

GUAM ENVIRONMENTAL PROTECTION AGENCY • AHENSIAN PRUTEKSIÓN LINA'LA' GUÄHAN LOURDES A. LEON GUERRERO • GOVERNOR OF GUAM | JOSHUA F. TENORIO • LIEUTENANT GOVERNOR OF GUAM WALTER S. LEON GUERRERO • ADMINISTRATOR | MICHELLE C. R. LASTIMOZA • DEPUTY ADMINISTRATOR

William Beery THG 259 Martyr St. Suite 202 Hagatna, Guam 96910 Date: AUG 2 3 2022

RE: Conditional Approval Letter for the Proposed [insert project type] Project, Located at Lot No. 2056, Tiyan Parkway, Tamuning, Guam.

Ref. DPW Building Permit No. B18001053 (GEPA 22-0173)

Buenas yan Saluda: Pursuant to the authority granted to the Guam Environmental Protection Agency (Guam EPA) under the Guam Soil Erosion and Sediment Control Regulations (22 GAR Ch. 10), the Connection to Public Sewer Regulations (22 GAR Ch. 25), and the Guam Individual Wastewater Disposal System Regulations (22 GAR Ch. 12), the above referenced permit application is hereby **APPROVED** with the following conditions:

A. SPECIAL NOTICES or LIMITATIONS:

- 1. NOTICE: This permit contains long-term maintenance and other requirements that will apply after construction is complete. If the permittee is not the same person as the final owner or operator of the final facility, activity, and/or lot for which this permit is being issued, the permittee shall be responsible for providing the final facility/activity/lot owner and operator with a copy of this permit and for notifying them of all requirements of this permit including all post-construction maintenance requirements.
- 2. No later than six (6) months from the date of this approval, the construction site manager (or superintendent) shall obtain documentation demonstrating that they have received adequate training in the application and maintenance of erosion and sediment control practices. This has been a requirement under Executive Order 2012-02 since 2012. Guam EPA will begin implementation of this requirement through permit conditions starting in 2022. Training meeting this requirement is available from the Guam Trades Academy, and for a limited period of time will be provided at no cost. Please contact the Guam Trades Academy at 671-647-4842 or visit https://www.gcatradesacademy.org/ for more information.
- 3. ALL WORK described in the approved application documents is approved, subject to the conditions in this letter and the requirements of Guam EPA's laws and regulations.

B. EROSION AND SEDIMENT CONTROL; STORMWATER RUNOFF:

The proposed grading, clearing, grubbing, embankment, filling, excavation or other earth-moving activities proposed under the subject application are approved for permitting pursuant to 22 GAR §10104(a) subject the conditions included herein.

- 1. BMPs: The permittee must install erosion and sediment control (E&SC) best management practices (BMPs) in accordance with the approved erosion and sediment control plan, the 2006 CNMI and Guam Stormwater Management Manual ("manual") and the 2012 Guam Erosion and Sediment Control Field Guide ("field guide"). At a minimum, the following BMP requirements shall apply to this project:
 - a. The permittee must install E&SC BMPs such as silt fence, as necessary to prevent excessive sediment load and run-off into the adjoining areas. See Attachments ESC-1 and ESC-1A for examples of appropriate silt fence installation. (Please refer to the manual and field guide for full installation and maintenance instructions.)
 - b. Provide appropriate inlet protection measures around existing drainage inlets for protection from sedimentation. See Attachment ESC-2 for examples of inlet protection measures (please refer to the manual and field guide for full installation and maintenance instructions)
- 2. TRENCHING: For projects that include trenching and installation of linear utilities, the following erosion and sediment control requirements shall apply, referenced to the 2006 CNMI and Guam Stormwater Management Manual ("manual") and 2012 Guam Erosion and Sediment Control Field Guide ("field guide"):
 - c. Install erosion and sediment control measures such as silt fence, as necessary to prevent excessive sediment load and run-off into the adjoining areas. See Attachments ESC-1 and ESC-1A for examples of silt fence installation (please refer to the manual and field guide for full installation and maintenance instructions).
 - d. Provide appropriate inlet protection measures around existing drainage inlets for protection from sedimentation. See Attachment ESC-2 for examples of inlet protection measures (please refer to the manual and field guide for full installation and maintenance instructions).
 - e. Construct and maintain erosion controls on and around soil stockpiles to prevent soil loss. Silt fence should surround soil stockpiles, and stockpiles should be seeded with an appropriate grass species for erosion control if the stockpile is to remain for a period greater than 14 days.
 - f. Obtain permission from Guam EPA prior to opening material staging or stockpile areas. Do not locate soil stockpiles in sloped areas or areas that may be subject to concentrated flows of runoff during storm events, such as gutters, swales, natural drainageways, or erosion gullies.

- g. All materials suitable for use as backfill shall be piled in an orderly manner a sufficient distance from the edge of the trench to avoid overloading and to prevent sliding into the trench.
- h. Stockpiled materials shall be placed in areas where access to private driveways and through traffic on the public right-of-way are not impeded or obstructed.
- Stockpiled and excavated materials shall not be placed at any time in gutters or swales or any other areas that may be subject to concentrated flows of stormwater runoff.
- j. Stockpiled and excavated materials shall be removed from the site on a daily basis (with the exception of long term stockpiles properly protected from erosion at a Guam EPA-approved staging area).
- k. On public rights-of-way, unless authorized in writing by Guam EPA, no more than 300 feet of open trench shall be excavated in advance of laying the pipe or other utility, and not more than 50 feet of excavated trench shall remain unbackfilled at the end of each day's work. The remainder of the trench shall be backfilled, initially compacted and opened to traffic.
- Backfilling, compacting, and cleanup shall be accomplished as sections of the pipe or utility are installed. Traffic through the work area shall be impeded or obstructed as little as possible.
- m. After installation and prior to full stabilization of the final soil surfaces, the permittee shall be responsible for repairing any gullying or other erosion damage that occurs, and for the final stabilization of the repaired soil surfaces.
- 3. The approved E&SC BMPs (silt fence, sediment trap, swale, sediment socks, etc.) must be installed prior to commencement of other construction, land clearing and/or earthmoving activities at the project site. Guam EPA must be notified and provided an opportunity to inspect no less than two (2) working days following implementation of the approved E&SC BMPs.
- 4. The permittee shall be responsible for seeing that proper E&SC BMPs are implemented to prevent soil erosion, stormwater runoff, and discharge of sediment from the project site. It is an expected variable of construction that additional E&SC BMPs are sometimes appropriate and required, beyond the E&SC BMPs provided for in the original, approved plans and specifications. The permittee is obligated to monitor the performance of the E&SC BMPs and correct failures, shortcomings, and deficiencies as they arise. Based on the findings by Guam EPA following any inspection of the permitted activity, the permittee may also be directed by Guam EPA to repair or install additional E&SC BMPs to mitigate for inadequate control of off-site

or on-site runoff, erosion, sedimentation, other discharges of pollutants, and/or nuisance conditions.

- 5. All E&SC BMPs (for example, silt fence, swales, sedimentation basins, etc.) shall be maintained in good working order by the permittee, until such time that final stabilization of all disturbed areas has been achieved (e.g., by re-vegetation, paving, slope stabilization, or other approved means). Inspection of all E&SC BMPs must be conducted and recorded by the permittee at least weekly, and after every runoff event. Inspection and maintenance records shall be kept by the permittee on-site, and readily accessible to Guam EPA inspection personnel. Failure to adequately maintain E&SC BMPs and/or keep records may be grounds for enforcement proceedings and penalties.
- 6. The permittee shall be responsible for protecting all permanent stormwater drainage system components from damage caused by erosion and sedimentation until construction is completed, or until the drainage area serviced by the component is completely stabilized. Temporary protection measures such as catch basin protection may not have been included in the plans and specifications provided by the permittee. Nevertheless, the permittee is responsible for protecting such components, and is directed to the manual for standard plans and specifications for installing such protective measures.
- 7. The proposed construction MUST NOT result in the creation of new erosion or flooding conditions on adjacent properties which did not exist prior to the proposed construction. If the site grading or construction is found to cause or contribute to such conditions, the owner and/or contractor shall be responsible for correcting such conditions. [See 22 GAR §10104(d)(2)(C).]
- 8. Pursuant to 22 GAR §10106(b)(10), no disturbed area caused by the construction or clearing/grading operation shall be left denuded for more than 30 days. After thirty days, the permittee shall mulch and seed the slopes, ditches, berms, and any denuded or disturbed areas for temporary/permanent vegetative cover to minimize accelerated erosion.
- 9. Long-term maintenance of any permanent E&SC BMPS and/or permanent stormwater drainage system components is the responsibility of the owner and/or operator of the final facility, activity, or lot. The owner and/or operator shall be responsible for timely correction of any failure or damage to any component of the permanent E&SC or stormwater control system.

C. SAFE DRINKING WATER REQUIREMENTS

The following conditions are included pursuant to the Guam Safe Drinking Water Act (10 GCA Ch. 53) and the Guam Drinking Water Regulations (22 GAR Ch. 6) as adopted under P.L. 35-115:

1. All potable-water and components shall comply with NSF14 and NSF 61 Annex "G". Plastic piping components shall be marked with "NSF-pw".

- 2. Certified lead-free materials must be used. All materials used in the construction of any public water system, public water system component, or any plumbing in a residential or nonresidential facility providing water for human consumption, must be lead-free. To meet this requirement, only products that have been independently certified as lead-free under at least one of the following standards may be used: NSF/ANSI Standard 372; NSF/ANSI Standard 61, Annex G; California HB AB1953, Section 116875; or ASME A112.18.1-2012/CSA B125.1-12.
 - a. Exemptions: The certification requirements in this Section shall not apply to:
 - i. Pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption; or
 - ii. Toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, service saddles, or water distribution main gate valves that are two (2) inches in diameter or larger.
- 3. The proposed additions or modifications to the public water distribution system have been reviewed and are approved by Guam EPA pursuant to the plan review requirements contained in the Guam Primary Drinking Water Regulations, at 22 GAR §6141.5 (as implemented by P.L. 35-115).
- 4. All new public water system (PWS) components (mains, valves, hydrants etc.) shall be disinfected, tested, and approved by Guam EPA and the PWS operator prior to connection to the live distribution system [See 22 GAR §7158(f)(8)]. The following minimum requirements shall apply:
 - a. Disinfection shall be performed following all relevant requirements of the American Water Works Association (AWWA) Standard C651 "Disinfecting Water Mains", C652 "Disinfection of Water Storage Facilities", or C653 'Disinfection of Water Treatment Plants", as appropriate.
 - b. A detailed, written disinfection plan shall be submitted to Guam EPA for review and approval prior to scheduling disinfection operations. The plan must meet the minimum requirements of the appropriate AWWA standard(s).
 - c. Disinfection shall be performed under the direct supervision of a Guam EPA certified Water Treatment or Water Distribution System Operator.
 - d. The applicant must coordinate the disinfection and sampling with Guam EPA. Guam EPA must be notified at least four (4) working days in advance prior to

- commencement of the disinfection/chlorination operation, in order to be provided the opportunity to inspect the process.
- e. All chlorinated water shall be disposed to a sewer line with the approval of GWA, or to the ground surface if it will not discharge to a stream, river, wetland, lagoon or other surface water. Any request to discharge to the ground surface must be approved by Guam EPA. Per AWWA C652, Section 4.3.1.5.1, if there any likelihood that the chlorinated discharge will cause damage, a reducing agent shall be applied to the water to be discharged to neutralize the chlorine residual in the water.
- f. A set of acceptable samples taken at designated sampling points are required. Failure of any one of the bacteriological test samples shall require rechlorination and re-testing, per the appropriate AWWA standard.
- g. Water samples must be collected by Guam EPA staff or a Guam EPA-certified Water Treatment or Water Distribution System Operator, who has been individually approved by Guam EPA or the Guam-EPA certified laboratory to take microbiological samples in accordance with the approved Quality Assurance Assessment Program (QAAP).
- h. Samples must be delivered to and analyzed by a Guam EPA certified laboratory for total coliform (TC) and E. coli (EC).
- i. A copy of the bacteriological test results along with the sample chain of custody form shall be furnished to Guam EPA for evaluation and approval prior to placing the water system into service.
- j. Additional requirements may be required by the owner and/or operator of the public water system.

D. WASTEWATER SYSTEM AND PRETREATMENT REQUIREMENTS

The subject application has been reviewed for consistency with the requirements of the Guam Connection to Public Sewer Regulations [22 GAR Ch. 25] and the Guam Water Quality Standards for treatment of industrial waters or other wastes [22 GAR §5104(a)(6)] and toxic and hard-to-treat substances [22 GAR §5104(a)(8)] to prevent pass-through, contamination of sludge, or interference with the treatment process of any municipal treatment plant.

1. The proposed project discharges to a wastewater collection and treatment system which is regulated under a U.S. Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) Permit and associated Clean Water Act Section 401 Water Quality Certification from Guam EPA. Guam EPA finds that the proposed project is not likely to include any activities or uses which are likely to require pretreatment to meet the requirements of the NPDES Permit and/or the Guam Water Quality Standards, provided the project owner adheres to all conditions of the NPDES permit relevant to discharge of wastewater from the proposed project, including any pretreatment requirements as applicable. However, the applicant must

notify Guam EPA and provide an opportunity to inspect all pretreatment-related devices such as **kitchen grease traps** prior to the turn-over of the building to the project owner.

- 2. The proposed project includes construction of a new (or rehabilitation/modification of an existing) wastewater pumping facility (**lift station**). Pursuant to the Connection to Public Sewer Regulations at 22 GAR §25110, the following conditions shall apply:
 - a. Approval must be obtained from the Guam Waterworks Authority (GWA) prior to construction.
 - b. The new (or rehabilitated/modified) lift station must be inspected and approved by both Guam EPA and GWA before being placed in operation.
 - c. Maintenance of the lift station will be the responsibility of the owner unless mutually agreeable arrangements can be made with a public agency (22 GAR §25110(h)).
 - d. A copy of the operation and maintenance (O&M) manual for the lift station must be provided to Guam EPA prior it being placed into operation.

E. WELLHEAD PROTECTION APPROVAL

The subject permit application has been reviewed for compliance with the Wellhead Protection for Public Water Supply Wells Requirements under 22 GAR §7130 and approved, with review notes as follows:

1. The subject project <u>is not</u> located within 1,000 feet of a water well or wellfield, and therefore <u>is not</u> subject to review and approval under the Wellhead Protection for Public Water Supply Wells Requirements at 22 GAR §7130.

F. BUILDING OCCUPANCY CLEARANCE REQUIREMENTS

The following occupancy permit requirements are incorporated pursuant to the Guam Soil Erosion and Sediment Control Regulations (22 GAR Ch. 10), the Guam Individual Wastewater Disposal System Regulations (22 GAR Ch. 12), the Guam Connection to Public Sewer Regulations (22 GAR Ch. 25), the Guam Safe Drinking Water Act (10 GCA Ch. 53) and the Guam Drinking Water Regulations (22 GAR Ch. 6) as adopted under P.L. 35-115:

- Lead-free plumbing requirements: No public water system, public water system component, or residential or nonresidential facility which includes plumbing that provides or may provide water for human's consumption shall receive an occupancy permit, unless evidence is submitted to and approved by Guam EPA that all pipes, pipe fittings, plumbing fittings, or fixtures upstream of and including all endpoint devices are lead-free. Acceptable evidence shall be in the following form:
 - a. Original product packaging or approved on-product markings, verified through inspection by Guam EPA staff, identifying each pipe, pipe fitting, plumbing fitting, or fixture upstream of and including each endpoint device as having been independently certified as lead-free under at least one (1) of the standards referenced in 22 GAR §6141.43(c) (as adopted under Public Law 35-115)

- b. The applicant is strongly advised to retain all product packaging related to this requirement. Failure to provide product packaging may result in a requirement that Guam EPA inspect the project in-person, which will add additional time and expense to the occupancy approval process.
- 2. Final inspection and approval of stormwater runoff drainage systems: The permittee or his agent shall notify the Administrator or his representative when the earth-moving operation is ready for final inspection. Final approval shall not be given until all approved work has been completed. Final approval shall be dependent on installation of all drainage structures and their protective devices, establishment of a healthy vegetation growth in conformance with the approved plans and specifications, and submittal of any required reports. [See 22 GAR §10108(b).]
- 3. Final inspection and documentation required for wastewater pumping facilities (lift stations): Pursuant to the Connection to Public Sewer Regulations at 22 GAR §25110, the following requirements must be met prior to Guam EPA approving an occupancy permit:
 - a. The new (or rehabilitated/modified) lift station must be inspected and approved by both Guam EPA and GWA before being placed in operation.
 - b. A copy of the **operation and maintenance (O&M) manual** for the lift station must be provided to Guam EPA.
 - c. If maintenance of the lift station will be performed by any entity other than the owner (for example by GWA), official documentation of that arrangement (e.g. a contract, memorandum of agreement, etc.) must be provided to Guam EPA (22 GAR §25110(h)).

G. PROTECTION OF PROPERTY AND SAFETY

- 1. Protection of adjoining properties: Any person performing or causing to be performed any excavation or fill shall, at his own expense, provide the necessary means to prevent the movement of earth to the adjoining properties, and to maintain the existing natural grade of adjoining properties. [See 22 GAR §10107(a).]
- 2. Protection of public utilities: Any person performing or causing to be performed any excavation or fill shall be responsible for the maintenance or restoration of street pavements, sidewalks and curbs, and improvements of public utilities which may be affected. Such maintenance shall be in accordance with the requirements of the Department of Public Works, Government of Guam agencies and affected public utilities. At cuts fronting any street, a suitable and adequate barrier shall be installed to provide protection to the public. [See 22 GAR §10107(b).]
- 3. Removal of silt or other debris: Any person depositing or causing to be deposited, any silt or debris in ditches, water courses, drainage facilities, and public roadways, shall remove such silt or other debris. In case such person shall fail, neglect, or refuse to comply with the provisions of this Section within forty-eight (48) hours after written notice served upon him, either by mail or by personal service, the Administrator may proceed to remove the silt and other debris or to take any other action deemed

- appropriate. The costs incurred for any action taken by the Administrator shall be payable by such person. [See 22 GAR §10107(c).]
- 4. **Safety precautions:** At any stage of the grading, grubbing, or stockpiling, if the Administrator finds that further work as authorized by an existing permit is likely to create soil erosion problems or to endanger life, limb, or property, safety precautions may be required. These precautions may include, but are not limited to: flattening exposed slopes; constructing additional silting or sediment basins; providing drainage facilities or benches; removing rocks, boulders, debris, and other dangerous objects which, if dislodged, are likely to cause injury or damage; or constructing fences or other suitable protective barriers. [See 22 GAR §10107(d).]

H. TERM OF PERMIT AND EXPIRATION

Note that the "date of issuance of the permit" is the later of the following: The date of issuance of the Guam Department of Public Works Building, Grading or Stockpiling permit under which the proposed work will be conducted; or the date of issuance of this Conditional Approval Letter.

- 1. Pursuant to 22 GAR §10110(a) "Permit Expiration", this permit shall expire and become null and void under the following circumstances:
 - a. If permitted work is not started within one hundred eighty (180) calendar days after the date of issuance of the permit; or
 - b. If work is suspended or abandoned any time after the work is commenced for a minimum period of sixty (60) days; or
 - c. If work is continued without interruption for one (1) year, beginning with the date of issuance of the permit, or is completed within the time frame provided in the approved permit application, whichever comes first
- 2. Pursuant to 22 GAR §10110(c), once a permit has expired, the owner/applicant shall pay the required fees and obtain a new permit pursuant to these regulations, before beginning new work. If the owner begins work without obtaining a new permit, the owner shall pay a fee of two times the regular required fees, per the penalty provisions of 22 GAR §10109(f).

I. GENERAL CONDITIONS

- 1. A copy of the permit, plans and specifications for grading, clearing and grubbing, or stockpiling shall be maintained at the job-site during the progress of work. [See 22 GAR §10104(d)(7).]
- 2. The issuance of a permit shall constitute an authorization to do only that work which is described in the permit application and in the plans and specifications approved by the Administrator (subject to any limitations as may be described in this conditional approval letter). Any and all modifications made in response to Guam EPA review of the proposed construction plans, specifications, calculations, or other work

shall be incorporated in the final site construction and must be included in the plans and construction documentation kept on site during construction. [See 22 GAR §10104(d)(3).]

- 3. Pursuant to 22 GAR \$10113, and the Guam Water Pollution Control Act at 10 GCA \$4107, the Administrator or authorized representative shall have the **right to enter** at a reasonable time upon any property to inspect the earthmoving activities, individual wastewater disposal system construction authorized by this permit, or any other activities associated with the permitted construction which may result in pollution of any waters of the territory. Such inspections may take place before, during and after any earth moving activity for which a permit has been issued to ensure that control measures are properly installed or performed and maintained at the expense of the applicant.
- 4. This permit shall not relieve the permittee of the responsibility for securing permits or approvals for work to be done which is regulated by any federal laws or other laws of Guam, or by department, or division of the governing agencies of the government of Guam. [See 22 GAR §10104(d)(4).]
- 5. Where any operations are delayed for any reason, a revised work schedule shall be submitted to the Administrator which describes any required modifications to the temporary storm water drainage system and to the E&SC Plan, and other information the Administrator may require. [See 22 GAR §10104(d)(6).]
- 6. All excess excavated materials and other debris shall be removed by the permittee, within thirty (30) days after the clearing/grading operation is completed. All excess excavated materials and debris shall be properly disposed at a Guam EPA solid waste management permitted facility for each type of waste as required by 10 GCA Ch. §51110.
- 7. In the event the permittee encounters any environmental problem(s) during the clearing/grading activity, the permittee shall immediately implement appropriate mitigation measure(s) and inform the Agency of the action taken within twenty-four (24) hours from the time the environmental concern has been determined.
- 8. Pursuant to 22 GAR §10112(a), this permit approval may be suspended or revoked by the Administrator under the following circumstances:
 - a. The permit has been found to have been issued on the basis of incorrect information supplied by the permittee;
 - b. Existing site conditions are found not to be in accordance with the terms and conditions of the permit;
 - c. It is determined that the permittee has not complied with a provision of any other applicable law, ordinance rule or regulation of Guam;

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- d. The clearing and grubbing, grading or stockpiling discloses conditions that are objectionable or unsafe; or
- e. Immediate danger exists in a downstream/adjacent area.
- 9. Guam EPA shall not be held liable for any damages caused as a result of the activities covered under this approval.
- 10. This conditional approval is not valid without the approval of the Department of Public Works, Building Permit and Inspection Section.
- 11. The permittee shall comply with, in addition to the requirements of this permit, all applicable provisions of Guam law, regulations, and orders. This permit shall not be construed to relieve the permittee from liability for any damages to persons or property.
- 12. Failure to comply with the conditions of this permit or the requirements of the associated Guam EPA laws and regulations may subject the permittee to enforcement actions including issuance of a Stop Work Order, Compliance Order including corrective measures, and/or a Penalty order which may include civil penalties of up to ten thousand dollars (\$10,000) per violation, per day of violation.

Should you have any questions or need additional information, please do not hesitate to contact my staff at Water Pollution Control Program or Water Division Chief Engineer, CAPT Brian Bearden, P.E., BCEE at Tel# 300-4779 and 300-4786, respectively.

Dångkolu na si Yu'us ma'ase'.

Senseramente.

WALTER S. LEON GUERRERO

Administrator

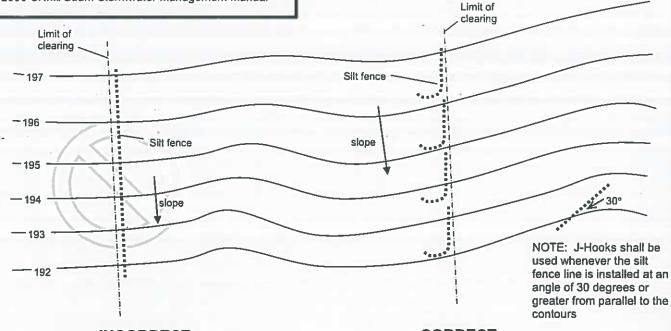
Attachments: ESC-1 and ESC-1A

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E4	

ATTACHMENT ESC-1A:

SILT FENCE INSTALLATION

Along slope, with J-Hooks Supplement to Appendix A-7, 2006 CNMI/Guam Stormwater Management Manual



INCORRECT

Silt fence installed parallel to slope (perpendicular to contour) in one, long run

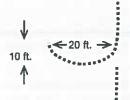
CORRECT

Silt fence installed in shorter runs with "J-Hooks" to capture & pond runoff. Gaps between segments of fence allows runoff to escape & avoids concentration of flow

Purpose:

The proper operation of silt fence depends on the ability to temporarily pond runoff behind the fence, allowing time for sediments to settle. Silt fence is **not** a filter. In areas where silt fence must be installed along a slope, the installation of J-Hooks is required in order to provide spaces for runoff to pond, and thereby allow sediments to settle out.

Slope Steepness	Maximum Space between silt fence rows or J-hooks (ft.)		
2:1 (50%)	25		
3:1 (33%)	50		
4:1 (25%)	75		
5:1 or flatter (20%)	100		



Start down-gradient silt fence line as close as possible to up-gradient J-Hook

J-Hook Dimensions

where possible – install more Jhooks at closer spacings if correct size shown will not fit (e.g., along narrow rights of way)



Version 1.0; December 21, 2018

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ATTACHMENT ESC-2:

INLET PROTECTION

Supplement to Appendix A-9, 2006 CNMI/Guam Stormwater Management Manual

Purpose:

To prevent heavily sediment laden water from entering a storm drain system through inlet. Existing storm drain systems, especially "ponding basins" and underground infiltration chambers, can be very easily destroyed if construction sediment is allowed to enter.

FLOW

DEVATERING

DROP INLET







FLOV FLOV EXCAVATED AREA (AS REQUIRED) DEPTH MIN. 1' TO GRAVEL SUPPORTED BY HARDWARE CLOTH TO ALLOW DRAINAGE AND OF INLET RESTRICT SEDIMENT

Figure 5.1. Excavated drop inlet protection with weep holes.





STONE & BLOCK DETAIL

S:1 SLOPE GRAVEL FILTER

Figures 5.2. Block and rock details.

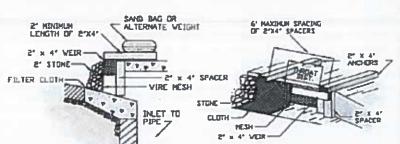


Figure 5.3. Fabric and rock curb inlet protection.

Maintenance Required:

Inspect after each rain event and make repairs as needed. Check materials for proper anchorage and secure as necessary. Remove sediment when storage area is 1/2 full. Upon stabilization of the drainage area, remove all materials and sediment and dispose of properly. Seal weep holes. Bring adjacent areas to grade, smooth, compact, and stabilize.

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ATTACHMENT ESC-1:

SILT FENCE INSTALLATION

Supplement to Appendix A-7, 2006 CNMI/Guam Stormwater Management Manual

Purpose:

The proper operation of silt fence depends on the ability to temporarily pond runoff behind the fence, allowing time for sediments to settle. Silt fence is **not** a filter. In areas where silt fence must be installed along a slope, the installation of J-Hooks (See ESC-1A) is required in order to provide spaces for runoff to pond, and thereby allow sediments to settle out.

Slope Steepness	Maximum Space between silt fence rows or J-hooks (ft.)			
2:1 (50%)	25			
3:1 (33%)	50			
4:1 (25%)	75			
5:1 or flatter (20%)	100			

Maintenance Required: Inspect daily, Repair if sagging,

flapping, or bulging is

noticeable, or if erosion or spillover is observed. Remove sediment and debris when build

up reaches 1/3 height of

fencing. If sire is inactive, continue to inspect after every

rain event.

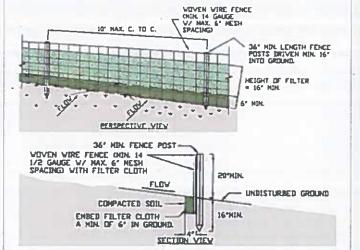
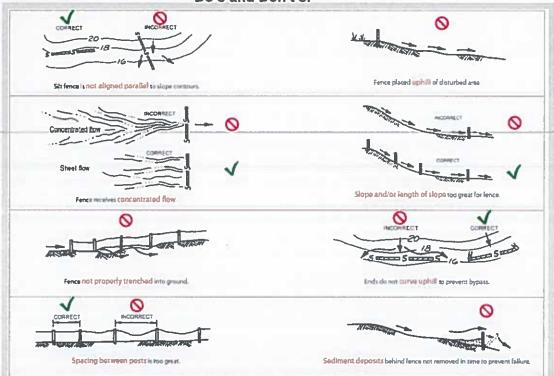


Figure 2.2. Silt fence installation with wire mesh support.



The bottom of silt fencing should be securely trenched, not covered with a thin layer of dirt. Trench should be at leas 6-8 inches deep, backfilled, and compacted.

Do's and Don't's:





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