the project Disadvantage Business Enterprise (DBE) requirements shall be reviewed by the Project Manager for conformance. When required by client contractual terms, MJ shall request multiple cost proposals to review and/or utilize. If there are no client contractual terms requiring competitive pricing MJ does not require this step. The Project Manager is responsible for managing the Subconsultant by the terms of the Subconsultant agreement which should include appropriate quality assurance requirements.

4.1 SUBCONSULTANT'S CONTROLS

Each of the Subconsultants providing contractual services shall comply with the following minimum procedure prior to work commencing:

- An MJ Administrative Assistant shall obtain a current Certificate(s) of Insurance and licensing information from each Subconsultant. The original Certificate(s) of Insurance shall be filed in the Accounting Department's project file. The current Certificates of Insurance shall be provided throughout the life of the contract. The minimum insurance requirements are spelled out in the standard MJ contract entitled "Agreement between Engineer and Consultant" located in the Standard Agreement folder on the Binghamton Q: drive.
- Each new Subconsultant must submit a list of references, including a contact name and phone number, from previous customers describing the work scope and responsibility of the subconsultant. Each new Subconsultant may also be requested to submit a current list of ongoing projects, with project cost and completion dates as well as a client contact name and phone number.

- The Project Manager or designee shall contact a sampling of the new Subconsultants references to verify the data provided and the performance and quality of work.
- Each Subconsultant may be interviewed by the Project Manager or designee, to verify the information provided, and develop a better understanding of the ability to develop a working relationship.
- Upon satisfying the above criteria, the Subconsultant shall be eligible to perform work in the category of services offered.
- A Subconsultant file of all non-project related correspondence such as, rate schedules, terms and conditions, capability material etc. shall be maintained on record by the Business Development Department or designee in the appropriate Subconsultant file.
- The Subconsultant information shall be updated every 2-3 years. The request for this updated information shall be initiated and tracked by the Business Development Department or designee.
- If the above requirements cannot be adhered to, the Chief Operating Offices (COO) must review and approve any deviation.

4.2 PROCEDURES

4.2.1 Content of Procurement Documents

Following the selection of a Subconsultant, the Project Manager shall prepare a Professional Services Agreement for the services of a Subconsultant, using the standard MJ contract entitled "Agreement between Engineer and Consultant" located in the Standard Agreement folder on the Binghamton Q: drive. Use of a Subconsultant provided agreement is subject to review by the Chief Operating Officer COO. The Binghamton ROM is also authorized to review Subconsultant provided agreements. If the Project Manager wishes to modify the MJ Standard Agreement Terms and Conditions, the COO's review will also be required.

The agreement shall include provisions for the following:

- Project Description: A brief description of the project shall be provided.
- Scope of Work – The scope of the work to be performed by the Subconsultant shall be stated clearly or referenced. The base professional services contract should be referenced to include all applicable provisions required by MJ.
- Assumptions and Technical Requirements – All assumptions and understandings shall be listed. Technical requirements shall be specified by reference to specific drawings, specifications, codes, standards, regulations, procedures, or instructions, including revisions thereto that describe the items or services to be furnished. The procurement documents shall identify any applicable test, inspection, and acceptance requirements for monitoring and evaluating the Subconsultant's performance.
- Prime Agreement: MJ's prime agreement may or may not be attached. If it is attached, MJ's fees shall not be visible to the subconsultant.
- Quality Assurance Program – The procurement document shall specifically identify the quality assurance requirements and monitoring procedures required by the Owner / Client as well as MJ quality assurance requirements.

4.2.2 Review and Approval of Procurement Documents

All procurement documents shall be reviewed and executed in accordance with the "Proposals / Contracts Procedure" contained in MJ Personnel Policy Manual.

4.2.3 Review/Coordination and Approval of Subconsultant's Work

The Subconsultant shall be responsible for checking all deliverables to MJ. In addition, all calculations shall also be checked. When requested by MJ, the Subconsultant shall provide documentation to MJ that all required checking and contractual quality assurance requirements have been performed.

Each Subconsultant deliverable will also be reviewed by MJ in accordance with Section 3.0 – Engineering/Project Control of the Quality Assurance Manual. Comments will be transmitted to the Subconsultant for resolution.

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5.0 CONSTRUCTION ADMINISTRATION

5.1 CONSTRUCTION ADMINISTRATION

McFarland-Johnson's level of involvement with Construction Administration services depends on the client and the scope of services that the client desires. However, these services typically may include, but not limited to: contractor advertisement and procurement (i.e. perform the bidding process), contractor evaluation and reference checking, notice of award, contract document preparation for execution, pre-construction meeting activities, notice to proceed, part or full time construction observation; submittal review, progress meetings and documentation, and project closure.

Responsibilities of the construction administrator (generally works out of home office) / resident engineer (generally full time on-site) vary depending on whether the scope of work requires part-time or full-time construction services or the funding sources. Part-time services usually necessitate the delegation of some typically performed services to the client or the contractor (i.e. field-measured quantities, reimbursement documentation to funding agencies, environmental permitting documentation, etc.) because there is not a full-time presence on the site.

Normal duties of the Construction Administrator / Resident Engineer may include, but are not limited to: review of submittals, schedule construction observation, review specialized observation service information (i.e. 3rd party material testing reports), organization and management of progress meetings, interpretation and clarification of plans and specifications, documentation of site observations (i.e. observation reports), documentation of any decisions to change the plans or specifications, review and process change orders, review pay requisitions and measurable quantities, and process the Request For Information (RFIs) and recommendation to the Owner for final acceptance of the work.

5.2 DESIGN SUPPORT DURING CONSTRUCTION

The Construction Administrator / Resident Engineer shall be supported by the project manager and project design team to provide technical support services, as required, during the Construction Phase of the project. Technical support services

would typically include submittal review, periodic site visits, responding to formal Requests for Information (RFI) and Requests for Change (RFC) from the contractor, Engineer authorization of Change Order and informal inquires from the Construction Administrator and Resident Engineer.

5.3 START-UP, TESTING, DEMONSTRATION AND TRAINING

Each construction Contractor is required to establish and implement a detailed start-up, testing, demonstration and training program to meet the requirements imposed by the contract documents. Therefore, the Contractor must ensure that the materials and work provided by Subcontractors, Suppliers and Producers are adequate by the standards of the project. Prior to use, the contractor's program is subject to review and approval by the Project Manager and their designee(s). The Contractor(s) and the Project Manager shall present the program to the Client for approval.

Tests are observed by Contractor qualified personnel (or MJ personnel if contractually obligated) who verify / observe that the tests are conducted in accordance with established procedures and that the results are documented. The test results supporting data, training documents etc. are provided to the Project Manager or designee for review. After review by the appropriate engineering discipline, any deviations from test requirements are referred to the Project Manager and designee, who will notify the responsible Contractor for corrective action.

Modifications, repairs, and replacement items are tested in accordance with approved procedures that comply with the original design and testing and training requirements.

Verification that the start-up, testing, demonstration and training program is being effectively implemented is confirmed by the Resident Engineer or Construction Administrator.

5.4 PROJECT CLOSURE

At the completion of the project, a final field review of the project should be undertaken to observe the conformance of the contractor's work to the plans and specifications. As a minimum, this field review should involve the owner, the contractor, and the construction administrator / resident engineer with assistance

from design team members. The construction administrator / resident engineer with assistance from design team members shall prepare the final "contractor's punch list" and project completion documentation. All punchlist items shall be corrected prior to the owner accepting the project and making final payment.

All project files shall be processed in accordance with the local office procedures for short-term storage (one year) and long-term storage (beyond one year).

5.5 CONSTRUCTION MONITORING AND OBSERVATION

Construction monitoring and observation shall consist of observation and recordkeeping of the contractor's work, equipment, materials, workmanship and end product to verify the quality of such is in conformance with the contract documents. In addition, the observer shall make an assessment as the general progress of the construction versus, the contractual schedule. Monitoring and observation does not include responsibility for the contractor's means, methods, techniques or sequences: superintendence, direction or control of the construction process: site conditions, operations, equipment, personnel or maintenance of a safe place in, on, or about the work site.

Construction monitoring and observation to include recordkeeping shall conform to Client guidelines. If no client guidelines exist, the observation and recordkeeping shall conform to the New York State Department of Transportation Manual of Uniform Recordkeeping (NYSDOT MURK) or locally Client accepted standard adapted and modified for the particular project.

The role of MJ as well as the extent of recordkeeping and site visit / observation frequency shall be spelled out in the contract between MJ and the Client. The Project Manager or designee shall prepare the contract using Client required documents, if none exist the Project Manager shall use the appropriate standard MJ contract located on the Binghamton Q: drive or the Binghamton L:[Local Office Operations/Agreement Info/Airport] drive and adhere to the company Proposal / Contracts Procedures located in the Personnel Policy Manual.

When part-time observation is required preparation for construction phase site visits shall include the following:

- Reviewing construction documents, noting potential construction problems and critical elements.
- Reviewing standards and code requirements related to the construction.
- Preparing a tentative schedule of site visits, i.e.; at regular intervals (weekly, for example) or at appropriate stages of construction (foundations, paving, drainage, etc.).
- Preparing for each site visit by identifying critical elements of the project to observe.
- Receiving appropriate training and following safe practices at construction sites.

On-site activities may consist of:

- Observing the general progress and quality of the work.
- Observing specific areas accompanied by contractor and / or resident engineer; pointing out non-conforming construction and agreeing on an action plan to correct it.
- Paying particular attention to critical elements; returning for a second observation may be advisable.
- Meeting with testing agency and / or special inspector to confirm their understanding of inspection and testing requirements.

Prepare a Field Report for each site observation, addressing:

- Individual(s) present at site.
- Work in progress.
- Observations:
 1. Work completed to date.
 2. Work to be completed.
 3. Conformance with contract.
- Items to verify.
- Information or action required.
- Attachments.
- Photographs and / or video.

See Appendix for a sample **MJ Field Report Form.**

5.6 SUBMITTAL PROCEDURE

5.6.1 Submittal Review

Submittal review and stamping shall be in accordance with client guidelines.

5.6.2 Submittal Review (If no client guidelines exist)

The contract specification shall require product data to be submitted by the Contractor. Each section has its own specific requirements for product literature, drawings, samples, and certifications. The contract specifications shall require the Contractor to prepare a submittal listing in a spreadsheet format compatible with MJ's submittal log. If the contract documents do not require the Contractor to provide a submittal listing, it will be up to the Project Manager or their designee to provide a list of required submittals. See Appendix for **submittal log**. MJ shall specify the quantity of each submittal required from the Contractor.

The Contractor shall provide a schedule of the submittals, which are required by the contract, with a time frame of when they will be sent to the Engineer for review. The Contract Documents shall specify the duration of the review period for each submittal by the Engineer.

The Project Manager or designee upon receiving the submittals, will mark the date received on the front cover, record it on the submittal log and distribute to the Lead Professional / or designee. The Lead Professional or designee shall review the submittal as to conformance with the contract documents, stamp or use approved submittal label and mark or place on the front page of each copy with the appropriate condition. See Appendix for **submittal log**. If the submittal is being reviewed by someone other than the engineer of record and it does not conform 100% to the design requirements the engineer of record must review the submittal and sign-off on the deviations. If the submittal has multiple trade info / data the respective engineer of record or Subconsultant should be contacted for the review of their respective trade.

5.6.3 Submittal Stamp (If no client stamp exists)

McFarland Johnson has a standard submittal stamp (electronically preprinted label) which looks as follows:

€Reviewed
€Rejected

€Furnish as corrected
€Revise and Resubmit
€Submit Specified Item

This review is only for general conformance with the design concept and the information given in the contract documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication process, or to the means, methods, techniques, sequences and procedures of construction; coordination of the work with that of all other parties and performing all work in a safe and satisfactory manner.

McFarland Johnson ___ (Do Not Write in this Space) ___

Date _____

By _____

Definition for status check:

Reviewed: Engineer has reviewed information provided, and product *does meet* general conformance with the design concept. One copy will retained by the Engineer, and one copy will be sent to the Client and/or Owner. The remainder of the copies will be returned to the contractor.

Rejected: Engineer has reviewed information provided, and product *does not meet* general conformance with the design concept. Engineer shall provide specific reason for non-compliance. One copy of marked up first submittal will be retained by the Engineer, and one sent back to the contractor, all other copies will be destroyed.

Furnish as corrected: Engineer has reviewed information provided, and product *does meet* general conformance with the design except for minor details, which the engineer provides. Resubmittal is not necessary, distribution shall be the same as "Reviewed" and all copies will bear the corrective marks.

Revise and Resubmit: Engineer has reviewed information provided, and product *does not meet* general conformance with the design, manufacture is not acceptable, incorrect model number, size etc. was submitted. Changes requested are extensive. Resubmittal of data is necessary. One copy of marked up first submittal will be retained by the Engineer, and one sent back to the contractor, all other copies will be destroyed.

Submit Specified Item: If the data submitted is not clear, complete or for other reasons cannot be examined by the Engineer to establish compliance with the contract documents. Resubmittal of additional information is required by the Contractor. One copy of marked up first submittal will be retained by the Engineer, and all other copies shall be returned to the contractor.

5.6.4 Record Documents

The contract documents shall define who is responsible for maintaining accurate records of changes during construction as well as who will prepare the record drawings. In general the Contractor shall maintain the documents during construction and the Engineer (MJ) shall review and prepare final record drawings based on Contractor mark-ups. These documents are not to be construed to be 100% accurate and this language must be included in the contract between MJ and the Client.

5.6.5 Operation and Maintenance Manual

The contract documents shall define what is to be included in the operation and maintenance manual. The level of detail and content required in the Operation and Maintenance Manual shall be appropriate for the project. A guideline to use is MasterSpec Section 01782 (1995) Operation and Maintenance Data. The Contractor shall prepare the Operation and Maintenance Manual. When contractually required MJ shall review the manual and follow the submittal procedures outlined in this manual.

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6.0 AUDITS AND MANAGEMENT REPORTS

6.1 AUDITS – QA TEAM REVIEW RESULT FOR CONSISTENCY

Quality Assurance Audits shall be conducted annually to verify compliance with MJ's Quality Assurance Program and may be supplemented by audits for one of the following reasons:

- When requested by the Regional Office Manager or the Leadership Team.
- When a systematic, independent assessment of the program effectiveness is considered necessary.

Quality Assurance Audits shall be conducted by members selected by the Quality Assurance Team. A third party independent person with appropriate background may also be used. The individuals conducting the audit shall not work out of the office being audited. The Project Manager and Regional Office Manager shall be notified a minimum of two weeks prior to the audit. The actual project(s) to be audited will be revealed no more than 48 hours prior to the audit.

An Audit Checklist has been developed to aid the auditors and to provide Project Managers a preview of the Quality Assurance Manual components evaluated by the audit. A current audit checklist can be found on the Binghamton Q drive at Q:\Quality Assurance\Public Use, or on the Corporate page of the Intranet under Quality Assurance.

The Audit shall review each aspect of the Quality Assurance Manual to verify that the performance activities are consistent and in compliance with the MJ Quality Assurance Program. An **Audit Report, Exhibit 6-1** will be prepared by the auditors. The report will include the following:

- Audit criteria
- Description of the audit scope
- Persons contacted during pre-audit, audit and post-audit activities
- A summary of audit results, including an evaluation statement regarding the effectiveness of the quality assurance program elements audited. The project audited shall be given one of the following ratings:

Red: This rating indicates an inadequate overall program. Program deficiencies are characterized by one or more of the following:

- a. Low level of compliance with appropriate company policy.
- b. Lack of several key program elements.
- c. Does not meet the major contractual or statutory requirements.
- d. Wide-spread systemic problems.
- e. High risk of technical liability.
- f. Insufficient resources are allocated.

Yellow: This rating indicates a marginal overall program. Program deficiencies are characterized by one or more of the following:

- a. Marginal level of compliance with appropriate company policy.
- b. Lack of some key program elements.
- c. Does not meet some contractual or statutory requirements.
- d. Several instances of systemic problems.
- e. Some risk of technical liability.
- f. Marginal resources are allocated.

Green: This rating indicates a good overall program, although there may be some deficiencies. Program is characterized by one or more of the following:

- a. High level of compliance with appropriate company policy.
- b. Contains all key elements and all or most program elements.
- c. Meets all critical contractual or statutory requirements.
- d. No or few instances of systemic problems.
- e. Very low risk of technical liability.
- f. Several program elements go beyond Quality Assurance Manual requirements.
- g. Sufficient resources are allocated.

Blue: This rating indicates an excellent program. Program is characterized by one or more of the following:

- a. Very high level of compliance with appropriate company policy.
 - b. Contains all key elements and all program elements.
 - c. Meets all contractual or statutory requirements.
 - d. No instances of systemic problems.
 - e. No risk of technical liability.
 - f. Numerous program elements go beyond Quality Assurance Manual requirements.
 - g. Sufficient resources are allocated.
- A description of each reported audit finding in sufficient detail to be sure that corrective action can be effectively carried out by the Project Manager. The audit findings shall be reported on the **Audit Finding (AF), Exhibit 6-2**. Significant findings shall be identified as such.
 - Detailed corrective action and date of implementation. See corrective action below.
 - The auditors are encouraged to consult / seek input with each other and members of the Quality Assurance Team at anytime during the audit process, but particularly prior to submitting the Audit Report. The goal is to facilitate objective review and common terminology. The consultation on a given project should **not** be with member(s) from the office of the project(s) being audited.

The Audit Report(s) will be addressed to the Project Manager with copies to the Regional Office Manager, Group Manager, Project Central File and Quality Assurance Folder and Quality Assurance Team.

6.2 CORRECTIVE ACTION PLAN

The Project Manager shall determine and schedule any appropriate corrective actions, and document their response on the Audit Finding Report within 14 days of receipt of the draft audit.

A follow-up verification shall be performed by the auditor to evaluate the adequacy of the response; verify that corrective action is identified and scheduled for each finding; and confirm that corrective action is

accomplished as scheduled. If the finding is not corrected properly, the process repeats itself until it is resolved to the satisfaction of the auditors. Follow-up verification may be accomplished through written communication, re-audit or other appropriate means.

Once all corrective actions are completed and verified, the Project Manager shall sign and date the **Audit Report, Exhibit 6-1**. This report, along with all attachments, shall be submitted to the Quality Assurance Team for approval. Records shall be generated and retained for all audits in the Quality Assurance Files. Records shall include Audit Reports, written replies, the record of completion of corrective actions and documents associated with the conduct of audits that support audit findings and corrective actions as appropriate.

6.3 QUALITY ASSURANCE MANAGEMENT REPORTS

A Quality Assurance Management Report, which assesses the status of the quality assurance program across the company, will be prepared annually by the Quality Assurance Team. This report will be directed to the Regional Office Managers with copies to the Leadership Team. The report shall include, at a minimum, the following items:

- Quality assurance goals and objectives
- Quality assurance program progress and accomplishments
- Summary of training
- Summary of audit results; quality trend data derived from audits
- Summary of current problems and deviations with corrective actions taken or recommended.
- Recommended major revisions to the Quality Assurance Manual.

6.4 MANAGEMENT REVIEWS

Annually the Quality Assurance Team shall convene a meeting with the Regional Office Managers. This meeting shall assess the progress, effectiveness, and need for adjustment to the quality assurance program to assure that proper substantive actions are being taken on significant quality policies and procedures. Recommended corrective actions are assigned to appropriate personnel and followed-up by the appropriate supervision.

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6.0 AUDITS AND MANAGEMENT REPORTS

6.1 AUDITS – QA TEAM REVIEW RESULT FOR CONSISTENCY

Quality Assurance Audits shall be conducted annually to verify compliance with MJ's Quality Assurance Program and may be supplemented by audits for one of the following reasons:

- When requested by the Regional Office Manager or the Leadership Team.
- When a systematic, independent assessment of the program effectiveness is considered necessary.

Quality Assurance Audits shall be conducted by members selected by the Quality Assurance Team. A third party independent person with appropriate background may also be used. The individuals conducting the audit shall not work out of the office being audited. The Project Manager and Regional Office Manager shall be notified a minimum of two weeks prior to the audit. The actual project(s) to be audited will be revealed no more than 48 hours prior to the audit.

An Audit Checklist has been developed to aid the auditors and to provide Project Managers a preview of the Quality Assurance Manual components evaluated by the audit. A current audit checklist can be found on the Binghamton Q drive at Q:\Quality Assurance\Public Use, or on the Corporate page of the Intranet under Quality Assurance.

The Audit shall review each aspect of the Quality Assurance Manual to verify that the performance activities are consistent and in compliance with the MJ Quality Assurance Program. An **Audit Report, Exhibit 6-1** will be prepared by the auditors. The report will include the following:

- Audit criteria
- Description of the audit scope
- Persons contacted during pre-audit, audit and post-audit activities
- A summary of audit results, including an evaluation statement regarding the effectiveness of the quality assurance program elements audited. The project audited shall be given one of the following ratings:

Red: This rating indicates an inadequate overall program. Program deficiencies are characterized by one or more of the following:

- a. Low level of compliance with appropriate company policy.
- b. Lack of several key program elements.
- c. Does not meet the major contractual or statutory requirements.
- d. Wide-spread systemic problems.
- e. High risk of technical liability.
- f. Insufficient resources are allocated.

Yellow: This rating indicates a marginal overall program. Program deficiencies are characterized by one or more of the following:

- a. Marginal level of compliance with appropriate company policy.
- b. Lack of some key program elements.
- c. Does not meet some contractual or statutory requirements.
- d. Several instances of systemic problems.
- e. Some risk of technical liability.
- f. Marginal resources are allocated.

Green: This rating indicates a good overall program, although there may be some deficiencies. Program is characterized by one or more of the following:

- a. High level of compliance with appropriate company policy.
- b. Contains all key elements and all or most program elements.
- c. Meets all critical contractual or statutory requirements.
- d. No or few instances of systemic problems.
- e. Very low risk of technical liability.
- f. Several program elements go beyond Quality Assurance Manual requirements.
- g. Sufficient resources are allocated.

Blue: This rating indicates an excellent program. Program is characterized by one or more of the following:

- a. Very high level of compliance with appropriate company policy.
 - b. Contains all key elements and all program elements.
 - c. Meets all contractual or statutory requirements.
 - d. No instances of systemic problems.
 - e. No risk of technical liability.
 - f. Numerous program elements go beyond Quality Assurance Manual requirements.
 - g. Sufficient resources are allocated.
- A description of each reported audit finding in sufficient detail to be sure that corrective action can be effectively carried out by the Project Manager. The audit findings shall be reported on the **Audit Finding (AF), Exhibit 6-2**. Significant findings shall be identified as such.
 - Detailed corrective action and date of implementation. See corrective action below.
 - The auditors are encouraged to consult / seek input with each other and members of the Quality Assurance Team at anytime during the audit process, but particularly prior to submitting the Audit Report. The goal is to facilitate objective review and common terminology. The consultation on a given project should **not** be with member(s) from the office of the project(s) being audited.

The Audit Report(s) will be addressed to the Project Manager with copies to the Regional Office Manager, Group Manager, Project Central File and Quality Assurance Folder and Quality Assurance Team.

6.2 CORRECTIVE ACTION PLAN

The Project Manager shall determine and schedule any appropriate corrective actions, and document their response on the Audit Finding Report within 14 days of receipt of the draft audit.

A follow-up verification shall be performed by the auditor to evaluate the adequacy of the response; verify that corrective action is identified and scheduled for each finding; and confirm that corrective action is accomplished as scheduled. If the finding is not corrected properly, the process repeats itself until it is resolved to the satisfaction of the auditors. Follow-up verification may be accomplished through written communication, re-audit or other appropriate means.

Once all corrective actions are completed and verified, the Project Manager shall sign and date the **Audit Report, Exhibit 6-1**. This report, along with all attachments, shall be submitted to the Quality Assurance Team for approval. Records shall be generated and retained for all audits in the Quality Assurance Files. Records shall include Audit Reports, written replies, the record of completion of corrective actions and documents associated with the conduct of audits that support audit findings and corrective actions as appropriate.

6.3 QUALITY ASSURANCE MANAGEMENT REPORTS

A Quality Assurance Management Report, which assesses the status of the quality assurance program across the company, will be prepared annually by the Quality Assurance Team. This report will be directed to the Regional Office Managers with copies to the Leadership Team. The report shall include, at a minimum, the following items:

- Quality assurance goals and objectives
- Quality assurance program progress and accomplishments
- Summary of training
- Summary of audit results; quality trend data derived from audits
- Summary of current problems and deviations with corrective actions taken or recommended.
- Recommended major revisions to the Quality Assurance Manual.

6.4 MANAGEMENT REVIEWS

Annually the Quality Assurance Team shall convene a meeting with the Regional Office Managers. This meeting shall assess the progress, effectiveness, and need for adjustment to the quality assurance program to assure that proper substantive actions are being taken on significant quality policies and procedures. Recommended corrective actions are assigned to appropriate personnel and followed-up by the appropriate supervision.

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7.0 FEEDBACK / PROCEDURE MODIFICATION

7.1 FEEDBACK

A critical part of the QA/QC procedure is collecting feedback from the client, owner, contractor and the project team. Information should be obtained on the design process, construction and overall project performance.

7.1.1 Client/Owner

At a minimum feedback should be obtained from the client/owner at the end of a project, and preferably on a regular interval throughout the project. **Guidelines are currently being developed to assist the Project manager in this effort. They will be included in this section upon their completion.**

7.1.2 Contractor

Information from contractors is normally the hardest to obtain, but is often the most beneficial. Experience on the current means and methods being applied in an industry, review of constructability and information on the issues that are being experienced in the field can improve the future design process. It is the responsibility of the Project Manager or Construction Administrator for obtaining feedback from the contractor sharing it with the team and documenting the comments.

7.1.3 Project Team Members

The internal procedures, practices and communication within the company can often impact the project as much as the owner/client requirements. Although consistent communication throughout the project within the team members is expected, there is normally value to be gained by meeting with team members after a project is completed to identify any areas where the process could have been improved and provide feedback to the team members on Client / Owner and Contractor comments and suggestions. The Project Manager is responsible for documenting that this feedback has been obtained from the Client and shared with the Team **(Mandatory)**.

7.2 MODIFICATIONS TO QC/QA PROCEDURES

The Quality Assurance Manual is intended to be a living document that will be continuously updated through suggestions by end users. The Quality Assurance Team will review and evaluate all suggestions, comments, and/or concerns received from the document users, and determine if revisions to the manual are warranted.

If any MJ employee has a suggestion, comment or concern regarding the quality assurance manual, they can post it on the MJ Intranet under the Quality Assurance Q and A. You can submit anonymously or leave your name.

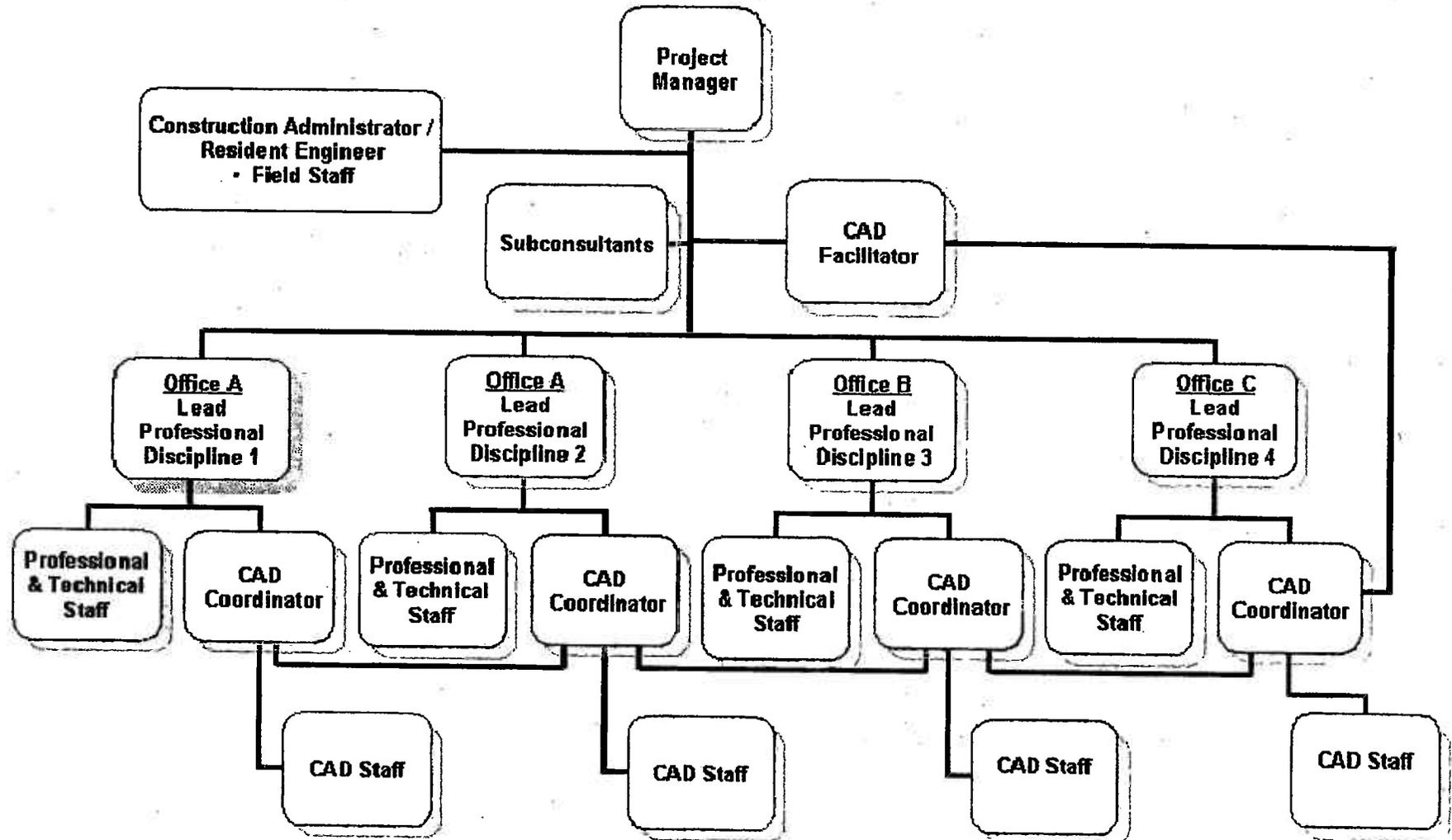
The communication should reference the particular section of the QA Manual affected. The Team will meet regularly (bi-monthly) to review any communications received and perform other Team functions.

When revisions to the QA Manual are deemed appropriate by the Team, the controlled, electronic document will be updated and a revision date added to the document. It is expected that critical updates will be made on a more frequent basis, with non-critical updates (e.g. minor typographical errors) performed as Team time permits. Read-write access to the controlled document will be restricted for quality control purposes, however, read-only access will be provided to all employees.

A general email announcement will be made when critical updates are issued as well as their effective date(s).

APPENDIX

EXHIBIT 1.9 - SAMPLE PROJECT TEAM STRUCTURE



McFARLAND JOHNSON CORE VALUES

EMPLOYEE ENGAGEMENT

"The fulfilling bond between our employee's and MJ"

All employees are supported to reach their full personal and professional potential. We foster a fun and family-like environment that encourages everyone to be themselves at work. Our employees are owners who are informed, involved and recognized for making MJ successful.

CLIENT SERVICE

"Building trusted partnerships"

We are committed to understanding and fulfilling our clients' expectations and objectives through careful listening, open communication, responsive actions and innovative solutions.

ONE COMPANY

"Committing to each other"

We foster a cohesive culture where each team member helps each other to balance the demands and challenges at work and their personal lives. The spirit of teamwork is shared across disciplines, levels and offices.



SUSTAINABILITY

"Creating our future"

Ensuring our long term health and financial stability through ethical practice, strategic growth and sound investments.

ENTREPRENEURIAL

"Growing by taking on responsibility and risk"

We support our spirited employee-owners to be forward thinking and empowered to make decisions to influence the success and direction of the company.

INNOVATION

"Using our creativity to improve our world"

We foster an environment that embraces new ideas, technologies, and markets.



PROJECT MANAGEMENT PLAN APPROVAL SHEET

Project Name: _____ Project Number: _____

Client: _____

Project Manager: _____

Project Managers Supervisors: _____

Project Description:

Prepared by: _____
Project Manager

Date: _____

Approved by: _____
Project Manager's Supervisor

Date: _____

Distribution:

SAMPLE
EXHIBIT 5.6 - FIELD REPORT FORM



McFarland Johnson

40 Farrell Street
South Burlington, Vermont 05403
Telephone: (802) 862-9381
Fax: (802) 862-7450
www.mjinc.com

FIELD REPORT

TO: **DATE:**
RE: **JOB #:**
ATTN: **CONTRACTOR:**
WEATHER:
PRESENT AT SITE:

FIELD REPORT

1.

Please call if you have any questions or comments.

cc:



PROCEDURE FOR PROJECT SCHEDULE / SCOPE / FEE IMPACT, AFTER CONTRACT EXECUTION

Also refer to the Corporate Risk Management Policy requirements outlined in the Corporate Operational Manual.

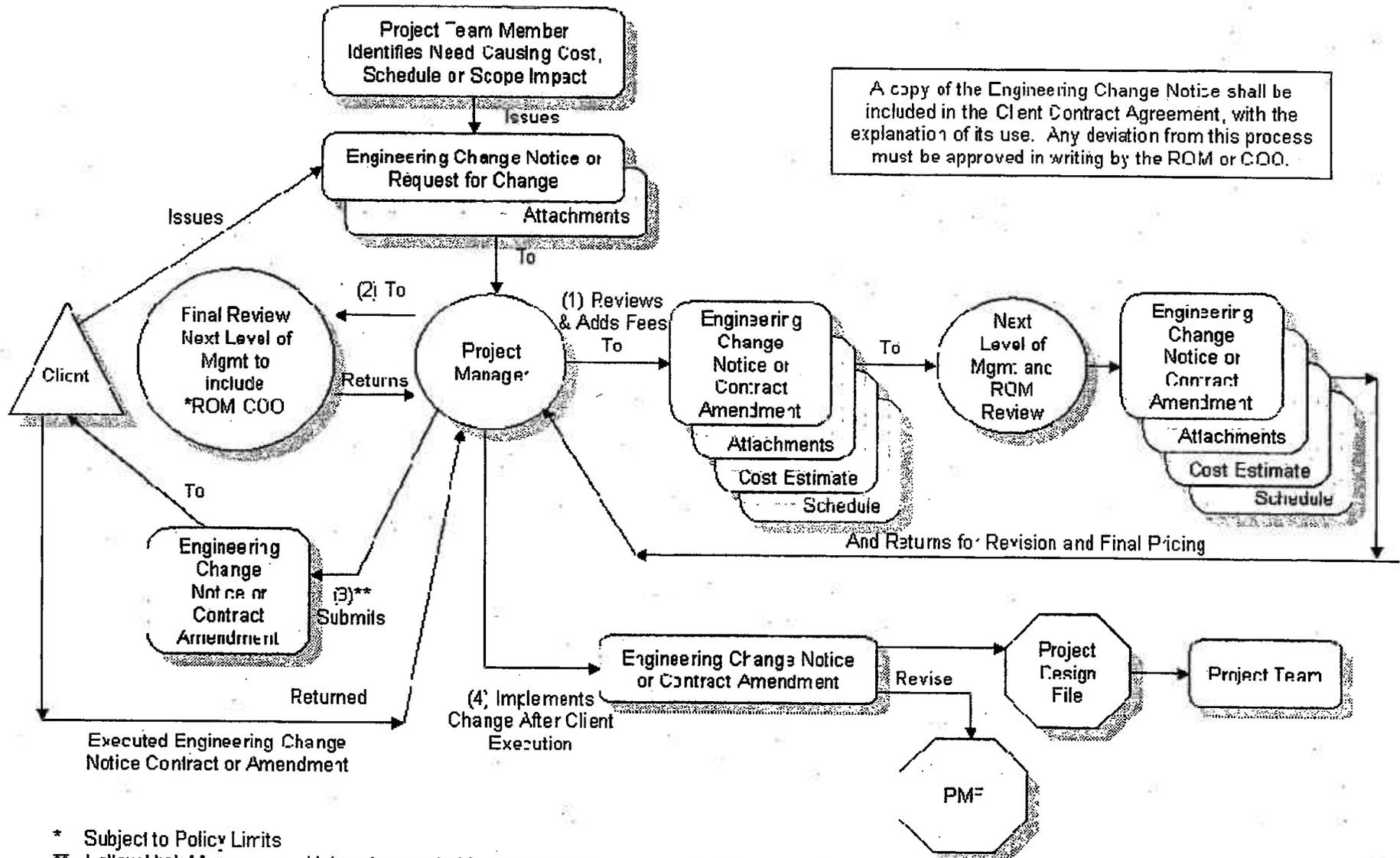
1. The Project Manager shall maintain a detailed record of all design parameters and criteria used as the basis of design. Any revisions and changes from the original work scope negotiated with the Client and/or Owner shall be recorded on an Engineering Change Notice form or Contract Amendment. Any changes to the project schedule shall be recorded, even if the fee is not affected.
2. Where mutually agreeable between the Engineer and the Client and/or Owner, a copy of the Engineering Change Notice shall be included in the Client and/or Owner Contract Agreement, with an explanation of its use.
3. The Client, and / or Owner requests a revision to the work scope, or MJ identifies a need to expand its contracted scope of work, which could have a cost and/or schedule impact on the project.
4. The Project Manager receives / identifies the request impact and prepares an Engineering Change Notice or Contract Amendment to include a detailed description of the work. Supporting documentation regarding engineering fee changes and/or schedule impact are also included. If the revision or expansion of contract scope does not require a fee increase this conclusion must be approved in writing by the Project Managers next higher level of Management.
5. If in the judgment of the Project Manager, there will also be a construction cost increase and / or schedule impact over and above the original project construction cost estimate or schedule, he or she shall prepare an approximate cost estimate or schedule impact if possible of the change in scope requested, and identify it on the Engineering Change Notice form or Contract Amendment.
6. The priced Engineering Change Notice or Contract Amendment packet is then submitted to the next level(s) of management for review and approval.
7. The next level(s) of management shall review the Engineering Change Notice or Contract Amendment packet and return comments to the Project Manager for revision and final pricing.
8. After final pricing and revision the Engineering Change Notice or Contract Amendment shall be submitted to next level of management for final review and signature (to include *ROM or COO).

9. After management approval and execution, the Project Manager shall submit the Engineering Change Notice or Contract Amendment to the Client and/or Owner for approval signatures.
10. Once approved and executed by the Client and / or Owner, the Project Manager shall implement the change and maintain a copy of the Engineering Change Notice in the permanent. The Project Manager shall also implement a revision to the Project Maintenance File (PMF) prior to any project charges occurring.
11. If the Project Manager is asked to proceed with "Extra Work" prior to receipt of the executed Engineering Change Notice or contract supplement he / she must follow the Corporate Risk Management Policy requirements outlined in the Corporate Operational Manual.

* Within policy limits

** See Figure on next page for process flow

ENGINEERING CHANGE NOTICE OR CONTRACT AMENDMENT



A copy of the Engineering Change Notice shall be included in the Client Contract Agreement, with the explanation of its use. Any deviation from this process must be approved in writing by the ROM or COO.

* Subject to Policy Limits
 ** Follow Risk Management Policy if requested to proceed with work prior to Client execution.



ALTERNATE PROCEDURE FOR CHECKING DESIGN DRAWINGS

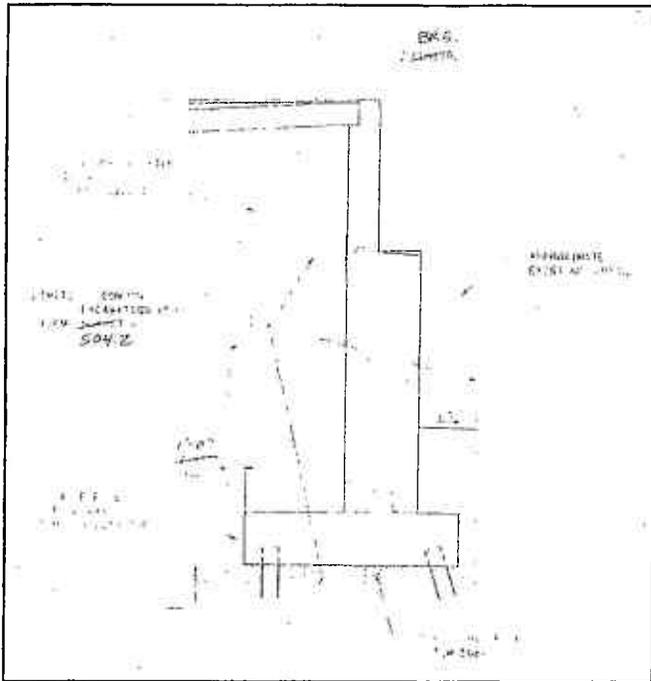
The checking of drawings, like any other checking, requires a minimum of two individuals: a checker/verifier, and an originator/backchecker. In most instances, however, a third individual will also be utilized to make the required corrections. The following four step process is used in the checking of drawings:

A. CHECK → B. BACKCHECK → C. CORRECT → D. VERIFY

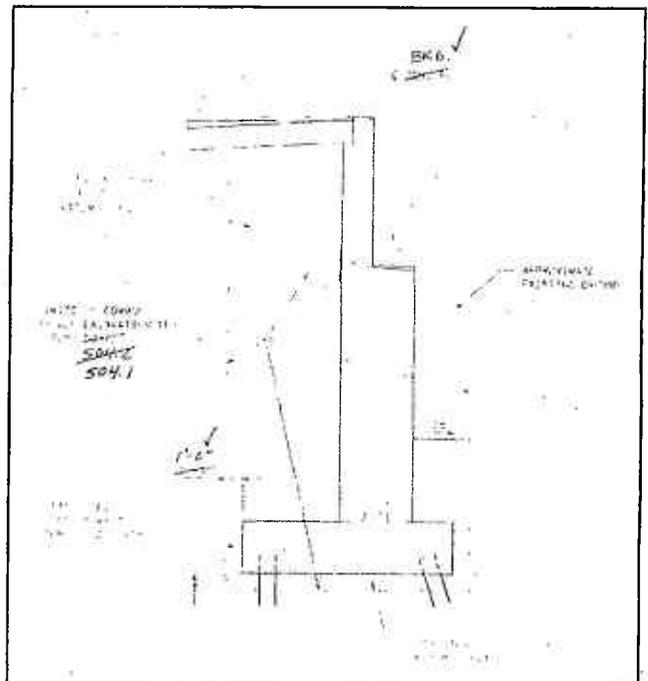
To avoid ambiguity, better define individual's roles in the checking process, and provide an auditable record of the Quality Assurance process, a color-coded system has been developed, for use at the Project Manager's discretion. Different colors are used to identify the various stages of the checking process.

- **YELLOW** is used by the checker to indicate agreement. All lines, dimensions, and written text are to be yellowed using colored pencil or highlighter if correct.
- **RED** is used by the checker to indicate corrections and additions. Content intended for deletion should be either crossed out or strikethrough in red pen or pencil. Only text comments intended for direct incorporation onto the drawings should be placed in Red. All other non-record comments or instructions by the checker should utilize Black pen or pencil.
- **GREEN** is used by the backchecker to indicate approval of checker's changes, plus additional changes as agreed to by the checker. A simple check mark should be placed next to any correction noted in Red to indicate approval. If the backchecker disapproved of the checkers comments or feels additional changes are required, these changes are noted on the drawing in green after agreement by the checker.
- **BLUE** is used to indicate that changes to the document original have been made. The corrector should circle each correction in blue pen, pencil or highlighter immediately following each individual correction.
- **ORANGE** is used to verify that the change to the document original is correct. Typically, an orange colored highlighter is the most efficient method for the final verification of the check print.
- **BLACK** is used for non-record comments or instructions.

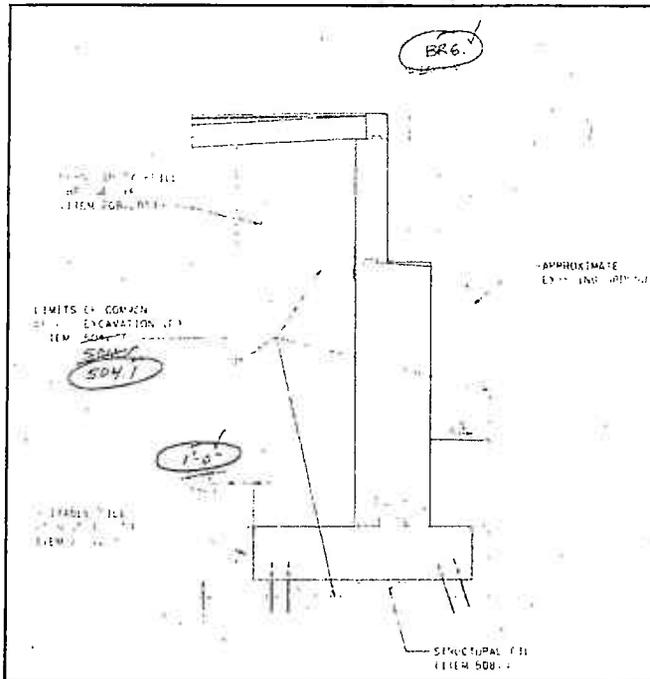
An example of the color-coded checking process for drawings is provided on the following page.



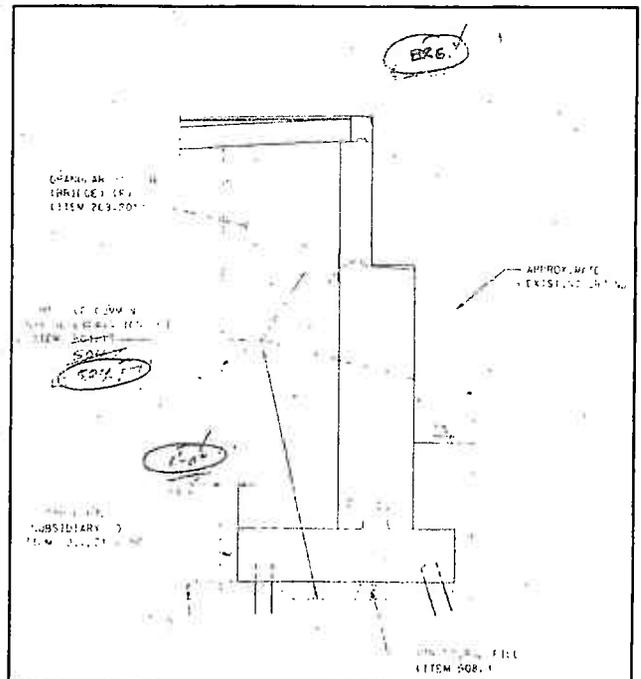
A. Yellow is used by the checker to indicate agreement. Red is used to indicate corrections or additions.



B. Green is used by the backchecker to indicate agreement or disagreement with the checker.



C. Blue is used by the corrector to indicate each individual correction has been made.



D. Orange is used by the verifier to indicate the corrections have been properly incorporated in the original document.

In addition to the color-coded checking process, all check prints should be formalized through the addition of a check print stamp. On the stamp, each participant in the

checking process initials on the appropriate line (in their respective color) indicating that stage of the process is complete.

To avoid obliterating information on the plans or when half-size check prints are utilized, the check print stamp can be placed on the back side of the design drawing.

An example of a completed check print stamp is provided below:

No.	30% SVB.	Date	10/07
CHECK PRINT			
Checked	AAA	Date	10/1/07
Batchchecked	BBB	Date	10/2/07
Corrected	CCC	Date	10/2/07
Verified		Date	



SPECIFICATION FRONT-END CHECKLIST

The following checklist shall be used in preparing the front-end documents:

1. Date, time and place of bid opening.
2. How many days before plans are ready does municipality need invitation to bid to set up certified advertisement.
3. Who is responsible for advertisement, client or MJ.
4. How many days' does client / sponsor need to award bid. Any special meetings required. Need this time frame for contractor to hold bid and before plan set refunds go back.
5. You should request prevailing wage rates from agencies – online.
6. Find out from company Affirmative Action Officer or designee or client / sponsor what DBE / WBE goals need to be met.
7. Are there any special forms which the client / sponsor requires to be added to the front-end specs.
8. Does lawyer for client / sponsor need to review front end before bid advertised.
9. Do we want a working day or calendar day schedule.
10. Liquidated damage amount must be realistic – and able to back up.
11. Section F and G. Agree on insurance requirements. FAA requirements are steep but sponsor can change if it seems unreasonable for construction cost. In some cases it should be more.
12. Airport projects, make sure in Section F that MJ is listed as additional insured. Sometimes if airport is run by municipality (such as D.M. Airport Developers) they should also be listed.
13. Section 50-06 construction layout and stakes shall be edited to meet needs of project.
14. Make sure Section 50-24 record plans or as-builts has been added. Contractor responsible for this task not MJ – unless in MJ contract. MJ to provide AutoCAD backgrounds for contractor use.
15. Section 80-12 A&B is specific to project. This wording is usually copied onto our site plan drawing for phasing requirements make sure both read the same. Also 80-12 C12 is the radio frequency needed so contractor aware of aircraft movement.
16. 80-15 E – Input airfield requirements.
17. Section 70-05 - Should be edited for grant participation, whether state or federal.
18. Section 70-15 - List FAA person if on airfield side and airport municipality person if on landside.
19. Section 90 - Measurement and payment needs to be modified for lump sum contract. 90-01 thru 90-04.
20. Permits
21. Review comments.



DISCLAIMERS

Probable Cost of Construction:

All estimates prepared by McFarland Johnson, shall include the following disclaimer:

McFarland Johnson has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing and that the opinions of probable construction costs provided herein are to be made on the basis of the McFarland Johnson qualifications and experience. McFarland Johnson makes no warranty expressed or implied as to the accuracy of such opinions as to bid or actual costs.

Client Use Only:

"This report is for [Client] use only, and is not to be distributed to third parties outside [Client's] organization."

Utility Information:

"All known public and private utility installations within or adjacent to the contract limits are shown in their approximate existing locations on the contract plans. The Contractor is, however, cautioned that these locations are not guaranteed, nor is there any guarantee that all such facilities within or adjacent to the contract limits have been shown on the plans." [all NYSDOT projects should add the following sentence accompanied somewhere in the plans with the definition of QLA, QLB, QLC, and OLD]. Unless otherwise indicated, the degree of accuracy of all utility locations is QLA, B, C, or D.

Reconstruction Work:

"The Contractor's attention is directed to the fact that, due to the nature of reconstruction projects, the exact extent of reconstruction work cannot always be accurately determined prior to the commencement of work. These contract documents have been prepared based on field inspections and other information available at the time. Actual field conditions may require modifications to construction details and work quantities. The Contractor shall perform the work in accordance with the field conditions.

Subsurface Information:

"Subsurface explorations have been made for this project at the locations indicated on the plans. Boring logs and other subsurface information made available to the bidders were obtained with reasonable care and recorded in good faith by _____."

Key Assumptions:

"This report has been prepared based on certain key assumptions made by McFarland Johnson which substantially affect the conclusions and recommendations of this report. These assumptions, although thought to be reasonable and appropriate, may not prove true in the future. McFarland Johnson's conclusions and recommendations are conditioned upon these assumptions."

NOTE: The above language should be modified to be consistent with McFarland Johnson's contractual obligations. McFarland Johnson's standard Contract Documents set forth various alternates regarding cost estimates. For example, if McFarland Johnson has limited responsibility (e.g., to redesign if necessary to bring the cost within budget), McFarland Johnson must have the authority to make design decisions regarding the reduction of cost or scope of the project. Having developed such a design is the extent of McFarland Johnson's responsibility.



AUDIT REPORT

Client:

Project Number:

Project Name:

Audit Number:

Audit Date:

Audit Criteria:

Auditor: _____

- McFarland Johnson Quality Assurance Manual
- Project Standards and Criteria
- Other:

Audit Scope:

Blue	Green	Yellow	Red	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Project Central File
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Project Management Plan
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Policy Compliance
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Calculations
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drawings
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Specifications
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reports
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Opinion of Probable Project Cost
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Independent Technical Review
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Subconsultant Procurement / Control
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Construction Administration
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Records Retention
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Feedback
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other

Audit Contacts:

Corrective Action Needed: No Yes (see attached Audit Finding)

Audit/Corrective
Action Completed: _____

Date: _____

Project Manager

Approved: _____

Date: _____

Quality Assurance Auditor(s)

Attachments: Audit Finding (Exhibit 6-2) _____ pages

Distribution: Regional Office Manager
Project Manager
Quality Assurance File

**EXHIBIT 6-2
AUDIT FINDING REPORT (AF)**

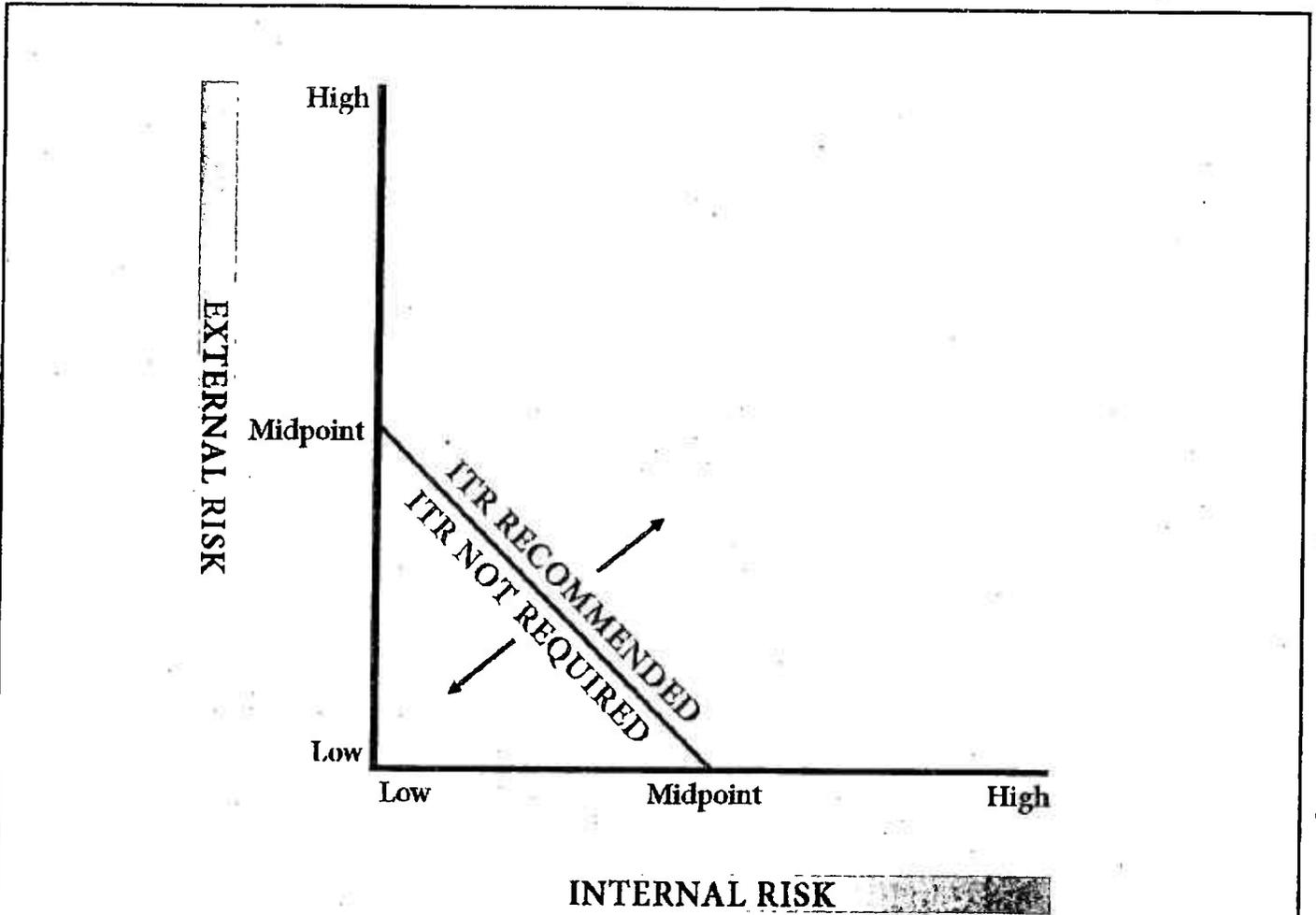
Page _____ of _____

Project Name / Project Number: _____ Client: _____

Project Manager: _____ Audit Number: _____ Audit Date: _____ Auditors: _____

AFR Number/ QAM Section	Audited Area/Findings/Recommended Action (To be completed by Auditors)	Corrective Action Reply (To be completed by Project Manager; Attachments may be used as necessary)	Corrective Action Completed By/Date (By Project Manager)	Corrective Action Verified By/Date (By QA Auditors)

GUIDELINES FOR INDEPENDENT TECHNICAL REVIEW (ITR)



- EXTERNAL RISK**
- Intolerance Level of Client for Changes
 - Schedule Risk
 - Project Complexity
 - Project Scale
 - Project Costs

- INTERNAL RISK**
- Lack of Specific Project Experience by Staff
 - Current Staff Work Load
 - Lack of Required Technology
 - Review Risk

AUDIT SUMMARY



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

11/6/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Insurance Office of America 31 Lewis Street Suite 201 Binghamton, NY 13901	CONTACT NAME: Michael Burns PHONE (A/C, No, Ext): (607) 754-0329 45230 FAX (A/C, No): (607) 754-9797 E-MAIL ADDRESS: Michael.Burns@ioausa.com													
	<table border="1"> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> <tr> <td>INSURER A: National Fire Insurance Co of Hartford</td> <td>20478</td> </tr> <tr> <td>INSURER B: Transportation Insurance Company</td> <td>20494</td> </tr> <tr> <td>INSURER C: Continental Insurance Company</td> <td>35289</td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: National Fire Insurance Co of Hartford	20478	INSURER B: Transportation Insurance Company	20494	INSURER C: Continental Insurance Company	35289	INSURER D:		INSURER E:		INSURER F:
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INSURER A: National Fire Insurance Co of Hartford	20478													
INSURER B: Transportation Insurance Company	20494													
INSURER C: Continental Insurance Company	35289													
INSURER D:														
INSURER E:														
INSURER F:														
INSURED McFarland-Johnson, Inc. 49 Court Street Suite 240 Binghamton, NY 13901														

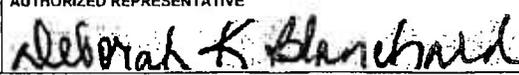
COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS

INSR LTR	TYPE OF INSURANCE	'ADDL SUBR' INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:	X X	6056803227	1/1/2023	1/1/2024	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 15,000 PERSONAL & ADV NJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	X X	6056803213	1/1/2023	1/1/2024	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000	X X	6056803244	1/1/2023	1/1/2024	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A	WC656803230	1/1/2023	1/1/2024	<input checked="" type="checkbox"/> PER STATUTE OTH: ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Val Pprs & Records		6056803227	1/1/2023	1/1/2024	Blanket Limit \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Project: Mechanical Statewide Engineering Services

State of New Hampshire Dept of Administrative Services and all other parties as required by written contract are additional insured on a primary and noncontributory basis including completed operations in regard to general liability per endorsement numbers CNA74858NY, CNA75079XX, CNA74987XX, in regard to auto per endorsement number CNA71627. A Waiver of Subrogation applies in favor of the certificate holder, owner and all other parties as required by written contract in regard to general liability per endorsement number CNA74858NY, in regard to auto per endorsement, number CA 04 44 10 13, in regard to workers compensation per endorsement WC 00 03 13. The umbrella policy is following form of the underlying policies per endorsement #CNA75504XX. 30 Days' Notice of Cancellation /10 Days Non-Payment of Premium in accordance with the policy provisions.

CERTIFICATE HOLDER State of New Hampshire Department of Administrative Services P. O. Box 483 Concord, NH 03302	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE 
---	--

State of New Hampshire

Department of State

CERTIFICATE

I, David M. Scanlan, Secretary of State of the State of New Hampshire, do hereby certify that MCFARLAND-JOHNSON, INC. is a New York Profit Corporation registered to transact business in New Hampshire on February 14, 1969. I further certify that all fees and documents required by the Secretary of State's office have been received and is in good standing as far as this office is concerned.

Business ID: 2302

Certificate Number: 0006289116



IN TESTIMONY WHEREOF,
I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 31st day of July A.D. 2023.

A handwritten signature in black ink, appearing to read "D. Scanlan", is written over a horizontal line.

David M. Scanlan
Secretary of State

**CERTIFICATE OF SECRETARY
OF
McFARLAND-JOHNSON, INC.
ATTESTING TO THE ADOPTION OF BOARD RESOLUTION**

I, Jeffrey R. Wood, Secretary of McFarland-Johnson, Inc., certify that on March 8, 2023 at a Meeting of the Board of Directors of McFarland-Johnson, Inc., the Directors, acting unanimously, adopted the following resolution:

RESOLVED, that the following elected Officers of the Corporation are authorized to sign contracts in the name of, and on behalf of, the Corporation, in accordance with corporate policies and rules:

<u>Name</u>	<u>Office</u>
James M. Festa	- CEO – Engineering
Chad G. Nixon	- President
Jeffrey R. Wood	- Vice President/Secretary/Treasurer
Thomas T. Kendrick	- Vice President
John L. Mafera	- Vice President

I certify that as a result of the action of the Board of Directors, James M. Festa, CEO-Engineering of McFarland-Johnson, Inc., is fully authorized to enter into any contracts, including Mechanical Engineering Statewide, in the name of and on behalf of the Corporation for the rendering of services by the Corporation.

Jeffrey R. Wood

Jeffrey R. Wood, Secretary

[CORPORATE SEAL]



SUBSCRIBED AND SWORN TO

this 7th day of November 2023

Linda M. Monahan
Notary Public

LINDA M. MONAHAN
Notary Public, State of New York
No. 4968747
Residing in Broome County
My commission expires 7/1/24

L:[LOO/CORP/MISC/JRW]