
EROSION & SEDIMENT
CONTROL
CERTIFICATION
PROGRAM
SHA
Driven to Excel
State Highway
Administration
Maryland Department of Transportation

Agenda

November 7th

8:00 – 8:30	I.	Welcome and Introduction
		A. Environmental Stewardship
		B. Objectives of Program
		C. SHA Initiatives
8:30 – 9:30	II.	Hydrology/Hydraulics
	III.	Erosion Mechanics
9:30– 9:45		Break
9:45 – 10:45	IV.	Vegetative Stabilization
	V.	Nutrient Management
10:45 – Noon	VI.	Field Guide
		A. Highlights of E&S Controls
Noon – 1:00		Lunch
1:00 – 1:30	VI.	Field Guide (Continued)
		B. Waterway Construction
1:30 – 2:45	VII.	Organization
		A. Construction Compliance
		B. Preconstruction Meeting
		C. Modifications
		D. Closeout of Project
2:45 – 3:00		Break
3:00 – 3:15	VIII.	Design Build Process
3:15 – 3:30	IX.	Costs of Compliance vs. Noncompliance

November 8th

8:00 – 10:00	X.	Section 308
	XI.	Quality Assurance Form
10:00 – 10:15		Break
10:15 – 11:00	XII.	Quality Assurance Rating Example
11:00 – Noon		Test

Objective 5.7 Annually achieve 100 percent compliance of Maryland E&S Control requirements on all SHA construction projects and activities.

- ***Performance Measures***
  - Input: Number of SHA Construction Projects & Activities
  - Output: Number of inspections performed
    Number of personnel trained in inspection & design.
  - Outcome: Percentage of compliance on E&S Control ratings by SHA & MDE inspectors, & SHA environmental monitors.

Objective 5.7 Annually achieve 100 percent compliance of Maryland E&S Control requirements on all SHA construction projects and activities.

- ***Strategies***

5.7.1	Introduce environmental monitors on all detail-build & environmentally sensitive projects
5.7.2	Ensure that quality assurance inspections are taking place at a minimum of every 2 weeks at all active construction sites that are in compliance, & follow up quality assurance inspections on non-complying sites are taking place within 2 days of identifying actions needed for compliance.
5.7.3	Ensure that daily inspections of E&S Control are performed by project staff with appropriate documentation.
5.7.4	Update design specifications & standards pertaining to E&S Control
5.7.5	By 2004, develop & implement a unified rating & tracking system for all E&S Control inspections.

Objective 5.8 Implement an SHA Environmental Stewardship Program involving all Offices & Districts by the end of 2004.

- ***Performance Measures***
  - Input: Number of current SHA environmental initiatives & processes
  - Output: Number of implemented strategic environmental activities & initiatives

    Number of offices implementing environmental stewardship activities
  - Outcome: Percentage of SHA offices implementing environmental stewardship program elements

Objective 5.8 Implement an SHA Environmental Stewardship Program involving all Offices & Districts by the end of 2004.

- ***Strategies***

5.8.1	By July 2004, develop an environmental strategic plan with action items & priorities.
5.8.2	Develop statewide recycling & energy conservation programs by September 2004.
5.8.3	Recruit environmental stewards in each SHA office to assist in the implementation by July 2004
5.8.4	Annually by December 1, each SHA office & District will develop & include environmental stewardship initiatives in their local business plans.
5.8.5	Develop internal & external outreach program for environmental stewardship activities as a component of the strategic plan.
5.8.6	Refine environmental strategic plan using input from SHA staff & customers by September 2004
5.8.7	Develop a computerized system to track program progress & resulting environmental as well as business benefits by December 2004.

Overall Environmental Stewardship

- Containment of concrete cleanout discharge
- Containment of machine fluids
- Proper disposal of construction debris
- Proper disposal of garbage
- Develop a spill containment action plan
- Tree protection
- Habitat protection

E&S Program Objectives

- Reevaluate the Quality Assurance Program
- Publish an Erosion & Sediment Control Field Guide
- Develop Training & Certification for Designers, Contractors, & Inspectors
- Implement Contract Incentives to Encourage Environmental Stewardship

Reevaluate the Quality Assurance (QA) Program

- Revised the QA specifications to emphasize a proactive approach to E&S
- Developed an inspection checklist to make inspections more objective & reproducible
- Tested the new checklist on several projects to evaluate the effectiveness & objectiveness
- Piloted the checklist throughout the State using concurrent inspections by a designer, inspector, environmental monitor, & the contractor
- Implemented a new QA Rating tracking system

The new QA Rating Tracking Program can track per:

- Contract
- Contractor
- District
- Inspector
- Frequency of Inspection
- Project Engineer
- By date or time period (month, year, etc.)

SHA Erosion & Sediment Control Field Guide

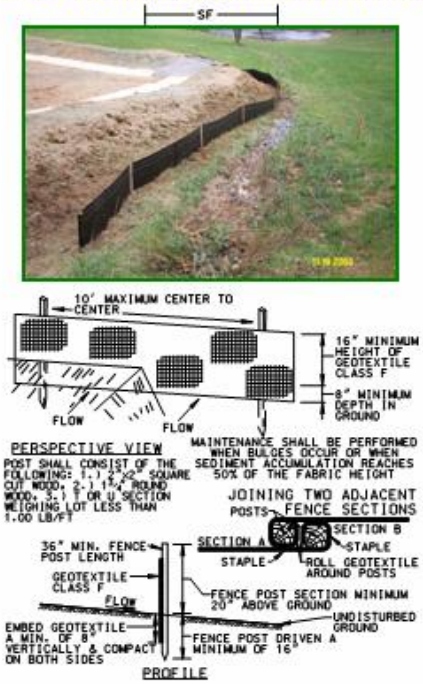
Field Guide for Erosion and Sediment Control

This field guide is intended to serve as a supplemental document to the 1994 Maryland Standards and Specifications for Soil Erosion Sediment Control and Maryland SHA Standard Specifications for Construction and Materials to be used by MD SHA Staff, Inspection Personnel, and Contractors.

State Highway Administration
Driven to Excel
Maryland Department of Transportation

Silt Fence

MDE Detail E-15-3 or Revised SHA SPI 308.03.28



Implementing Contract Incentives to Encourage Proactive E&S Control

- Apply incentive / liquidated damages to all projects that require formal plan approval from MDE
- Allow incentive / liquidated damages to be prorated throughout the project duration
- Base the incentive / liquidated damages on an objective parameter such as the QA inspection checklist
- Pay an incentive based on the contract size & the number of E&S items included in the project
- Implemented a new QA Rating tracking system

Training & Certification for Designers, Contractors & Inspectors

- Held Pilot Training on December 8 & 9 2004 for inspectors and contractors
- Emphasize more practical application such as conducting an effective preconstruction meeting, proper installation & maintenance of controls, required procedures for initiating a permit modification, & things to look for during inspections
- Require certification to work on SHA projects
- Require recertification every 3 years
- Implement training statewide for all projects

Hydrology and Hydraulics

SHA
State Highway Administration
Driven to Excel
Maryland Department of Transportation

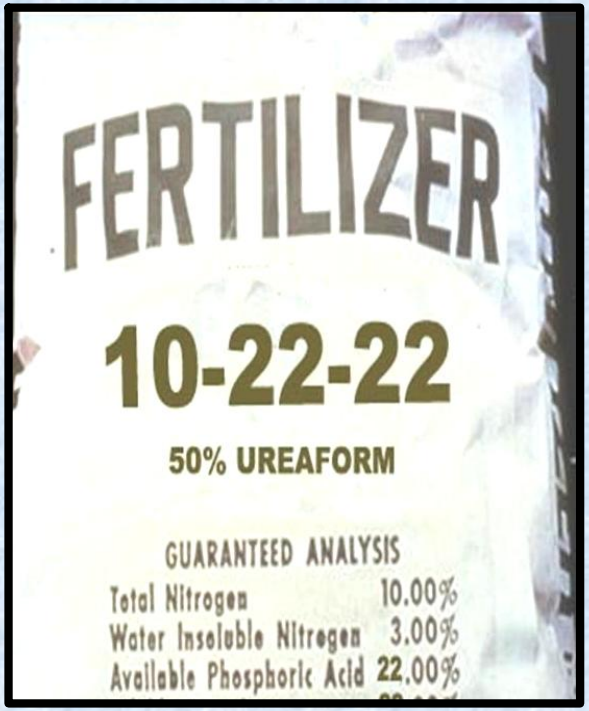
SHA
Driven to Excel
State Highway Administration
Maryland Department of Transportation

SHA
Driven to Excel
State Highway
Administration
Maryland Department of Transportation

Nutrient Management Plan

– Regulates the quantity of major plant nutrients applied to the soil

Inorganic



Organic

Nutrient Management Plan

- Required by COMAR for any nutrients applied to state land including permanent seeding and sodding operations
- Nutrient Management Plans (NMP) will be developed by the Landscape Operations Division (LOD) - Technical Resources Team (TRT)
- Need for a NMP is at the discretion of TRT

What is a NMP?

NMP's are:

- A record of soil tests results
  - Standard
    - pH, texture, OM – SHA
    - P & K – University of Delaware
  - Optional
    - Salts, Mg, Al, Ca, B
- A recommendation of the nutrients needed for plant growth

Responsibility of SHA & the Contractor

- Record fertilizer information
  - Analysis
  - Total amount applied
  - Rate of application
  - Location

- Soil tests are valid for 3 years

Nutrient Management Plan Procedures Summary

1. PE contacts OMT for soil sampling 30 days prior to placing topsoil.

2. OMT tests for pH, OM, & texture. University of Delaware tests for P and K.

3. LOD develops a nutrient management plan based on the results of the soil tests & forwards the limestone, fertilizer, & soil amendment requirements to the ADE-Construction & the PE.

4. The PE should have a nutrient management plan prior to permanent seeding. The PE should contact LOD in the absence of a nutrient management plan.

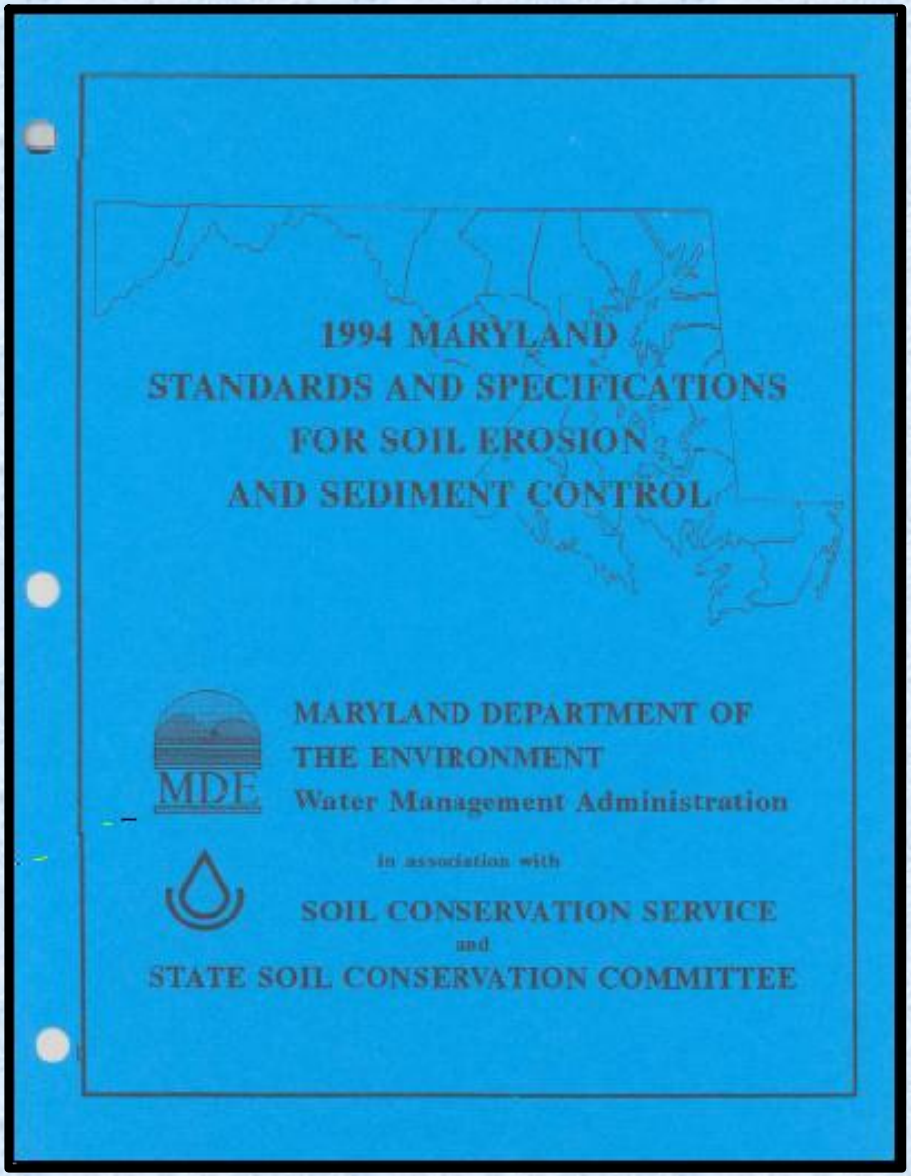
5. PE and Contractor fill out the Nutrient Management Plan Report & the PE forwards a copy to LOD.

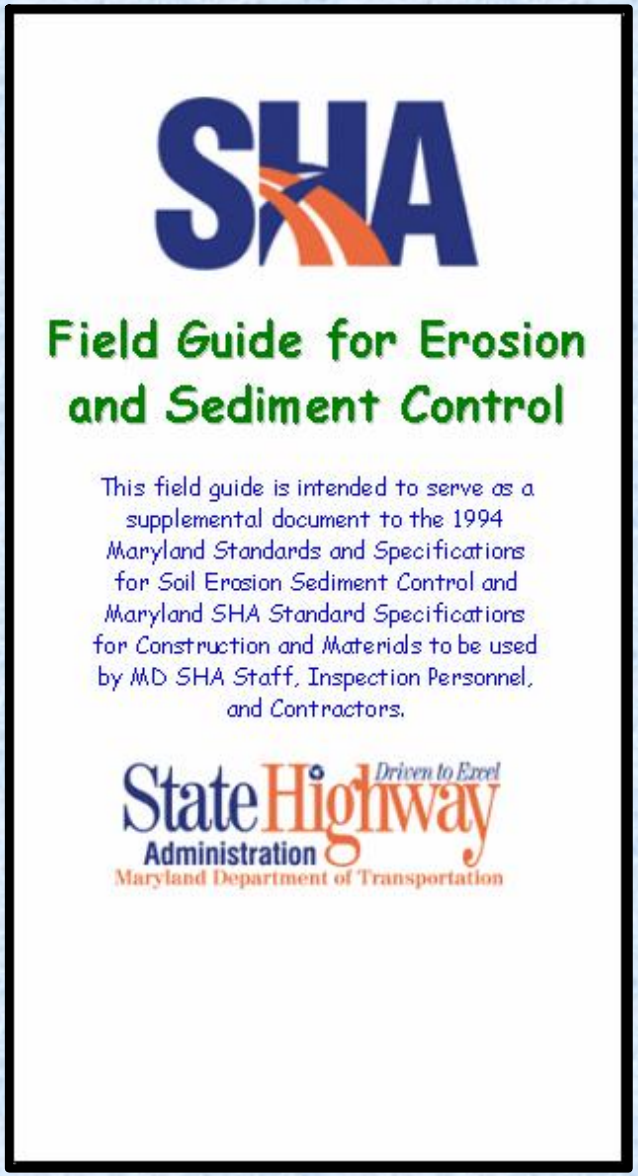
Conclusion

- Nutrient Management Plans are effective tools in preventing nutrient loss and waterway/Chesapeake Bay degradation.
- A new Special Provision Insert is in place to guarantee acceptable vegetative coverage and color at the time of semi-final and final inspections.
- A well established vegetative cover is mandatory to slow the effects of erosion.
- Vegetative cover reduces time & money spent on the maintenance of E&S Controls.

SHA
Driven to Excel
State Highway Administration
Maryland Department of Transportation

MDE Specifications





Waterway Construction

MARYLAND DEPARTMENT
OF THE ENVIRONMENT

WATER MANAGEMENT ADMINISTRATION

Guideline Organization

- ***Section 1:*** Temporary Instream Construction Measures
- ***Section 2:*** Slope Protection & Stabilization Techniques
- ***Section 3:*** Channel Stabilization & Rehabilitation Techniques
- ***Section 4:*** Stream Crossings

SHA
State Highway Administration
Driven to Excel
Maryland Department of Transportation

Responsibilities

- SHA Construction
- Contractors ESCM
- SHA Quality Assurance
- MDE
- Environmental Monitor

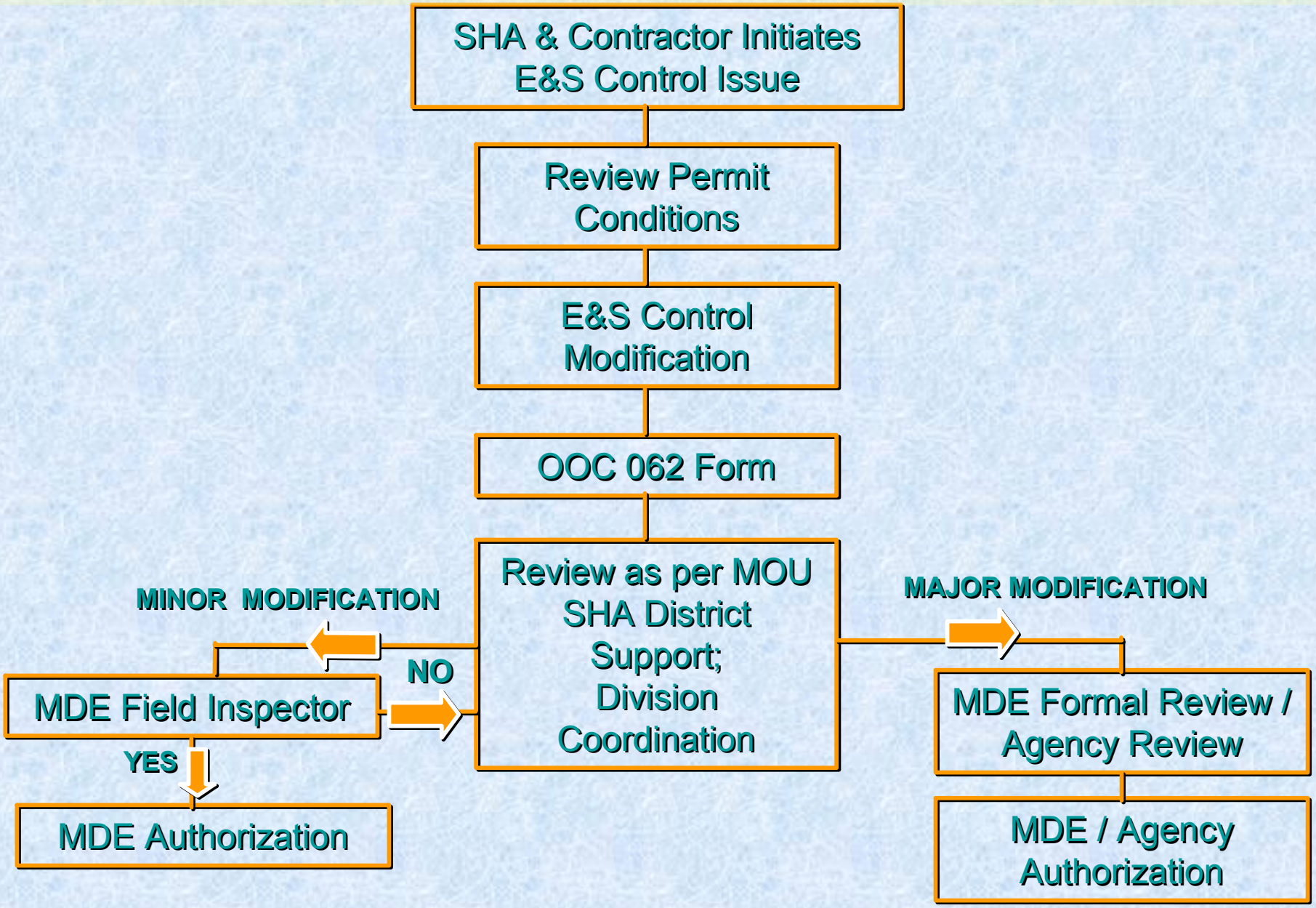
Environmental Monitor (EM) Responsibilities

- Monitor contractors daily activities and permit compliance
- May or may not be assigned - Special Condition in the permit or Design/Build Projects
- Assigned by SHA EPD
- Reports to PE, SHA EPD, HHD, MDE, USACE and/or as specified
- Additional level of inspection
- Member of E&S Control Team
- Key focus is to monitor all activities that may affect environmental resources

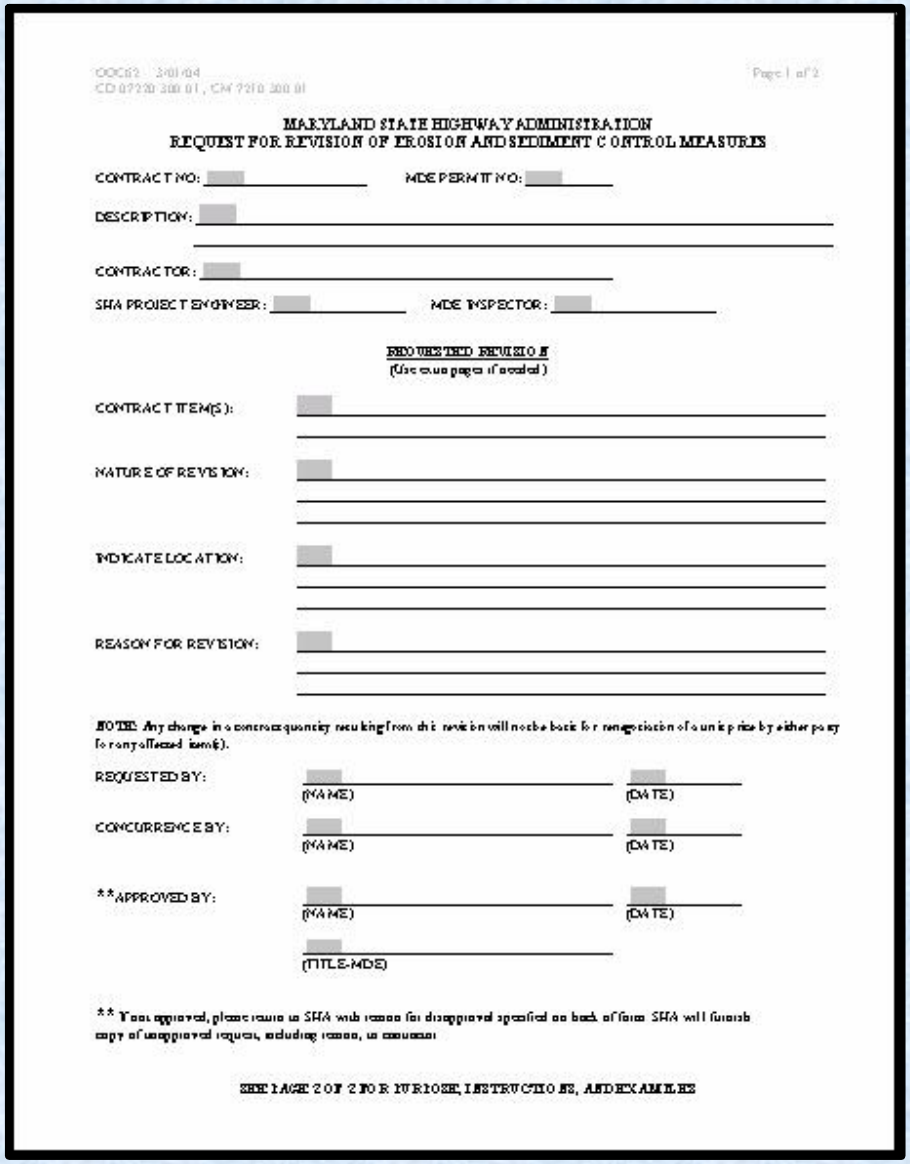
E&S Control Pre-Con Meeting

- Promote Environmental Stewardship
- Discuss project expectations
- Identify & discuss critical environmental / constructability issues
- E&S progress meetings
- Partnering

E&S Control Modification Process



OOC 62 Request for Revision of E&S Control Measures (Page 1 OF 2)



OOC62 3/01/04
CO 07220 300 01, CM 7210 300 01

Page 1 of 2

MARYLAND STATE HIGHWAY ADMINISTRATION
REQUEST FOR REVISION OF EROSION AND SEDIMENT CONTROL MEASURES

CONTRACT NO: _____ MDE PERMIT NO: _____

DESCRIPTION: _____

_____

CONTRACTOR: _____

SHA PROJECT ENGINEER: _____ MDE INSPECTOR: _____

REQUESTED REVISION
(Use extra pages if needed)

CONTRACT ITEM(S): _____

_____

NATURE OF REVISION: _____

_____

_____

INDICATE LOCATION: _____

_____

_____

REASON FOR REVISION: _____

_____

_____

NOTE: Any change in a contract quantity resulting from this revision will not be basis for renegotiation of a unit price by either party for any affected item(s).

REQUESTED BY: _____ _____
(NAME) (DATE)

CONCURRENCE BY: _____ _____
(NAME) (DATE)

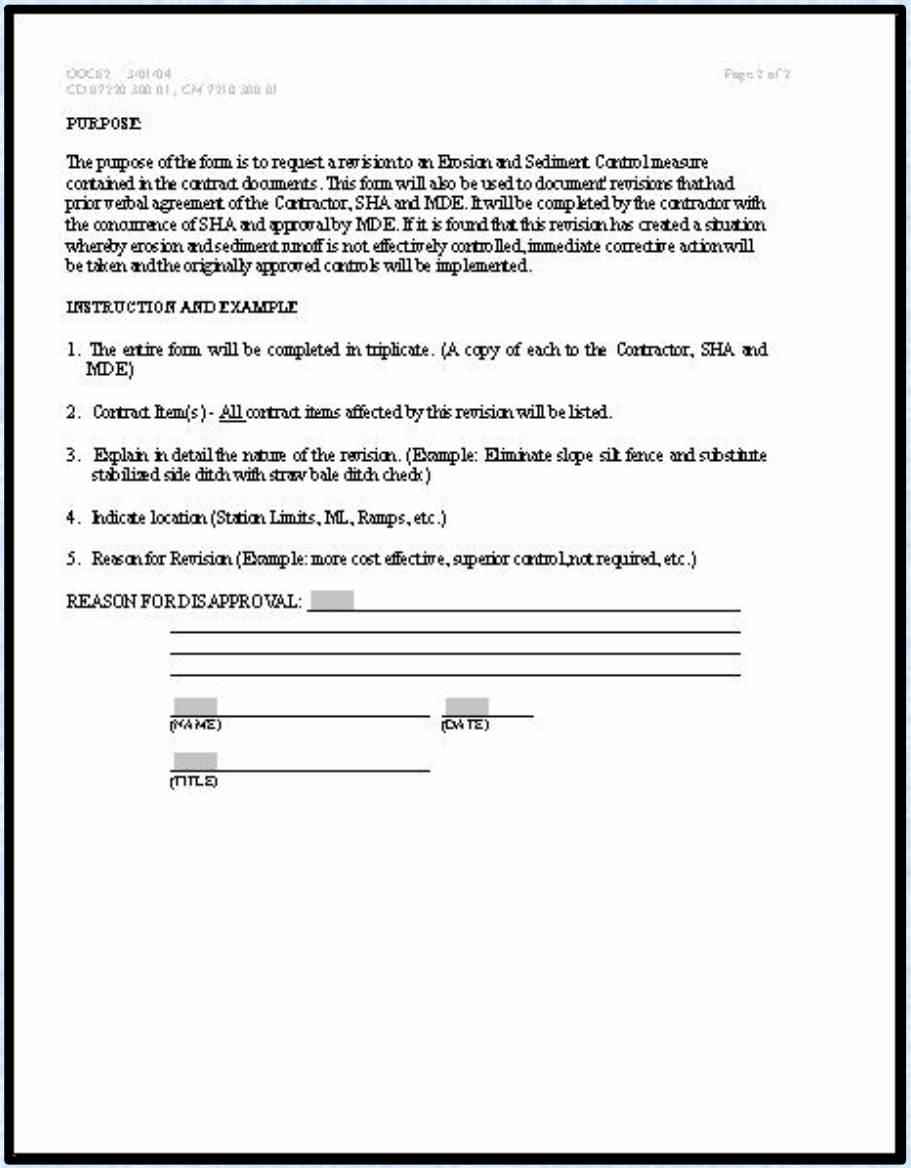
**APPROVED BY: _____ _____
(NAME) (DATE)

_____
(TITLE-MDE)

** If not approved, please return to SHA with reason for disapproval specified on back of form. SHA will furnish copy of unapproved request, including reason, to contractor.

SEE PAGE 2 OF 2 FOR PURPOSE, INSTRUCTIONS, AND EXAMPLES

OOC 62 Request for Revision of E&S Control Measures (Page 2 OF 2)



OOC62 3-01-04
CO 07220 300 01 , CM 7210 300 01

Page 2 of 2

PURPOSE:

The purpose of the form is to request a revision to an Erosion and Sediment Control measure contained in the contract documents. This form will also be used to document revisions that had prior verbal agreement of the Contractor, SHA and MDE. It will be completed by the contractor with the concurrence of SHA and approval by MDE. If it is found that this revision has created a situation whereby erosion and sediment runoff is not effectively controlled, immediate corrective action will be taken and the originally approved controls will be implemented.

INSTRUCTION AND EXAMPLE

1. The entire form will be completed in triplicate. (A copy of each to the Contractor, SHA and MDE)

2. Contract Item(s) - All contract items affected by this revision will be listed.

3. Explain in detail the nature of the revision. (Example: Eliminate slope silt fence and substitute stabilized side ditch with straw bale ditch check)

4. Indicate location (Station Limits, ML, Ramps, etc.)

5. Reason for Revision (Example: more cost effective, superior control, not required, etc.)

REASON FOR DISAPPROVAL: _____

_____

_____

_____

_____ _____

(NAME) (DATE)

_____

(TITLE)

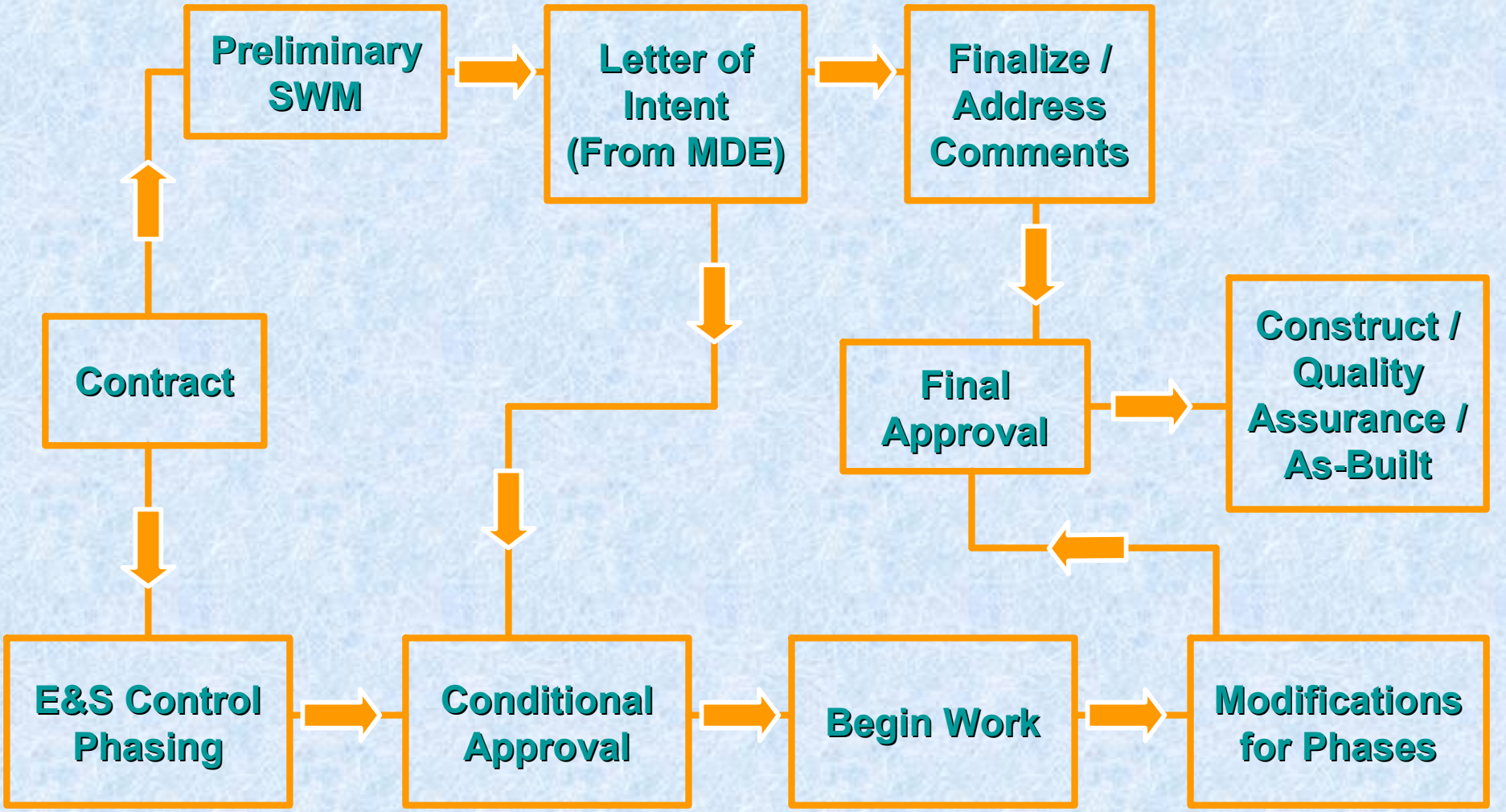
Design / Build Process

SHA
Driven to Excel
State Highway Administration
Maryland Department of Transportation

Design Build

- Increasing number of D/B projects.
- Allows design and construction activities to occur concurrently.
- Lump sum for contract.
- Risk to D/B Team—extreme weather
- Permits may contain special conditions.
- ESC approval must be obtained by D/B Team.
- Design-Build is an evolving process.

E&S Control & the Design Build Process




Compliance vs.
Non-compliance
$
SHA
Driven to Excel
State Highway
Administration
Maryland Department of Transportation

Specifications & Independent Quality Assurance

SHA
Driven to Excel
State Highway Administration
Maryland Department of Transportation

Existing QA Rating System

- *Rating A*: Compliance
- *Rating B*: Compliance
- *Rating C*: Conditions for a shut down could arise quickly.
- *Rating D*: Grading & related operations will be shut down by the Administration.
- *Rating E*: The entire project will be shut down immediately.

308.03.01 Contractor Responsibilities

- *Changes:*

  The Contractor shall demarcate all wetlands, wetland buffers, floodplains, tree protection areas, and the Limit of Disturbance (LOD) as specified in 107. Prior to beginning any earth disturbing activity the Contractor shall have all demarcated wetlands, wetland buffers, floodplains, tree protection areas, and LOD inspected and approved by the Engineer and MDE. The Contractor shall construct all E&S control measures in conformance with 308.01.01.

New QA Rating System

- *Rating A*: Equal to or greater than 90
- *Rating B*: 80 to 89.9
- *Rating C*: 70 to 79.9
  - Projects that receive a ‘C’ rating will be re-inspected within 72 hours.

New QA Rating System

- *Rating D:* 60 to 69.9
  - All earthwork operations will be shut down
  - The project will be reinspected within 72 hours.
  - Failure to upgrade the project to a ‘B’ rating will result in the project being rated an ‘F’.
- *Rating F:* less than 60
  - Or if the Contractor has not obtained all appropriate permits and approvals; demarcated limits of disturbances, wetland and wetland buffers, floodplains, and tree protection areas as specified in Section 107
  - The entire project will be shut down until the project receives a ‘B’ rating

Shutdowns

- *When a 'C' rating is given:*
  - Corrected within 72 hours.
  - If deficiencies have not been corrected, a 'D' rating will be given and all earthwork operations will be shut down until the project receives a 'B' rating.
- *When a consecutive 'C' rating is given:*
  - For other deficiencies and the original deficiencies were corrected
  - Imminent shut down of all earthwork operations.
  - 72 hours to correct deficiencies

Shutdowns

- *If deficiencies have not been corrected or other deficiencies are identified that results in a score of **less than 80** a 'D' rating will be given and all earthwork operations will be shut down until the project receives a 'B' rating.*

Shutdowns

- *When a disregard for correcting these deficiencies is evident, an 'F' rating will be given and the entire project will be shut down until the project receives a 'B' rating.*

Shutdowns

- *Where degradation could occur, or if the Contractor is unresponsive; SHA may elect to have these corrective actions taken by another contractor*

- *All costs associated with this work will be billed to the original Contractor in addition to the Liquidated Damages.*

Liquidated Damages

- *When a 'D' or 'F' rating is given liquidated damages will be imposed on the Contractor. Payment of the liquidated damages shall be made within 30 days from imposition of the liquidated damages and shall not be allowed to accrue for consideration at final project close-out.*

- *When the project receives 2 'F' ratings the E&S Control Certification shall be revoked from the project superintendent and the ESCM for a period of not less than 6 months and until successful completion of the E&S Control Certification Program.*

Liquidated Damages

- *For each day that the project has a 'F' rating the Contractor and/or his surety shall be liable for liquidated damages in the amount as specified in the Contract Documents.*

Incentive Payment

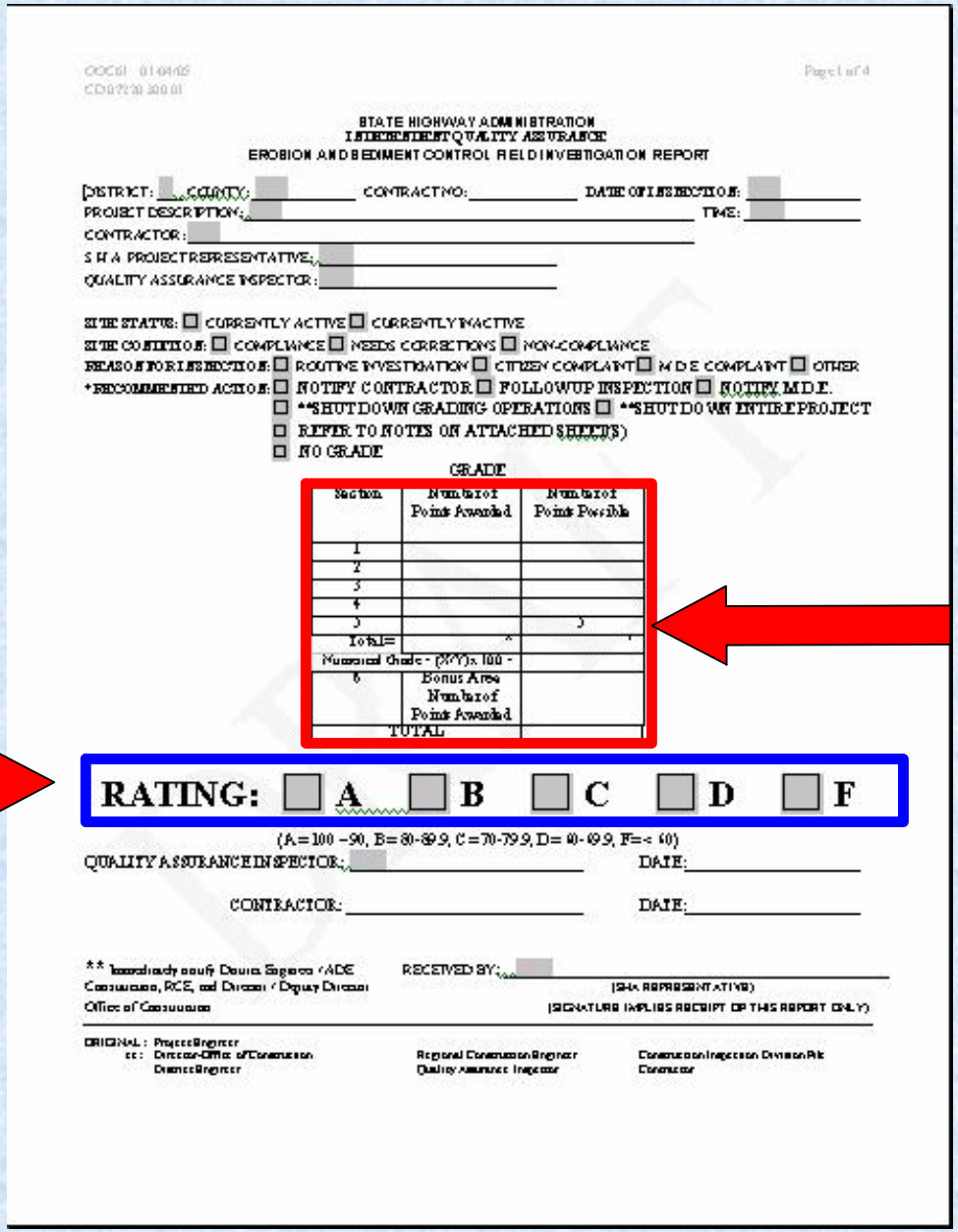
- *Quarterly incentive payment will be made when an average score equal to or greater than 85 for the entire rating quarter*

- *No incentives will be paid for any quarter that liquidated damages are imposed.*

Other Penalties

- *MDE*
- *USACE*
- *EPA*
- *Civil / Criminal*
- *Corrective Action / Mitigation*
- *Documented past Non-Compliance is evaluated as part of Design/Build selection criteria*
- *And Others*

New OOC 61QA Inspection Checklist (Page 1)



STATE HIGHWAY ADMINISTRATION
[illegible] QUALITY ASSURANCE
EROSION AND SEDIMENT CONTROL FIELD INVESTIGATION REPORT

DISTRICT: ___ COUNTY: ___ CONTRACT NO: ___ DATE OF INSPECTION: ___
PROJECT DESCRIPTION: ___ TIME: ___
CONTRACTOR: ___
S H A PROJECT REPRESENTATIVE: ___
QUALITY ASSURANCE INSPECTOR: ___

SITE STATUS: ☐ CURRENTLY ACTIVE ☐ CURRENTLY INACTIVE
SITE CONDITION: ☐ COMPLIANCE ☐ NEEDS CORRECTIONS ☐ NON-COMPLIANCE
REASON FOR INSPECTION: ☐ ROUTINE INVESTIGATION ☐ CITIZEN COMPLAINT ☐ M D E COMPLAINT ☐ OTHER
*RECOMMENDED ACTION: ☐ NOTIFY CONTRACTOR ☐ FOLLOWUP INSPECTION ☐ NOTIFY M.D.E.
☐ **SHUT DOWN GRADING OPERATIONS ☐ **SHUT DOWN ENTIRE PROJECT
☐ REFER TO NOTES ON ATTACHED SHEET(S)
☐ NO GRADE

GRADE

Section	Number of Points Awarded	Number of Points Possible
1		
2		
3		
4		
5		5
Total=	*	*
Numerical Grade = (*/*) x 100 =		
6	Bonus Area Number of Points Awarded	
	TOTAL	

RATING: ☐ A ☐ B ☐ C ☐ D ☐ F

(A = 100 – 90, B = 80-89.9, C = 70-79.9, D = 60-69.9, F = < 60)

QUALITY ASSURANCE INSPECTOR: ___ DATE: ___

CONTRACTOR: ___ DATE: ___

** Immediately notify District Engineer / ADE Construction, RCE, and Director / Deputy Director Office of Construction

RECEIVED BY: ___
(SHA REPRESENTATIVE)
(SIGNATURE IMPLIES RECEIPT OF THIS REPORT ONLY)

ORIGINAL: Project Engineer
cc: Director-Office of Construction, District Engineer, Regional Construction Engineer, Quality Assurance Inspector, Construction Inspection Division Pit Contractor

Score Summary Section

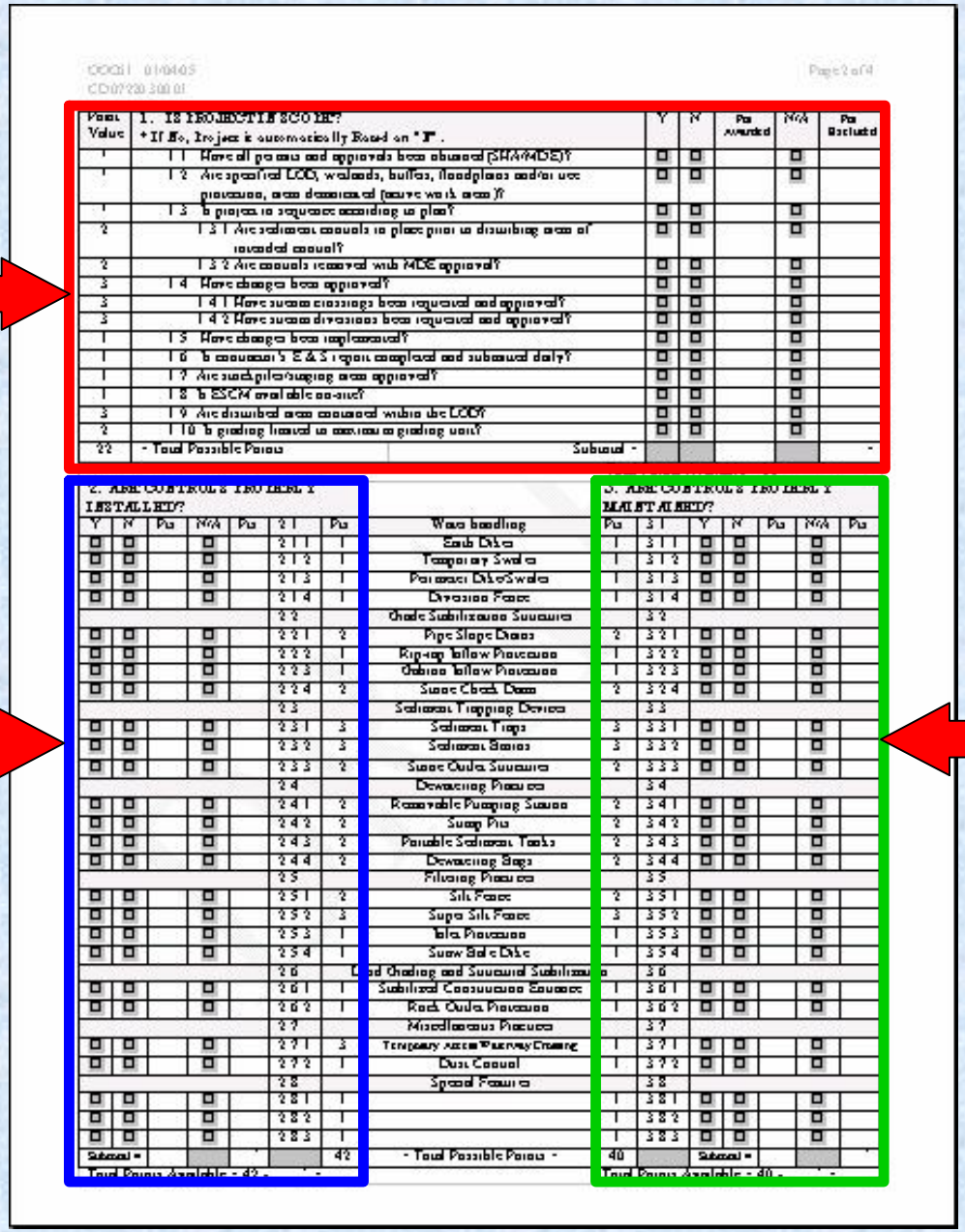
Rating Section

New OOC 61QA Inspection Checklist (Page 2)

Scope Section

Installation Section

Maintenance Section

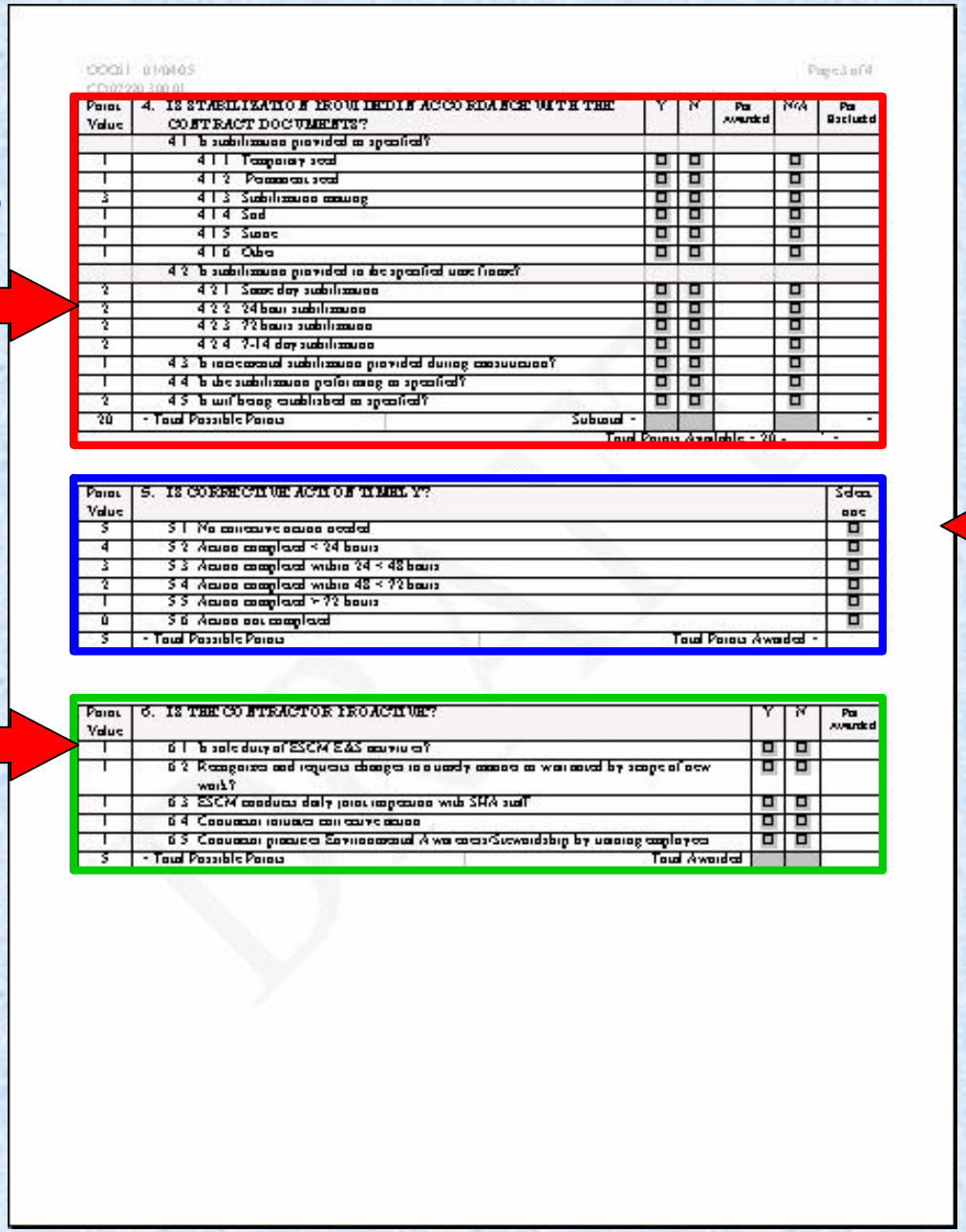


New OOC 61QA Inspection Checklist (Page 3)

Stabilization Section

Bonus Points Section

Timely Corrective Action Section



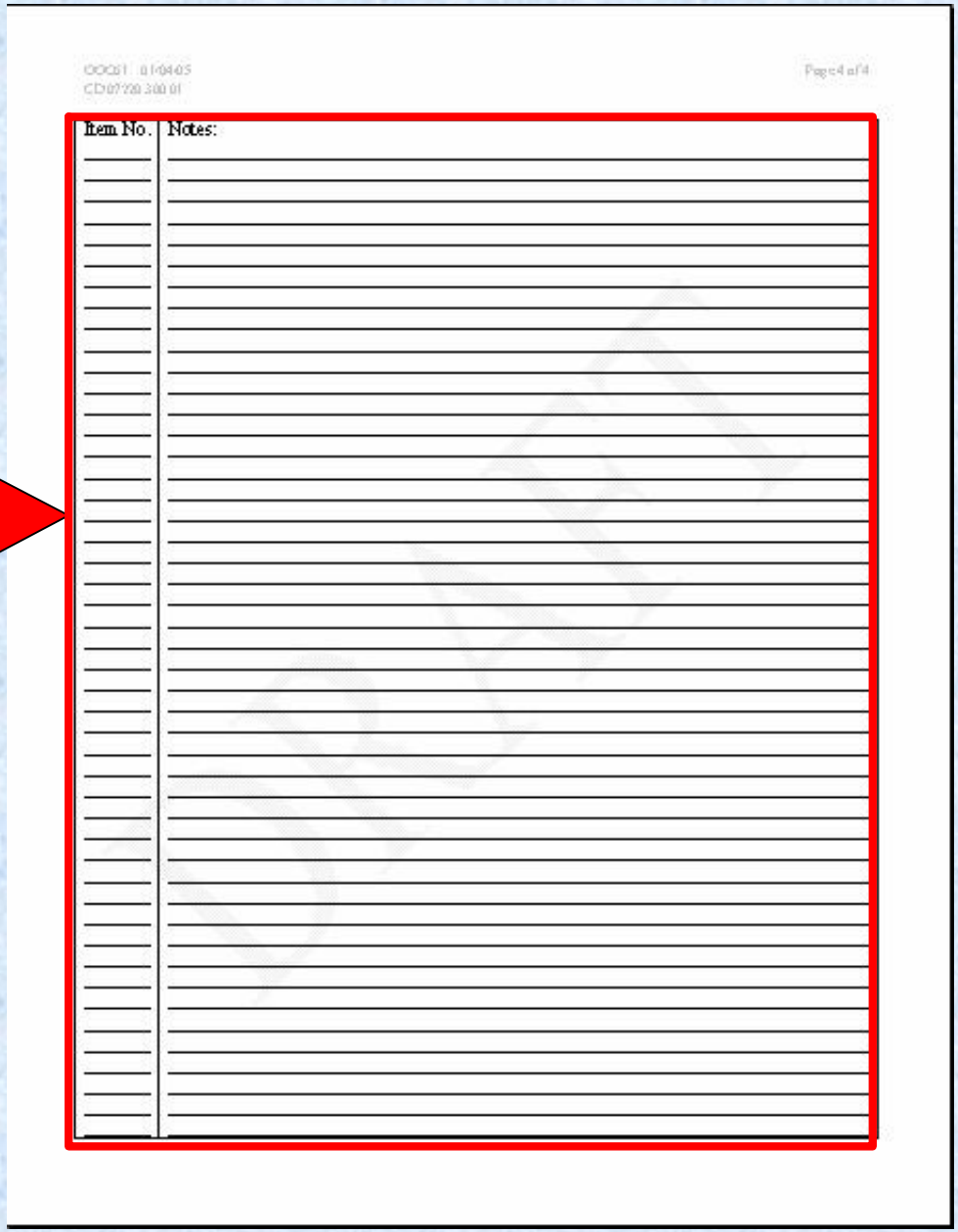
Point Value	4. IS STABILIZATION PROVIDED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS?	Y	N	Pts Awarded	N/A	Pts Deducted
	4.1 Is stabilization provided as specified?					
1	4.1.1 Temporary seed	☐	☐		☐	
1	4.1.2 Permanent seed	☐	☐		☐	
3	4.1.3 Stabilization matting	☐	☐		☐	
1	4.1.4 Sod	☐	☐		☐	
1	4.1.5 Straw	☐	☐		☐	
1	4.1.6 Other	☐	☐		☐	
	4.2 Is stabilization provided in the specified timeframe?					
2	4.2.1 Same day stabilization	☐	☐		☐	
2	4.2.2 14 hour stabilization	☐	☐		☐	
2	4.2.3 7? hours stabilization	☐	☐		☐	
2	4.2.4 7-14 day stabilization	☐	☐		☐	
1	4.3 Is interim stabilization provided during construction?	☐	☐		☐	
1	4.4 Is the stabilization performing as specified?	☐	☐		☐	
2	4.5 Is turf being established as specified?	☐	☐		☐	
20	- Total Possible Points Subtotal -					-
				Total Points Available - 20 -		-

Point Value	5. IS CORRECTIVE ACTION TIMELY?	Select one
5	5.1 No corrective action needed	☐
4	5.2 Action completed < 24 hours	☐
3	5.3 Action completed within 24 < 48 hours	☐
2	5.4 Action completed within 48 < ?? hours	☐
1	5.5 Action completed > ?? hours	☐
0	5.6 Action not completed	☐
5	- Total Possible Points Total Points Awarded -	

Point Value	6. IS THE CONTRACTOR PROACTIVE?	Y	N	Pts Awarded
1	6.1 Is sole duty of ESCM E&S activity?	☐	☐	
1	6.2 Recognize and request changes to weekly needs as warranted by scope of new work?	☐	☐	
1	6.3 ESCM conducts daily joint inspection with SHA staff	☐	☐	
1	6.4 Consistent initiation corrective action	☐	☐	
1	6.5 Consistent practice Environmental Awareness/Stewardship by training employees	☐	☐	
5	- Total Possible Points Total Awarded			

New OOC 61QA Inspection Checklist (Page 3)

Notes Section




EROSION & SEDIMENT CONTROL CERTIFICATION PROGRAM WRAP-UP
SHA
Driven to Excel
State Highway Administration
Maryland Department of Transportation

Wrap-up

- *Quality Assurance Rating Exercise*
- *Written Exam*
- *Certification Cards Issued by Mail*