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Title: Control of Nonconforming Product - Construction		

1.0 PURPOSE:

The purpose of this document is to define the procedure for controlling nonconforming product in construction including identification, segregation, resolution, and re-inspection.

2.0 RESPONSIBILITIES:

- 2.1 NCR Originator – Any individual who becomes aware of a nonconforming condition shall bring it to the attention of the Resident Engineer. The originator is responsible for ensuring that identified nonconforming products are segregated and controlled to prevent the inadvertent use or installation.
- 2.2 Material Test Acceptance Lab – The Materials Test Acceptance Lab is responsible to notify the Contractor and the Construction Manager of all failing test results.
- 2.3 Construction Contractor – The Construction Contractor is responsible for responding to all assigned NCRs by the Resident Engineer. The Construction Contractor shall:
 - Propose a solution to the Resident Engineer on all NCRs assigned to them
 - Notify the Visual Quality/Specialist of proposed solution for Visual Quality NCR
 - Notify the Resident Engineer or Visual Quality Manager/Specialist when the proposed solution has been implemented and aide in the verification of the actions taken
- 2.4 Resident Engineer– The Resident Engineer is the Construction Manager’s assigned engineer with responsibility for the construction contract. The Resident Engineer shall:
 - Review all construction nonconforming conditions brought to them to determine if a NCR should be created
 - Open new NCR when required
 - Approve / Reject all NCR in accordance with Table II
 - Forward to the Construction Manager when the NCR has a resolution of “Repair”, “Rework” or “Accept-As-Is”
 - Forward Final Approval of a Construction NCR to the Construction Contractor for implementation
 - Verify that the Construction Contractor has completed the action required by a Construction NCR and then close the NCR
 - 2.4.1 If the Resident Engineer does not hold a P.E. license, they shall obtain the concurrence of the Construction Manager before approving the NCR and the proposed resolution.
- 2.5 Visual Quality Manager/Specialist – the Visual Quality Manager/Specialist shall be responsible to determine if a NCR should be created with regard to visual quality and shall:
 - Review all Visual Quality nonconforming conditions brought to them to determine if a NCR should be created
 - Open new NCR when required

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- Approve / Reject all Visual Quality NCR in accordance with Table I
- Forward to the Construction Manager when the Visual Quality NCR has a resolution of "Repair", "Rework" or "Accept-As-Is"
- Forward Final Approval of Visual Quality NCR to the Construction Manager for implementation
- Verify that the Construction Contractor has completed the action required by a Visual Quality NCR and then close the NCR

2.6 Construction Manager – The Construction Manager is responsible for monitoring and tracking all NCRs initiated by the contractor or construction management to ensure timely resolution. It shall be noted that in contractual situations where there is no designated Construction Manager, but the Resident Engineer is filling this role, then the Resident Engineer shall fulfill this responsibility within this procedure. The Construction Manager shall:

- Communicate schedule delays or budget over runs to the CM / Project Manager
- Forward Visual Quality NCR to the Construction Contractor to obtain proposed solution
- Should the NCR result in a construction change order, it shall be handled in accordance with *CON-03, Construction Change Order Process*.
- Review and recommend for approval or rejection all NCRs categorized as "Rework", "Repair" or "Accept-As-Is"
- Provide concurrence to the Resident Engineer related to nonconformance, when the Resident Engineer does not possess a P.E. license

The Construction Manager shall also be responsible to review the results of failing material tests and make and subsequently document engineering judgment decisions in accordance with QM-09-A3, Guiding Principles for Construction Management Acceptance Decision Delegation and QM-09-A4, Construction Management Acceptance Decisions Delegation.

In addition, in contractual conditions where contractor performed material tests are used as the basis for the acceptance decision, the Construction Manager shall investigate root causes of non-validation and shall issue Corrective Action Requests in accordance with QM-09-A5, Contractor Performed Material Testing Disposition Protocol and QM-10, Corrective and Preventive Action procedure.

2.7 Corridor Manager / Project Manager – The CM or Project Manager shall:

- Monitor all NCRs and report on any critical issues to the PMO Construction Manager, Project Delivery Office and the PMO Quality Manager
- Monitor all NCRs for potential schedule delays or budget over-runs and capture these in accordance with *PC-03, Exception Reporting* procedure
- Review and recommend approval or rejection of all NCRs categorized as "Repair" or "Accept-As-Is"

2.8 NTTA Technical Oversight Leader – The NTTA Technical Oversight Leader is responsible to review and provide final approval on all construction NCRs categorized as "Repair" or "Accept-As-Is" resolution. At their discretion, the NTTA Technical Oversight Leader may obtain the approval of the Director of Project Delivery and / or the AED of Project Delivery.

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2.9 NTTA Design Guidelines Manager– The NTTA Design Guidelines Manager is responsible to review and provide final approval on all Visual Quality NCRs categorized as “Repair” or “Accept-As-Is” resolution. At their discretion, the NTTA Design Guidelines Manager may obtain the approval of the Director of Project Delivery and / or the AED of Project Delivery.

3.0 SCOPE/APPLICABILITY:

This procedure shall apply to construction and visual quality generated nonconformance, inclusive of failing material tests when they cannot be accepted via Construction Management Delegation, on all NTTA corridors and CIP projects within the Project Delivery department.

4.0 REFERENCES:

- [PC-03](#) Exception Reporting procedure
- [CON-03](#) Construction Contract Change Order (CO) Process
- [QM-10](#) Corrective and Preventative Action
- [CRV-01](#) Sampling, Testing and Reporting Requirements

5.0 DEFINITIONS & ACRONYMS

Nonconformances are defined as the failure to meet plans and/or specifications upon the completion of a discrete and measurable element of construction (i.e. individual pre-cast units, individual concrete placements, lift of earthwork, etc.). Subsequent work that builds upon an identified nonconforming element shall not proceed until approval of the proposed solution has been received. In terms of failing material tests, nonconformances are defined as those failing materials in which specifications do not allow any additional provisions to rectify the material.

EDMS – Electronic Data Management System, which may be utilized on NTTA construction projects to serve as the repository for all material test results as well as the documentation of engineering judgment decisions to accept failing tests.

6.0 PROCEDURES:

6.1 The Originator should fully describe the nonconforming condition including reference to failed requirements where applicable. The originator shall ensure that nonconforming products are identified, segregated if possible, and provide the needed controls to prevent the inadvertent use or installation of the nonconforming items. If nonconforming product is identified after its use has begun, any of the remaining nonconforming products shall be identified and segregated to prevent further use. All areas where nonconforming material may have been used must be identified and evaluated for resolution.

6.1.1 For Visual Quality nonconformance, the Originator shall create a Visual Quality NCR and notify the Visual Quality Manager/Specialist for evaluation.

6.1.2 For all other types of construction issues the Originator shall create a Construction NCR and notify the Resident Engineer for evaluation.

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- 6.1.3 For failing material tests, which the Construction Manager has determined as rejectable, utilizing engineering judgment, and acceptance delegation, as defined in QM-09-A3 and QM-09-A4, in which specifications do not allow any additional provisions to rectify, the Construction Manager shall create or direct the Resident Engineer to create a Construction NCR.
- 6.1.4 For failing material tests, which the Construction Manager has determined as acceptable, utilizing engineering judgment and acceptance delegation as defined in QM-09-A3 and QM-09-A4, (meaning no NCR to be issued) the Construction Manager shall document such acceptance and the rationale behind this acceptance decision within project records or within an EDMS (if used on the project).
- 6.2 NCR request are evaluated to determine if they are valid.
- 6.2.1 The Resident Engineer shall review the Construction NCR request against plans and specifications to determine if an NCR should be opened. The Resident Engineer may consult with Project Delivery staff to assist in validating the NCR request. All confirmed nonconformance shall be documented by the Resident Engineer as an NCR in the EPDS system.
- 6.2.1.1 If the Resident Engineer does not hold a P.E. license, they shall obtain the concurrence of the Construction Manager before approving the NCR and the proposed resolution.
- 6.2.2 The Visual Quality Manager/Specialist shall review the submitted Visual Quality NCR request against plans and specifications to determine if an NCR should be opened.
- 6.2.2.1 All Visual Quality NCR must be sent to the Construction Manager for forwarding to the Construction Contractor.
- 6.3 The newly created NCR shall be forwarded to the Construction Contractor for determination of the actions needed to correct the nonconformance and the creation of a proposed solution. The recommended resolution to be taken by the Construction Contractor are:
- Accept-As-Is – No actions needed, the defect is acceptable
 - Repair - May meet the required functional use, but this action will not bring the nonconformance into compliance with original plans and specifications
 - Rework – Upon completion the corrections made will bring the identified nonconformance into compliance with the original plans and specifications
 - Replace - Remove and replace nonconformance at the Construction Contractor's expense
- 6.3.1 The Construction Contractor shall clearly indicate in each NCR the proposed solution and actions that will be taken to correct the nonconformance.
- 6.3.1.1 The Construction Contractor shall include the date that the proposed solution shall be completed by.
- 6.3.2 The NCR must be returned within 5 business days of being issued to the Construction Contractor
- 6.3.2.1 A Visual Quality NCR shall be returned to the Visual Quality Manger / Specialist for approval.
- 6.3.2.2 A Construction NCR shall be returned to the Resident Engineer for approval.
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- 6.3.2.3 If the Construction Contractor is unable to identify a proposed solution within 5 days of receiving the NCR, a request for an extension must be made to the Resident Engineer or Visual Quality Manager/Specialist.
- 6.3.2.4 All extensions shall be approved and noted by the Resident Engineer or Visual Quality Manager / Specialist in the NCR.
- 6.4 The Construction Contractor's proposed solution will be reviewed to determine if it will correct the nonconformance. Approved proposed solutions will be forwarded for further review and approval in accordance with Table I for Visual Quality NCR and Table II for Construction NCR (see 6.5).
 - 6.4.1 If the Construction Contractor's proposed solution is rejected:
 - 6.4.1.1 For Visual Quality NCR by the Visual Quality Manager / Specialist it will be returned to the Construction Manager for forwarding to the Construction Contractor for revision.
 - 6.4.1.2 For Construction NCR the Resident Engineer will return it to the Construction Contractor for revision.
 - 6.4.2 If the Contractor's proposed solution is to "Replace" the items identified as nonconforming:
 - 6.4.2.1 For Visual Quality NCR the Visual Quality Manager / Specialist shall forward the NCR to the Construction Manager who will notify the Contractor for implementation.
 - 6.4.2.2 For Construction NCR the Resident Engineer shall provide the approved NCR to the Contractor for implementation.
- 6.5 Tables I and II provide the approval matrix for the Visual Quality NCR and Construction NCR
 - 6.5.1 Visual Quality NCR are reviewed and approved in accordance with the Table I
 - 6.5.1.1 All rejections are returned to the Construction Manager, who will then forward the Visual Quality NCR to the Construction Contractor for updating and revision.
 - 6.5.1.2 The Visual Quality Manager / Specialist shall be notified when an NCR is rejected.
 - 6.5.1.3 When the proposed solution is "Rework", once the Construction Manager has reviewed and approved, he or she shall notify the Contractor for implementation. (See 6.6)
 - 6.5.2 Construction NCR are reviewed and approved in accordance with the Table II
 - 6.5.2.1 All rejections are returned to the Construction Contractor for updating and revision.
 - 6.5.2.2 The Resident Engineer shall be notified when an NCR is rejected.
 - 6.5.2.3 When the proposed solution is "Rework", once the Construction Manager has reviewed and approved, he or she shall notify the Contractor for implementation. (See 6.6)

Resolution	Visual Quality Manager	Construction Manager	Corridor Manager / Project Manager	NTTA Design Guidelines Manager **	DPD & / or AED*
Accept-As-Is	Approve or Reject	Approve or Reject	Approve or Reject	Approve or Reject	Optional Approve or Reject

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Repair	Approve or Reject	Approve or Reject	Approve or Reject	Approve or Reject	Optional Approve or Reject
Rework	Approve or Reject	Approve or Reject	N/A	N/A	N/A
Replace	Approve	N/A	N/A	N/A	N/A
Response Time (Business days)	2	2	2	2	N/A
*Approval is optional and may be requested by the NTTA Design Guidelines Manager					
** Visual Quality NCR Final approval is the NTTA Design Guidelines Manager					
Use the Visual Quality NCR Flow Chart					
Table I VISUAL QUALITY NCR Approval					

Resolution	Resident Engineer	Construction Manager	Corridor Manager / Project Manager	NTTA Technical Oversight**	DPD & / or AED*
Accept-As-Is	Approve or Reject	Approve or Reject	Approve or Reject	Approve or Reject	Optional Approve or Reject
Repair	Approve or Reject	Approve or Reject	Approve or Reject	Approve or Reject	Optional Approve or Reject
Rework	Approve or Reject	Approve or Reject	N/A	N/A	N/A
Replace	Approve	N/A	N/A	N/A	N/A
Response Time (Business days)	2	2	2	2	N/A
*Approval is optional and may be requested by the NTTA Technical Oversight Leader					
** Construction NCR Final approval is the NTTA Technical Oversight Leader					
Use the Construction NCR Flow Chart					
Table II Construction NCR Approval					

- 6.6 When the NCR final approval is completed the NCR will be forwarded to:
- 6.6.1 The Resident Engineer for Construction NCR steps:
 - 6.6.1.1 If the approved recommended resolution is "Accept-As-Is" the NCR shall be closed and the Construction Contractor notified.
 - 6.6.1.2 Approved recommendations ("Repair" or "Rework") shall be submitted to the Construction Contractor for implementation.
 - 6.6.2 The Visual Quality Manager/Specialist for Visual Quality NCR steps:
 - 6.6.2.1 If the approved recommended resolution is "Accept-As-Is" the NCR shall be closed and the Construction Manager notified.
 - 6.6.2.2 Approved recommendations ("Repair" or "Rework") shall be submitted to the Construction Manager for notification to the Construction Contractor.

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- 6.7 The Construction Contractor will notify the Resident Engineer (Construction NCR) or the Visual Quality Manager/Specialist (Visual Quality NCR) when the approved "Replacement", "Repair" or "Rework" action has been completed.
- 6.8 The Resident Engineer or the Visual Quality Manager/Specialist will determine if the completed actions have corrected the nonconformance by arranging for inspection or verification and:
 - 6.8.1 If the proposed solution has not been implemented correctly:
 - 6.8.1.1 The Visual Quality Manager / Specialist shall forward the Visual Quality NCR to the Construction Manager who will return the Visual Quality NCR to the Construction Contractor for further action
 - 6.8.1.2 The Resident Engineer shall forward the Construction NCR to the Construction Contractor for further action
 - 6.8.2 If the proposed solution has been implemented, but has not achieved the intended results:
 - 6.8.2.1 The Visual Quality Manager / Specialist shall forward the Visual Quality NCR to the Construction Manager who will return the Visual Quality NCR to the Construction Contractor.
 - 6.8.2.1.1 The Visual Quality Manager / Specialist shall notify PMO Construction Manager, Construction Manager, Corridor Manager and PMO Quality Manager
 - 6.8.2.2 The Resident Engineer shall forward the Construction NCR to the Construction Contractor.
 - 6.8.2.2.1 The Resident Engineer shall notify PMO Construction Manager, Construction Manager, Corridor Manager and PMO Quality Manager
 - 6.8.2.3 The Construction Contractor must then repeat this procedure as necessary to achieve resolution.
 - 6.8.3 If the actions taken are acceptable to the Visual Quality Manager / Specialist or the Resident Engineer they will close the NCR.
 - 6.8.3.1 Notify PMO Construction Manager, Construction Manager, Corridor Manager and PMO Quality Manager that the NCR has been closed.
- 6.9 An NCR may result in the creation of Corrective or Preventive Actions to determine the root cause of the nonconformance to prevent future reoccurrence. All Corrective or Preventative Corrective actions will be done in accordance with QM-10, Corrective and Preventive Action.
 - 6.9.1 Under contractual conditions which involve contractor performed material tests as the basis for the acceptance decision and subsequent owner verification tests, when non-validation of the two sets of results occurs, the Construction Manager shall be responsible to determine the root cause of non-validation in accordance with QM-09-A5, and shall issue subsequent Corrective Action Request to correct the cause of non-validation in accordance with QM-10.
- 6.10 In the event that the Construction Contractor does not complete the NCR in a timely manner the Resident Engineer or Visual Quality Manager / Specialist shall escalate the NCR to the Construction Manager. Further escalation shall be done using the parties as identified in Table I and Table II.

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7.0 REGULATORY REQUIREMENTS:

N/A

8.0 RELATED BOARD POLICY:

N/A

9.0 COMPONENT DOCUMENTS:

[QM-09-A1](#) EPDS - Construction NCR Workflow Reference Card

[QM-09-A2](#) EPDS - Visual Quality NCR Workflow Reference Card

[QM-09-A3](#) NTTA Guiding Principles for Construction Manager Acceptance Decision Delegation

[QM-09-A4](#) NTTA Construction Manager Acceptance Decision Delegation

[QM-09-A5](#) Contractor Performed Material Testing Disposition Protocol

[QM-09-A6](#) Time Requirements for Material Test reporting into an EDMS

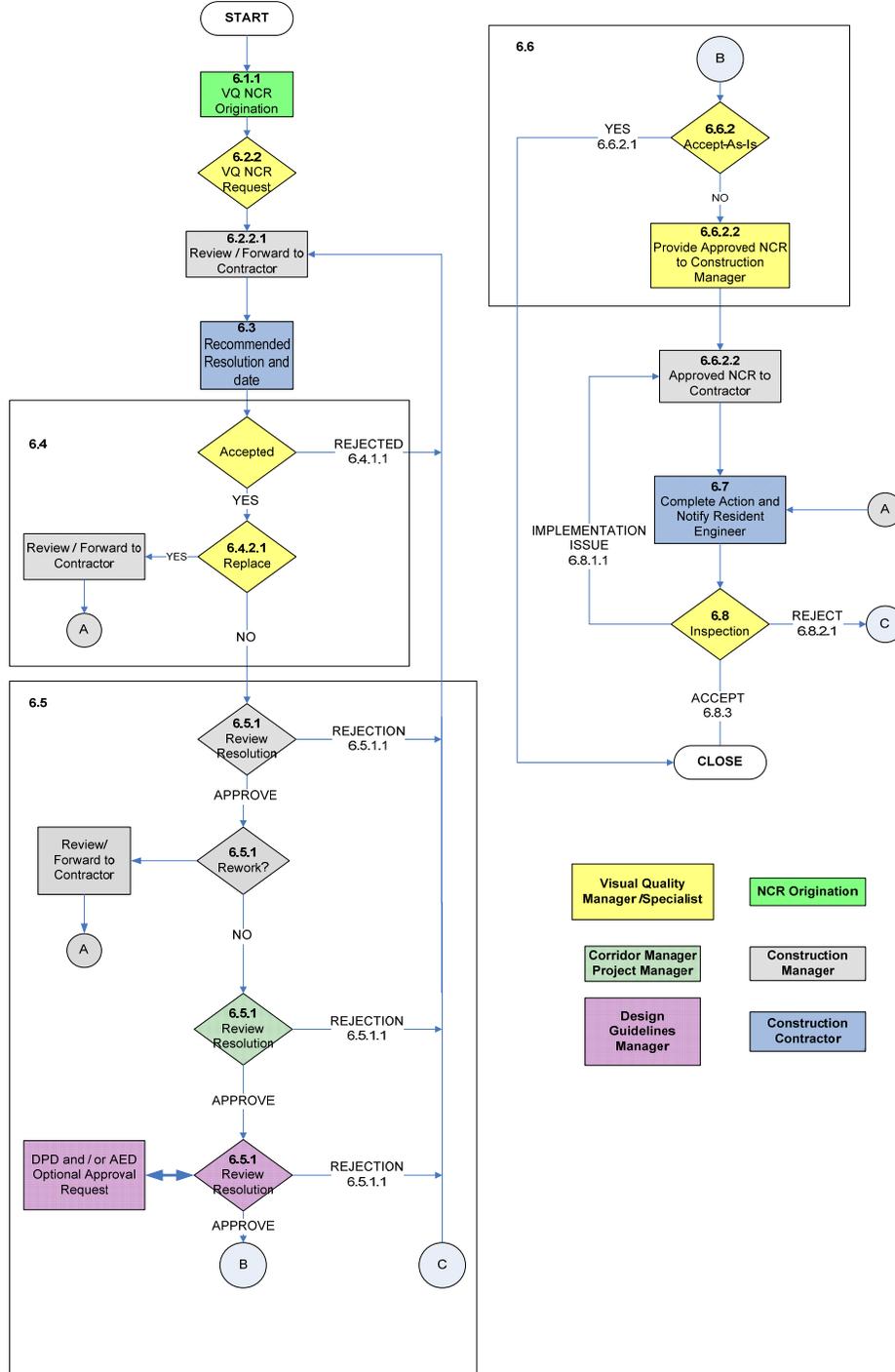
10.0 REVISION HISTORY:

Revision	Revised by:	Release Date	DRN	Reason for Revision
0	Micki Ellis	06/04/2008		Original Issue
1	Micki Ellis	09/09/2008		Rewritten with scope limited to construction nonconformance and approval authorities redefined.
2	Troy Federspiel	5/04/2009	10003	Global changes to the procedure. Flowchart added.
3	Troy Federspiel	8/18/2009	10018	2.4 Added Visual Quality Manager / Specialist and description. 2.8 Added NTTA Design Guidelines Manager and description. 6.0 Updated the definition of an NCR for clarification. 6.0 Added steps need to process a Visual Quality NCR. 6.1 through 6.10 Clarified the process steps need to execute NCRs. 6.3.1 Added the requirement for the Construction Contractor to identify a completion date 6.3.2 Added the 5 day requirement for the Construction Contractor to prepare response 6.5 Added Table I and added Table II, added 2 day approval time limit 6.10 Add escalation identification and actions
4	Troy Federspiel	11/20/2009	10062	New release of: QM-09-A1 Construction NCR Reference Card QM-09-A2 Visual Quality NCR Workflow Reference Card Revision of QM-09 Control of Nonconforming Product – Construction adding QM-09-A1 and QM-09-A2 attachments to the Section 9.0 Component Documents
5	Micki Ellis	07/20/2010	10210	Added Construction Management responsibility as related to failing material tests, acceptance decision delegation, and requirements related to contractor performed material testing. Added Attachments QM-09-A3 through QM-09-A6. Changed approvals for resolutions of Rework.
6	Micki Ellis	08/03/2010	10219	Added 6.5.1.3 and 6.5.2.3 for clarification, revised flowchart to clarify approval for proposed solutions of "Rework".

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11.0 FLOWCHART:

Flow Chart I Visual Quality (VQ) NCR



Visual Quality Manager /Specialist	NCR Origination
Corridor Manager /Project Manager	Construction Manager
Design Guidelines Manager	Construction Contractor

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Flow Chart II Construction NCR

