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Memorandum

Date: September 28, 2012

To: Guam Coastal Management Program, Guam EPA, Guam Contractors Association

From: Center for Watershed Protection, Inc., Horsley Witten Group, Inc.

Re: Guam Erosion & Sediment Control Training for Contractors, Designers, and Site Inspectors, September 10 – 12, 2012
Summary Memo

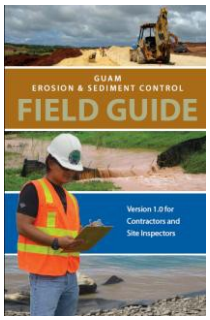
This memorandum summarizes a recent Erosion and Sediment Control (ESC) training workshop conducted by Horsley Witten Group (HW) and the Center for Watershed Protection (CWP) in Guam on September 10 – 12, 2012 (which included an interagency meeting to discuss programmatic issues with erosion and sediment control and certification programs). This memo is organized as follows:

1.0 ESC Training Workshop

A two-day Erosion and Sediment Control (ESC) training workshop was held on September 10-11, 2012 for over 85 agency staff, contractors, engineers, project managers, and others involved in preventing erosion and sedimentation from construction sites in Guam (see attached agenda and registration sheet). Of the 90 registrants, approximately 80 participants signed in on Day 1 and 72 signed field trip release forms on Day 2.

The training was organized and hosted by the Guam Coastal Management Program (GCMP), Guam EPA (GEPA), and the Guam Contractors Association (GCA). Many local staff from GCMP, GEPA, GCA, NOAA, and other agencies assisted with promotion, registration, identification and selection of field sites, review of course materials, printing, securing a training venue, and other nuts and bolts associated with hosting this type of training. It is also important

to acknowledge the assistance received from firms for the field trips, including Watts/Bulltrack, Younex, and Landscape Management Services (LMS).



Importantly, this training was accompanied with the publication of the 2012 Guam Erosion and Sediment Control Field Guide for contractors and inspectors, which includes 11 principles for erosion and sediment control at construction sites and graphical illustration of approximately 20 erosion and sediment control practices. The guide shows correct and incorrect installation, maintenance procedures and provides easy-to-follow design standards for each practice. Participants were given a copy of the Field Guide, as well as a workshop notebook containing copies of slideshows, activity handouts, and links to additional resources and suppliers.

The first day of the workshop consisted of classroom training. Instructors from HW/CWP and Benny Cruz from Guam EPA presented information on: (1) why proper ESC is environmentally and economically important, and (2) permitting and regulations; and (3) design, installation and maintenance techniques for more than 20 ESC practices. Small group exercises related to reading an ESC plan and designing an ESC plan were conducted in the afternoon (Figure 1).

Figure 1. GCMP and GEPA jointly welcomed everyone to the ESC training. Participants broke into small groups at the end of the day to complete an ESC planning exercise.

On the second day, workshop participants visited two active construction sites (naval reserve facility and nearby commercial retail) and Santos Memorial Park in Piti, which was where the rain garden installation clinic was held the previous week. Collectively, the field sites demonstrated the following practices: construction entrance/tire wash, check dams, diversion swales/dikes, erosion control matting, buffers, sediment traps/basins, silt fence, silt sock, stabilization/hydroseeding, concrete truck washouts, stockpile management, and design for post-construction practices (Figure 2-4). The field trips served to reinforce lessons learned during the classroom sessions. .

Figure 2. Practices viewed at the Watts/Bulltrack site included sediment basins, silt fence, diversion swales with erosion control matting and check dams, and concrete washouts.

Figure 3. Practices discussed at the Younex site included a recently installed sediment trap and tree protection (lack of), perimeter silt fence, and construction entrance and tire wash.

Figure 4. Practices demonstrated at Santos Park included hydroseeding of bare soils and slopes using the hose and tower sprayers; stream buffers; stockpile management; silt fence installation, and silt socks.

Participants identified a number of potential opportunities to improve ESC measures at the Younex site. The following list reflects some of the suggestions offered:

- Construction entrance/tire wash as currently designed/implemented does not appear to be working. Figure 5 shows observed sediment tracking onto the adjacent roadway. Workshop participants offered some of the following options:
    - Increase roughness at bottom of tire wash using layer of stone to knock dirt clods off of tires.
    - Increase volume of water;
    - Cleanout adjacent trap to increase storage depth;
    - Daily sweeping of street and concrete exit.
- Silt fence staking was installed backwards. This may be an issue in the rear corner of the site where water is to be diverted into the sediment basin.
- Tree protection of the remaining avocado trees between the sediment basin and the rear property line. The roots from the trees are exposed in the side slopes for the temporary

trap. When sediment trap is converted to permanent stormwater practice, be sure to protect trees.

- Infiltration test for basin (GEPA seemed to think the test has not been performed). Sediment collected here during construction process will need to be removed to prevent clogging of permanent stormwater BMP.
- Stockpile protection using silt fence or other practice.

Figure 5. Younex entrance showing dirt tracking onto main road.

Once back in the classroom, we discussed maintenance and transitioning to post-construction stormwater management. Participants then brainstormed suggestions for improving ESC implementation on Guam (see Section 3 of this report).

At the end of the training, participants were given one of two versions of an open-book certification exam. GEPA established a passing threshold of 75% correct answers. Of the 68 participants that took the exam, 55 passed (82% passing). GEPA will provide these individuals with an ESC Certificate of Completion. Those who did not pass the exam will receive a Certification of Participation in the training.

There were 67 completed evaluation forms received. Tables 1 and 2 summarize responses to the workshop evaluation questions.

Table 1. Summary of Quantitative Evaluation Criteria

Question	Score (# of responses)					Average score	Comments
	1 poor	2 fair	3 adequate	4 good	5 excellent		
Classroom Training: How would you rate the classroom training portion of the workshop?	0	0	2	25	39	4.56	• engaged videos and really enjoyed intro by Esther & Margaret • I believe it covered what is necessary to be discussed. • Very helpful, informative. • Big enough • Great materials and speakers
ESC Plan Exercise: How would you rate the group exercise?	0	1	6	33	27	4.28	• Some legend is hard to identify. • smaller groups of 3 is good for everyone to participate • Would like more time for design ESC plan activity if available. • it is very excellent that way shown in drawing plans • thought provoking exercise • not enough time
Field Demonstrations: How would you rate the usefulness of the hands-on field activities?	0	1	4	25	37	4.46	• Good sites to demonstrate different practices. • Maybe next time use local projects and have participants. • helps to get a live visual • participants were engaged in ESC practices • Busing - controlled participation for first segment of field trip - second segment groups were all over the place - some not participating in exercise. • they explain very well in field site • all these people are office personnel, no skill on field experience • We were really amazed by the technology/ hands on experience
Logistics Venue – How well did it meet the needs of the training?	0	0	2	30	35	4.49	• Breakfast, lunch, snack-well provided. Ballroom is conducive for training proximity to restrooms=good. • Under construction, but it's a great facility. • Cold (5) • Good food (2) • conveniently located • microphone, screen

Question	Score (# of responses)					Average score	Comments
	1 poor	2 fair	3 adequate	4 good	5 excellent		
Exam: How would you rate the difficulty of the exam? Did it reflect the training program?	0	0	4	18	10	4.19	• Good questions • Appeared comprehensive • Have not taken yet (4)
Program Length: Time –How satisfied were you with this length?	0	2	5	32	24	4.24	• just the 1st day, there's more info to address • liked option of test at end of day 2 • comprehensive enough to be worthwhile • outstanding • Make it longer? • "one more day" to spread out presented material • too much information on the first day
Materials: How satisfied were you with the field guide and training handouts?	0	0	5	20	42	4.55	• Materials available needs to be given out to the contractor in field. • Especially the handy field guide!!! • easy to use and understand • Use local site plan to draw ESC plan on it so the local participants can easily see the approach. • well organized
Overall Workshop: How satisfied were you of the overall workshop?	0	0	4	21	40	4.55	• Because it is a free workshop including food and free certification. • Very well presented/presenters very enthusiastic! • presentation, jokes and overall is excellent
What is the likelihood that you would attend a future workshop on a similar topic?	0	0	4	22	34	4.50	• Depends on management • Will attend all • As workload permits

Table 2. Summary of Written Evaluation Comments

1. How do you plan to apply your training to your work?

- Make sure it is included in the design of the project and identify appropriate practice. Apply it in doing site inspections. Make sure for contractors strict compliance.
- For future construction designs, I would be able to understand the ESC plan. Apply myself as a company rep. for inspections and bring my knowledge to the meetings.
- Review of plans
- Helps with future projects (construction, watershed, etc.)
- 1st - apply ESC on all activities. 2nd - ESC to become a permit through agency
- I will use to design ESC plans for civil projects will use on projects to check ESC implementation where we have construction management.
- future stormwater projects
- Recommend techniques from field guide in watershed management plans :)
- Use field guide as reference; develop and implement database and document good examples (practices) and poor practices (examples) -news updates w/ developers & contractors-
- during site visits, especially those under construction - during plan reviews - during design
- Whenever there is a project that I'll be involved.
- will apply on design and construction management of projects
- When reviewing project plans or developing my own project proposals plus helps with identifying problems at other sites.
- implement different and better use of BMP's in design of ESC
- ultimately to use in work as a consultant
- use handbook for reviewing ESC plans
- Apply the knowledge I learned and implement in accordance with the field guide. To share this with the site personnel implementing the actual job.
- Use knowledge obtained in course to better my inspection reviews for project sites.
- inspect sites
- This training help me a lot especially that we will be starting a new project up in AAFB, and it's my assigned task to prepare the environmental protection plan, SWPP.
- As an installer/maintenance of the project it is a big help to apply newest practices to minimize ___ _____erosion control at the project site. All practices may be applied depends on our project size and topography and flow path or velocity of water on the area of our project. ?
- Most of the time this training applies to our nature of works. Even the magnitude was minimal but usable for all project related for our company's concern.
- I will work to ensure better BMP is implemented in my projects.
- Some practical idea and controls w/c is applicable to Guam will be enforced.
- implement some comments learned from the seminar
- this training is excellent for my field (environmental)
- more enforcement
- ESC practices are included as conditions
- use in reviewing application for development
- go out on more field visits with inspectors - help to revise regulations
- it is good and will help with inspections and reviews
- training will be very helpful in civil design
- to pass on to the members of the team by conducting a workshop
- This training is very useful for review plans, inspection.

- Apply to review plans and specifications to all projects for clearing and grading projects.
- Add terrain analysis if needed to improve or correct ESC issues that may happen in construction.
- Apply and maintain all possible means to protect the environment through this training.
- Incorporate some of the newer erosion control practices in my thesis.
- start trying new methods on site - use field guide
- more hydro seeding on erosion area
- during field site inspections and during review of plans for regulatory
- relay information and importance of implementation to my co worker
- Review project ESC and be more familiar with potential problems as a result of erosion.
- need to be detailed to another agency
- Using the field guide during EPP & ESC plans for our clients. Networking during workshop was also very good
- I plan to incorporate management practice ideas for use in watershed management suggestions of erosion and sedimentation
- it should be implemented in all government and federal agencies
- advise investors of cost to follow ESC
- during reviews of construction projects and federal consistency reviews
- I will apply my training to my work accordingly to the excellent lesson that I learned from my training here in ESC that is conducted for today.
- check civil or site plans before start project/prepare ESC
- as a civil design engineer/inspector
- I would ensure that the practices are incorporated the plans

2. Are there any additional ESC Practices you would like more information on?

- Mostly covered but it will be interesting to know up to date/new technologies.
- None (6)
- SW Control practices - vegetated ponding basins
- all that are applicable in Guam
- Utilizing more alternative options and how to involve more local companies to keep or provide products locally.
- Not really, but I want to develop local materials for some of these practices.
- infiltration basins
- the guide provided seems adequate
- More available green practices to incorporate on projects, e.g.. Seed stock, grass alternatives, available commercial mulches for compost rock instead of using fertilizer_____composting _.
- with this training, I think this was enough to support our work related ESC plans and implement.
- Everything is covered as far as I know.
- erosion on coastal area - erosion on a vertical cliff
- new technologies
- maintenance
- Feasibility of using a permeable pavement (asphalt or concrete) here in Guam.
- more training for contractor
- There should be an emergency provision in the EC that can be implemented during typhoon or emergencies.
- ESC practices for trenching for utilities.
- erosion prevention practices on slopey, clayey soil - ponding basins
- more examples - how to do ESC on a budget

- hydro seeding practices
- make field books readily available to the engineers, contractors and public
- yes-green development
- more technology equipment and supplies that Guam can use on project sites
- yes, about your website
- materials needed in design area to cut cost
- any new information on ECP are always needed and of good working tools for government agencies and contractors
- yes, about the project that stop by Guam EPA at RTU share protection

3. Additional suggestions for improving future workshops:

- To all responsible agencies for this workshop: I just wanted to thank you for this wonderful and excellent workshop. It's rare to find it free and have certification. Suggestion: periodic workshop to increase awareness should be conducted.
- None, one of the best I've been to by far. Thank you.
- I cannot really suggest any because this training session was very well put together
- Every 30 minutes take 3 minute break, tell a joke related to ESC.
- This was my first training for E&S control practice. Very informative! Thanks for a great workshop.
- Thank you guys! Awesome Workshop!
- site visits very beneficial
- Thank you!
- to have more contractors involved in these kind of indoctrination
- more breaks in between subject matter
- To include EPA penalty for all violations. everybody should comply with the exam covering GEPA.
- A bit more hands on exercises and group sessions.
- conduct training once a year to introduce new/or what in there to stop/reduce erosion.
- More seminar and training - like hydraulic dissipater for erosion.
- Workshop training are perfect, I welcome any related classes.
- longer days - include engineering calculations for sizing systems
- More of them, wider publicity, good job!
- Hope to have workshop at least every 3 months.
- Please use local or traditional practice.
- just have more for other participants from contractor personnel who need to come
- rehydration for field trips
- none (3)
- offer PDHs or CEUs - national study items for certification - have 2 workshops-1 for designers, 1 for contractors
- let us educate more government and federal agencies, especially contractors
- Always ensure you have government inspectors present along with contractors
- Only to continue having hands on field activities. It helps to understand and apply the handouts and materials provided and discussed during the workshop. Thank you Anne, Michelle and Dave for a wonderful job in conducting the workshop!! :) Good job!

2.0 Interagency Meeting Summary

HW and CWP met with representatives from Guam EPA, GCMP, DPW, and DAR to: (1) Review and discuss comments received from participants in the training on improving ESC in Guam, and (2) review information on certification programs so that Guam can take steps to start building such a program.

In an afternoon session on Tuesday, September 11, participants worked in small groups to brainstorm on top tips for improving ESC in Guam from technical and programmatic standpoints. The comments were compiled in Table 3 from these brainstorming sessions (in some cases, similar comments were combined or rephrased for clarity). Based on these comments, the major themes for improving ESC appear to be:

1. Training, Education, Certification: Provide ongoing training for contractors, design professionals, and agency staff (DPW, GEPA) to raise the level of knowledge. In some cases, outreach will be needed to reach certain audiences, such as contractors from other countries or with different languages. It is also important to reach small as well as large contractors. Training should be coupled with some type of certificate of competency and/or certification program.

2. Permitting, Agency Coordination, Website: Coordination between DPW, GEPA, and other agencies involved in permitting is a critical topic, with the idea for a "one-stop" website.

3. Plan Content, Process: Having the right narrative and graphical information on ESC plans at the right stage will help lead to better plans and, it is hoped, better implementation in the field. It seems that one area of improvement would be to have good practice design information at an earlier stage of the site planning process.

4. Inspections, Schedules, Checklists, Self-Inspections: Introducing some more formality and scheduling to self-inspections, including use of a standardized checklist, would help with self-inspections as well as clear communication with GEPA inspectors.

5. Enforcement: There may be inconsistencies with enforcement or lack of understanding among contractors about the enforcement process.

6. Local Adaptations in Materials & Green Technologies: Many participants commented on the bigger picture of the use of Green Technologies on Guam. Some felt that Guam should move towards technologies such as bioswales, permeable pavement, and green roofs. There was also the recommendation to have more widespread production of certain materials on-island, particularly compost and mulch, and wider availability of other materials, such as ESC matting.

Table 3. Comments on Improving ESC from Workshop Participants

Training, Education, and Certification • Projects requiring ESC must have certified person with minimum 3 years of ESC experience • Project manager & foreman must take course on ESC to be certified • More classes for contractors, consultants • DPW training • Ongoing training in field, annual certifications • Develop DVD packet specific to Guam
Permitting, Agency Coordination, Website • Establish position for person to coordinate with contractors • Stronger networking between agencies • Better coordination between DPW & agencies involved in permitting process • One-stop website for permitting process; permits available on website
Plan Content and Process • Actual temporary (ESC) measures spelled out early in design plans • Include grading/ESC in site plan • Construction during dry season • Project size should be a factor in the practices uses (small sites may not be able to use the same practices as larger sites)
Inspection and Maintenance • Weekly inspection reports • Schedule for inspections • Who is responsible agency to inspect project site? • Project manager to do periodic site inspection with checklist
Enforcement • Improve enforcement for maintenance • Implement ESC contract to the Gov't & Federal agencies to impose fine in every violation as per approved plans • Adopt rules & regulations • Too many regulations
Technologies and Materials • Catalogue of indigenous plants for erosion control • Reuse of water & discharge • Better use of bioswales • Biodegradable geomatting • Drivable pavement: permeable, flexible, plantable concrete system that will not crack/break or pop up • Make alternative options locally available • Community composting, compost factory • Coconut husk used for mulch, compost
Incentives • Federally-funded projects: 100% green roof, permeable parking & drives, bioretention, solar PV panels • Support Green Development that minimizes runoff • Gov't will furnish ESC devices as incentive to contractors to implement & maintain

Discussions with the Agency staff on these suggestions from the workshop group included some of the following points:

- GEPA does not currently have enough staff to conduct proactive enforcement.
- There may be a gap in enforcement related to perceived permit authority between US EPA and GEPA. Enforcement staff with GEPA explained that their ability to be proactive in enforcement (i.e., enforcing ESC measures prior to observed muddy off-site discharges) was limited where USEPA is the permit authority.
- Need to make better use of the existing interagency website (see GCMP) that is used to upload photos and report violations internally. It is recommended that other agencies (e.g., DAR, GCMP) draft letters to their directors that can be forwarded to DPW and GEPA.
- Under the "one-stop" permitting process, DPW has the overall responsibility for notifying GEPA of applications and permitting authority (can override GEPA?). The two agencies do not have consistent checklists related to ESC.
- It was recommended that an analysis of number of sites and size of site be done to help prioritize which sites are most important for inspection and what enforcement capacity needs truly are.

The second half of the interagency meeting was devoted to discussing the programmatic elements of setting up some type of certification program. CWP/HW led with a presentation on various aspects of a certification program. The various goals for having such a program may include:

- Enhance the level of competence & performance among ESC practitioners;
- Have better practices installed;
- Cleaner runoff, cleaner water; and
- More efficient use of agency resources (e.g., possible use of 3rd party inspectors).

Ultimately, a certification program could be developed to include the following types of practitioners:

- Contractors
- Inspectors
    - Agency (GEPA)
    - 3rd Party Private (retained by site developer to provide inspection reports to GEPA)
- Plan Reviewers
- Plan Preparers
- Citizen Watchdogs

In the near term, it is likely that the program would continue to focus on contractors and inspectors. While this is the short-term priority, it cannot be overstated that having better plans at the front end is a critical element for improved ESC. Therefore, developing a certificate or certification program for plan preparers and plan reviewers should be pursued in the near future.

At the meeting, participants discussed the range of programs that customarily referred to as "certification" programs. These can range from fairly simple programs that include training, administering an exam, and issuance of a "certificate of completion" or "certificate of competency" for participants that successfully complete the program (see the left column in Table 4). At the other end of the range, programs can include pre-qualification and ongoing requirements for continuing education and standards of conduct (Table 4, right column). While the table presents these concepts as two discrete alternatives, certification programs exist along a continuum, and may adopt characteristics from both columns.

Table 4. Comparison of "Certificate of Competence" to Full Certification Program

Certificate of Competence	Certification
Usually no pre-qualifications (e.g., minimum # of years of experience)	Some programs require pre-qualification to become eligible for certification (e.g., educational requirements, years of experience)
Program includes training followed by exam	Program includes training followed by exam
Once certificate is obtained, little or no follow-up with participants	Follow-up may include documentation of continuing education, standards of conduct, and possible revocation of certification if standards are not followed
Certificate coverage may be a fixed period (e.g., 3 or 5 years), at which point the training and/or exam must be renewed	Certification is usually for fixed period, at which point recertification is required. This is a good way to build in new technologies and innovations in the practice.
Administratively fairly simple to administer, as long as training, exams, grading, issuance of certificates, and listing of participants is kept up-to-date. It is important to keep training materials current with new technologies, research, and innovations.	Administratively more complex. In addition to those items noted to the left, the program must track participants, enforce code of conduct and continuing education requirements, possibly administer revocation procedures, and conduct re-certifications.

Another important element of certification programs is the system of carrots and sticks that provide incentives and/or requirements for ESC professionals to participate in the program. These carrots and sticks are important so that being certified actually means something in the conduct of work, and contractors and professionals will choose to seek the certification. Table 5 provides a short list of carrots (incentives) and sticks (requirements or penalties) that existing certification programs utilize. These lists are certainly not exhaustive, and other similar carrots or sticks could be devised.

Table 5. Examples of Carrots and Sticks for Certification Programs

Carrots (Incentives)	Sticks (Requirements/Penalties)
▪ Certification required to obtain public sector construction contracts ▪ Maintain list on website of certified contractors, or qualified "green" contractors and/or ESC professionals ▪ Certified contractors receive discounts from participating materials suppliers ▪ Fast track permitting ▪ Certified inspectors receive bonus or other recognition	▪ Certification required to get plan approved ▪ Certified person (e.g., job superintendent, project manager) required to be present on-site ▪ Violation to not have certified person for site

During discussions on what a certification program might look like on Guam, agency staff had the following comments:

- Given the language barriers with Chinese, Korean, and Micronesian contractors, we need mechanisms to reach them with ESC educational material. This may mean going through the Chinese Contractors Association; working with GCA to reach this community; going to individual sites and engaging them; tracking the Responsible Management Employee designated for each site, and/or using fines to attract their attention.
- The Environmental Education Center (EEC) could be used to reach agricultural and small sites, etc.
- As part of discussions on establishing a certification program, it may make sense to take a look at the existing certification programs in place on the island for construction industry. The existing operator's certification program, for example, has an authority and a board and many of the elements of a comprehensive certification program.
- Train the trainers needs to be done for whichever entity or agency (GCA, GEPA, DPW) wants to administer training courses. Potentially, a national certification provider could be used.
- Pago Pago Bay could be used as an interagency field trip
- Add the certification program to the Watershed Planning Committee topic list

Guam should strive to develop a program that best meets its goals, needs, and administrative capabilities. Guam may also elect to avail itself of the one or more of the ongoing national certification programs relevant to ESC. In this way, Guam may require or provide incentives for practitioners to receive one of these "pre-packaged" certifications. Alternately, it may be in Guam's best interest to develop its own program that is responsive to local conditions, materials, regulations, and practices. If this is the case, then it is advisable to continue the program initiated through the HW/CWP contract as an ongoing Certificate of Competence program, evolving to a fuller Certification program based on program needs.

For the sake of comparison and as a resource, attached to this memo is a comparison table summarizing the characteristics of various certificate/certification programs in operation around the United States.

3.0 Recommended Next Steps

Based on discussions with agency staff, observations made in the field, and interactions with workshop participants, our top five recommended next steps for addressing erosion and sediment control are as follows:

1. Continue and expand erosion and sediment control training: It is fairly evident from participant response and discussions during the interagency meeting that this type of program should continue and be expanded to include small contractors (some with language barriers), DPW, and other target sectors. GEPA and GCMP will receive all of the training materials, and these can be enhanced with Guam-specific photos and examples.
2. The Guam Watershed Planning Committee should begin the process of evaluating the potential for establishing a long-term certificate or certification program based on the guidance in this memorandum and the language that ends up in the updated regulations. GEPA, with assistance from other agencies, should continue to build a program, probably beginning as a certificate of competence program, which can be expanded through efforts related to recommendation #1 above. Guam agencies and GCA should explore and decide on carrots/incentives that will give the certificate program more momentum. Ultimately, some sticks/penalties can be built into the program. Ultimately, it will be important for Guam to extend a certification program to plan preparers and reviewers, since good design is critical for successful implementation in the field.
3. Make an effort to identify ESC suppliers that can be contacted by contractors to supply ESC materials to Guam. New Zealand, Philippines, and Hawaii are the primary locations to investigate. It may be possible to attach potential suppliers list to bid packages where applicable, and meet with local vendors and suppliers to encourage them to carry basic products. ESC matting appears to be a high priority for Guam. Additionally, it will be important to explore jump-starting local supplies for some materials, particularly compost and mulch. A list of local and Hawaiian-based suppliers was included in the workshop notebook. GCA would be a good partner to help work on this.
4. GEPA and DPW should develop/update plan review and inspection checklists. These checklists should be used by plan preparers and reviewers to ensure that the necessary elements of an ESC plan are included in the application. An inspection checklist should be provided to contractors so they know what regulators will be looking for when on-site. It will also help inspectors be consistent. Inspection checklists can be provided in multiple languages.
5. Work with USEPA to achieve better coordination between Guam and USEPA permits. There are many similarities between the Federal SWPPP and the EPP/ECP plans required through local regulations. It may be that both systems would benefit from continued coordination, so that contractors are focusing on the important practices to implement in the field rather than being confused about which type of plan is required.

Attachments

ESC Training Agenda

Certification Program Comparison Table

Guam Erosion and Sediment Control (ESC) Training for Contractors, Designers, and Site Inspectors

September 10-12, 2012

Agenda

Monday, Sept. 10th

Participants will be given a copy of the 2012 Guam ESC Field Guide and a workshop notebook.

8:00-8:30 **Registration**

8:30-8:45 **Welcome and Introductions**

8:45-9:15 **Why ESC Matters**
What are the economic and environmental impacts of sediment loss from construction activities and why should contractors, engineers, and agency staff care about good ESC implementation?

9:15-9:45 **Regulatory Compliance**
What are the territorial and federal requirements for ESC during new development, redevelopment, and military construction activities?

BREAK

10:00-12:00 **ESC Practices: Part 1**
Introduction to non-structural practices to avoid erosion and sedimentation during construction, as well as temporary sediment barriers; diversions and conveyance structures; settling devices; temporary stabilization techniques, and inlet/outlet protection.

LUNCH *Provided*

1:00-3:00 **ESC Practices: Part 2**
A continuation from the previous session.

BREAK

3:15-4:45 **Erosion Control Plans** (CONCURRENT Sessions)

Reading an ESC Plan Activity (installers and inspectors)
In small groups, evaluate an ESC plan, identify practices on the plan, follow construction sequencing, and translate installation details.

ESC Plan Design Activity (designers and plan reviewers)
In small groups, evaluate and complete the design of an ESC plan for a proposed development site.

4:45-5:00 **Instructions for Day 2**

You must bring your own hard hat, safety vest, and boots to go on the field trip.

Tuesday, Sept. 11th

8:00-12:00 **Field Demonstrations and Construction Site Visits**
Break into groups, review site plans and instructions for day's activities. Travel to field locations to see how ESC practices are being installed and maintained.

LUNCH *Provided*

1:00-2:00 **Inspecting and Maintaining Practices through Project Closeout**
Discuss findings from field trip. Review inspection and maintenance procedures for construction activities and how to properly transition from temporary ESC practices to permanent stormwater management.

2:00-3:00 **Top 10 tips for improved compliance on Guam**
In small groups, brainstorm ideas for how to improve ESC implementation; report back to full group.

BREAK

3:15-4:00 **Certification Exam Review**
Last chance to ask questions before taking the certification exam.

4:00-5:00 **Certification Exam (optional)** ***The exam is open book. There are two options for when you can take the exam.***

Wednesday, Sept. 12th

8:00-9:00 **Certification Exam (alternative time)**

10:00-12:00 **Guam ESC Program: Inter-Agency Work Session (Agency Staff)**

10:00-10:30	ESC Program Elements
10:30-11:00	Recommendations & Debrief from Day 2 Training 11:00-
12:00	Facilitated group discussion on program recommendations

Table 6. Summary of Program Elements from Other ESC Certification Programs

Certification Program	Applicability	Course	Recertification	Enforcement
Delaware Blue Contractor Certification Program (DNREC) [1]	Every construction project >5,000 square feet of disturbance has to have at least one person onsite at all times who has taken this course. Part of broader, but separate, Certified Construction Reviewer (CCR) program to certify private site inspectors for sites >20 acres (originally 50 acres).	$60, five-hour workshop and exam. Exam offered 3-4 times/yr. (CCR is $225, 3 full days and mandatory half-day field trip. Only offered once a year)	None required for Blue Card (CCR certification lasts 5 yrs)	Loss of certification if in non-compliance Stop work orders or hold on further permit approvals if no certified contractor on site.
Virginia Responsible Land Disturber (RLD) Certificate of Competence Program (DCR) [2]	Originally a prerequisite for ESC plan approval for sites with >10,000 s.f. disturbed area, now name of RLD certified individual in charge of carrying out a regulated "land-disturbing activity" just needs to be provided PRIOR to land disturbance.	$90, on-line proctored exam available 24 hours a day/seven days a week. Free downloadable course materials The exam is 1hour, open book.	Valid for 3 years, with automatic update unless course materials change.	Projects without certified RLD prior to land disturbance are deemed in violation and a notice to comply would be issued. Approval of the ESC plan may also be revoked.
Virginia DOT Erosion and Sediment Control Contractor Certification (ESCCC) [3]	Any project within the VDOT right-of-way must be supervised by a certified VDOT ESC Contractor who is required to be on-site at all times during that land-disturbing activity.	$170, a one-day training course followed by a 1-hour examination.	~5 year	--
Maine Voluntary Contractor Certification Program (DEP) [4]	Non-regulatory, incentive-driven program that includes following benefits for certified contractors: • fast track permits • advertise as DEP certified • list of companies and contractors on website • free training materials and pubs from DEP • discounts on ESC products from 4 suppliers	$70, 8-hour training course and the successful completion of a construction site evaluation by inspector. Course offered annually	Valid for 3 years. To maintain certification, a minimum of one 4-hour continuing education course every three years thereafter will be required	Revocation of certification enforcement action is taken against a certified contractor whose failure to employ erosion and sediment control practices results in sedimentation of waterbodies or wetlands.
Idaho Panhandle Stormwater Erosion Education Program (SEEP) [5]	Non-regulatory, voluntary certification program set up by agency and industry representatives living and working in the five northern counties of Idaho	$200, for 8 hours classroom, 4 hours in the field, + exam Course offered 5 times in the spring	Renew every 3 years. Re-testing not required if attend SEEP class and accumulate 10 continuing ed. units every 3 years.	Certification revoked if: compliance action taken against certified contractor, or if renewal criteria not met.
Certified Erosion and Sediment Control Lead (CESCL), Washington State Department of Transportation[6]	Certified contractors are required on all WSDOT projects involving earthwork. Certified inspectors required on all sites disturbing > 1 acre for other projects.	Contractor's are required to take a Department of Ecology approved course.	re-certification is required every 3 years to keep training consistent with changing regulations	--

Certification Program	Applicability	Course	Recertification	Enforcement
Maryland Responsible Person "Green Card" Program (MDE) Basic Erosion and Sediment Course "Yellow Card" (SHA) [7]	As a condition of receiving plan approval, the developer/applicant must certify that a "responsible person" will be on-site during Construction for sites disturbing >5,000 square feet (GREEN CARD). The Basic Erosion and Sediment (ESC) Course (YELLOW Card) is mandatory for contractor superintendents and ESC managers and is highly recommended for contractor project managers. This is a prerequisite to the Designer Erosion and Sediment Control Course. A GREEN Card is required before taking this class. Training is offered by MTBMA for this 1 1/2 day class	Varies: free to $100 (combined Green and Yellow Card), for 1/2-day training that can be provided by local governments For Yellow Card, 1.5 day training seminar and exam. The training course may also be scheduled by special request for 30 people or more.	3 years* (with automatic renewal)	--
Certified Professional in Erosion & Sediment Control (CPESC) ™; Certified Erosion, Sediment, and Storm Water Inspector (CESSWI) ™	These are two of the four national/international certification programs operated through EnviroCert International, Inc. (http://www.envirocertintl.org/). They are generic programs to certify ESC professionals based on education, experience, and passing an exam. Some states tie their own certification programs and/or Construction General Permits to these programs. These are just examples of "off-the-shelf" certification, and there are other similar programs available. These program have eligibility requirements in terms of education and years of experience. An application form must be completed and reviewed by a committee in order for an applicant to be eligible.	CPESC has $200 application fee, which qualified applicant to sit for the exam, and there may be an additional review course fee. Review courses are held on a continuing basis, based on the availability of instructors.	Valid for 1 year, then must be renewed with renewal fee ($100 for CPESC).	Registrants must acquire professional development units (continuing education) and adhere to code of conduct and ethics. Revocation procedures in place.

[1] www.swc.dnrec.delaware.gov/Drainage/Pages/BlueCard.aspx; [2] www.dcr.virginia.gov/soil_and_water/es_rld.shtml; [3] www.virginiadot.org/business/pr-essce-main.asp;
[4] http://www.maine.gov/dep/blwq/training/ip-vccp.htm; [5] http://www.plrcd.org/SEEP/index.htm; [6] http://www.ecy.wa.gov/programs/wq/stormwater/cescl.htm
[7] www.sha.state.md.us/businesswithsha/Evaluations/ohd/CertificationPrograms.asp