

CONTRACTOR SUBMITTAL TRANSMITTAL FORM

Owner: County of Hawaii

Date:

5/9/2025

Contractor: Nan, Inc.

Project No.:

WW-4705R

Project Name: Hilo WWTP Phase 1

Submittal Number:

01573-002.0

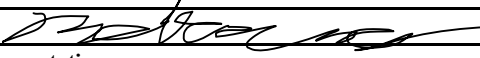
Submittal Title: Erosion Control Socks

To: Engineer

From: Nan, Inc

Note: This is Submitted for information.

Specification No. and Subject of Submittal / Equipment Supplier			
Spec #:	01573	Subject:	Erosion Control Socks
Authored By:	Makoa Ng	Date Submitted:	5/9/2025

Submittal Certification	
Check Either (A) or (B):	
<input checked="" type="checkbox"/> (A)	We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings with no exceptions.
<input type="checkbox"/> (B)	We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings except for the deviations listed.
Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.	
General Contractor's Reviewer's Signature: 	
Printed Name and Title: Makoa Ng, QC Representative	
In the event, Contractor believes the Submittal response does or will cause a change to the requirements of the Contract, Contractor shall immediately give written notice stating that Contractor considers the response to be a Change Order.	
Firm:	Signature: Date Returned:

PM/CM Office Use
Date Received GC to PM/CM:
Date Received PM/CM to Reviewer:
Date Received Reviewer to PM/CM:
Date Sent PM/CM to GC:

Nan, Inc

PROJECT: HILO WWTP REHABILITATION
AND REPLACEMENT PROJECT - PHASE 1

JOB NO. WW-4705R

THIS SUBMITTAL HAS BEEN CHECKED BY
THIS CONTRACTOR. IT IS CERTIFIED
CORRECT, COMPLETE, AND IN
COMPLIANCE WITH CONTRACT
DRAWINGS AND SPECIFICATIONS. ALL
AFFECTED CONTRACTORS AND
SUPPLIERS ARE AWARE OF, AND WILL
INTEGRATE THIS SUBMITTAL (UPON
APPROVAL) INTO THEIR OWN WORK.

DATE RECEIVED 05/09/2025
SPECIFICATION SECTION # 01573
SPECIFICATION Erosion And Sediment Control
PARAGRAPH n/a
DRAWING n/a
SUBCONTRACTOR n/a
SUPPLIER n/a
MANUFACTURER Reliant Trucking Company

CERTIFIED BY: Makoa Ng

SECTION 01573

EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Requirements for minimizing discharge of sediment, debris, and other pollutants to waters of the State.
 - 2. Installation of erosion and sediment control filter fabric fences.
 - 3. Requirements for protecting onsite and offsite lands and waters from wind-borne pollution.
- B. Purpose of control fences is to contain pollutants from overland flow.
 - 1. Control fences are not for use in channelized flow areas.

1.02 SUBMITTALS

- A. Qualifications of the individual or entity preparing reports, designs, and applications for compliance with federal, state, and local requirements regulating discharge of stormwater, sediment, debris, and other pollutants to waters of the State (SWPPP Consultant).
 - 1. Qualifications of person preparing, monitoring, and administering Stormwater Pollution Prevention Plans (SWPPPs) and related NPDES permit applications and permits.
 - 2. Provide samples of previously prepared, submitted, and accepted SWPPPs for similar type projects.
- B. Prior to submittal to governmental agencies, review copies of all correspondence, permit applications, and reports related to environmental compliance.
- C. Copies of environmental permits and all correspondence received from governmental agencies regarding environmental compliance.
- ✓ D. Manufacturer's catalog sheets and other product data on geotextile fabric, erosion control blankets, straw bales, silt fencing, etc.

1.03 REFERENCES

- A. Hawaii Administrative Rules:
 - 1. Title 11, Chapter 54, Water Quality Standards.
 - 2. Title 11, Chapter 55, Water Pollution Control.
- B. ASTM International (ASTM):
 - 1. D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).

2. D4355 - Standard Test Method for Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus.
 3. D4491- Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 4. D4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
 5. D4833 - Standard Test Method for Index Puncture Resistance of Geomembranes, and Related Products.
 6. D5665 - Standard Specification for Thermoplastic Fabrics Used in Cold-Applied Roofing and Waterproofing.
 7. D6459 - Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Hillslopes from Rainfall-Induced Erosion.
 8. D6475 - Standard Test Method for Measuring Mass per Unit Area of Erosion Control Blankets.
 9. D6525 - Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products.
 10. D6567 - Standard Test Method for Measuring the Light Penetration of a Rolled Erosion Control Product (RECP).
 11. D6818 - Standard Test Method for Ultimate Tensile Properties of Rolled Erosion Control Products.
- C. United States Environmental Protection Agency (USEPA):
1. Construction General Permit (CGP).

1.04 DISCHARGE PERMITS AND COMPLIANCE

- A. Contractor shall administer the permits and comply with applicable provisions of the Hawaii Administrative Rules and USEPA CGP Rules referenced above.
- B. Contractor shall apply for, obtain, administer, and comply with National Pollutant Discharge Elimination System (NPDES) permit coverage(s) for the following:
1. Stormwater discharges associated with construction activities that disturb one (1) acre or more.
 2. Discharges of hydro testing effluent, dewatering effluent, and well drilling effluent to waters of the State. In accordance with state law, all discharges related to project construction or operations are required to comply with State Water Quality Standards (Hawai'i Administrated Rules, Chapter 1154). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutant to waters of the State. Permit coverage is available from the Department of Health, Clean Water Branch at <http://health.hawaii.gov/cwb>. The Contractor is responsible for obtaining Federal, State, and local authorization as required by law.
 3. Contractor is designated as and shall function as the "Authorized Representative" for the administration of the SWPPP and all other stormwater discharge permits until the Owner's final acceptance of the Project.

4. Contractor shall be solely responsible for periodic and timely renewal for the SWPPP and all stormwater discharge permits including costs and fees required prior to the Owner's final acceptance of the project.
5. Contractor shall be financially responsible for all assessments, fines, and other penalties resulting from its violations of and other noncompliance with the SWPPP and other stormwater discharge permits that occur prior to the Owner's final acceptance of the project.

1.05 PREPARATION AND ADMINISTRATION OF THE SWPPP AND NPDES PERMIT APPLICATIONS.

- A. The SWPPP shall cover all stormwater, test water, dewatering waste, and other discharges incidental to construction activities.
 1. Additional SWPPP coverage shall include, but is not limited to, waste concrete discharge, leaking fuels and hydraulic fluids, trash, wind-blown debris, demolition debris, waste or leaking paints and coatings, storage of materials, toxic and harmful chemicals, and other materials listed in regulations and permits.
 2. Duties of the SWPPP Consultant, in addition to the work noted above and required by regulations and permits, shall include:
 - a. Periodic monitoring of the Project site and reporting findings to the Owner, Engineer, and Contractor.
 - b. Inspecting drainage, sediment and erosion control BMP devices, protection systems and methods, storage systems, periodically, and before, during, and after rain and wind events.
 - c. Revising the SWPPP and permits when necessary.
 - d. Analytical testing of storm water discharges when occurring.
 - e. Meeting with Owner, Engineer, and regulatory agencies when requested.
 - f. Assisting with completing, filing, modifying, and discussing permit applications, and obtaining and modifying permits.
 - g. Making notifications and preparing and furnishing reports required by regulatory agencies.
- B. All compliance with stormwater discharge regulations and permits is the responsibility of Contractor.
- C. Costs for the SWPPP, permits, and services of the SWPPP Consultant shall be paid by Contractor.

1.06 QUALITY ASSURANCE FOR EROSION CONTROL BLANKETS

- A. Product shall be manufactured in accordance to a documented Quality Control Program. At a minimum, the following procedures and documentation shall be provided:
 1. Manufacturing Quality Control Program Manual.
 2. First piece inspection of products produced to assure component materials and finished product tolerances are within manufacturer specifications.
 3. Additional inspections for product conformance shall be conducted during the run after the first piece inspection.
 4. Every roll shall be visually inspected.
 5. Moisture content of straw and coconut fibers measured upon receipt.

6. At a minimum, every third roll shall be weighed to ensure conformance of manufacturer's specifications.
7. Each individual erosion control blanket shall be inspected prior to packaging for conformance to manufacturing specifications.

1.07 PERFORMANCE REQUIREMENTS FOR EROSION CONTROL BLANKETS

- A. Erosion control blanket shall provide a temporary, biodegradable cover material to reduce slope and enhance vegetation. Erosion control blanket performance capabilities shall be in accordance with ASTM D6459, "Determination of Erosion Control Blanket (ECB) Performance in Protecting Hillslopes from Rainfall-Induced Erosion."

PART 2 PRODUCTS

2.01 FILTER FABRIC

- A. Provide woven or nonwoven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material.
- B. Geotextile fabric:
 1. Grab strength of 100 pounds per square inch in any principal direction in accordance with ASTM D4632.
 2. Puncture strength exceeding 115 pounds per square inch in accordance with ASTM D4833.
 3. Equivalent opening size between 50 and 140 for soils with more than 15 percent by weight passing No. 200 sieve and between 20 and 50 for soil with less than 15 percent by weight passing No. 200 sieve.
 4. Maximum water flow rate of 40 gallons per minute per square feet in accordance with ASTM D4491.
- C. Filter fabric material shall contain ultraviolet inhibitors and stabilizers to provide expected usable life comparable to anticipated construction period.
 1. Ultraviolet stability shall exceed 70 percent after 500 hours of exposure in accordance with ASTM D4355.
- D. Manufacturers: The following or equal:
 1. Mirafi, Inc.

2.02 EROSION CONTROL BLANKETS

- A. Manufacturers: One of the following or equal:
 1. American Excelsior Co., AEC Premier Straw/Coconut™ Blankets.
 2. Proper Geotextile Systems.
- B. Product requirements:
 1. Erosion control blanket shall be furnished in rolls and wrapped with suitable material to protect against moisture intrusion and extended ultraviolet exposure prior to placement.

2. Erosion control blanket shall be of consistent thickness with fibers distributed evenly over the entire area of the blanket.
3. Erosion control blanket shall be free of defects and voids that would interfere with proper installation or impair performance.

C. Materials:

1. Blend of 70 percent straw and 30 percent coconut fibers.
 - a. The straw fibers shall consist of straw with 75 percent of fibers greater than 4 inches in length, and certified weed seed free.
 - b. Product shall be 100 percent biodegradable.
 - c. The blended fibers shall be evenly distributed throughout the entire area of the blanket.
 - d. The top and bottom of each blanket is covered with biodegradable jute netting.
2. Blanket performance requirements:
 - a. C factor: 0.15.
 - b. Shear stress: 2.0 lb/ft².
 - c. Velocity: 8.5 feet per second.
 - d. Functional longevity: Less than 24 months.
3. Material characteristics:
 - a. Width: 8.0 feet.
 - b. Length: 112.5 feet.
 - c. Area: 100.0 yd².
 - d. Weight: 50.0 pounds.
 - e. Mass per unit area: 0.50 lb/yd².
 - f. Net openings: 0.5 inch by 1.0 inch.
 - g. Minimum Index Values:

Index Property	Test Method	Value
Thickness	ASTM D6525	0.331 in (8.41 mm)
Light Penetration	ASTM D6567	5.8%
Mass per Unit Area	ASTM D6475	0.81 lb/yd ² (437 g/m ²)
MD-Tensile Strength Maximum	ASTM D6818	321.6 lb/ft (4.69 kN/m)
TD-Tensile Strength Maximum	ASTM D6818	159.6 lb/ft (2.33 kN/m)
MD-Elongation	ASTM D6818	4.1%
TD-Elongation	ASTM D6818	4.8%
Water Absorption	ASTM D5665	382%

D. Staples:

1. Staples shall be 100 percent biodegradable with a U-shaped top. Staples shall be a minimum 4 inch biodegradable staple for cohesive soils and 6 inches for non-cohesive soils.

PART 3 EXECUTION

Delete and Replace as
per Bid Addendum 06

Delete and Replace as
per Bid Addendum 06

3.01 PREPARATION AND INSTALLATION

- A. Provide erosion and sediment control systems at locations as indicated ~~on the Drawings.~~

1. Construct in accordance with requirements as indicated ~~on the Drawings~~ and of type indicated as specified in this Section.
- B. No clearing, grubbing, or rough cutting permitted until erosion and sediment control systems are in place, other than site work specifically directed by Project Manager to allow soil testing and surveying.
- C. Maintain existing erosion and sediment control systems located within project site until acceptance of Project or until directed by Project Manager to remove and discard existing system.
- D. Regularly inspect and repair or replace damaged components of erosion and sediment control systems as specified in this Section.
 - 1. Unless otherwise directed, maintain erosion and sediment control systems until project area stabilization is accepted by Owner.
 - 2. Remove erosion and sediment control systems promptly when directed by Project Manager.
 - 3. Discard removed materials off site.
- E. Remove and dispose sediment deposits at designated spoil site for Project.
 - 1. If a project spoil site is not indicated on the Drawings, dispose of sediment off site at location not in or adjacent to stream or floodplain.
 - 2. Assume responsibility for off-site disposal.
 - 3. Spread sediment evenly throughout site, compacted and stabilized.
 - 4. Prevent sediment from flushing into a stream or drainage way.
 - 5. If sediment has been contaminated, dispose of in accordance with existing federal, state, and local rules and regulations.
- F. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in maximum of 8-inch layers.
 - 1. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D698 density.
 - 2. Make at least 1 test per 500 cubic yards of embankment.
- G. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated rights-of-way and easements for construction.
 - 1. Immediately repair damage caused by construction traffic to erosion and sediment control.

3.02 GENERAL CONSTRUCTION METHODS

- A. Provide erosion and sedimentation control systems as indicated ~~on the Drawings.~~ ^{in Contractor's SWPPP}
1. Install erosion and sedimentation control systems in manner that surface runoff shall percolate through system in sheet flow fashion and allow retention and accumulation of sediment.
- B. Inspect erosion and sedimentation control systems after each rainfall, daily during periods of prolonged rainfall, and at minimum once each week.
1. Repair or replace damaged sections immediately.
 2. Remove sediment deposits when silt reaches depth 1/3 height of fence or 6 inches, whichever is less.

3.03 SITE PREPARATION FOR EROSION CONTROL BLANKETS

- A. Before placing erosion control blanket, Contractor shall certify that the subgrade has been properly compacted, graded smooth, has no depressions, voids, soft or uncompacted areas, is free from obstructions such as tree roots, protruding stones or other foreign matter, and is seeded and fertilized according to project specifications.
1. Contractor shall not proceed until all unsatisfactory conditions have been remedied.
 2. By beginning construction, Contractor signifies that the proceeding work is in conformance with this Section.
- B. Contractor shall fine grade the subgrade by hand dressing where necessary to remove local deviations.
- C. No vehicular traffic shall be permitted directly on the erosion control blanket.
- D. Slope installation:

Delete and Replace as
per Bid Addendum 06

Replacement

Erosion control blanket shall be installed in accordance with manufacturer's Installation Guidelines, Staple Pattern Guides, and CAD details. The extent of erosion control blanket shall be as indicated in Contractor's SWPPP.

1. Erosion control blanket shall be installed as directed by Owner's representative in accordance with manufacturer's Installation Guidelines, Staple Pattern Guides, and CAD details. The extent of erosion control blanket shall be as indicated on the Drawings.
2. Erosion control blanket shall be oriented in vertical strips and anchored with staples, as identified in the Staple Pattern Guide.
 - a. Adjacent strips shall be overlapped to allow for installation of a common row of staples that anchor through the nettings of both blankets.
 - b. Horizontal joints between erosion control blankets shall be sufficiently overlapped with the uphill end on top for a common row of staples so that the staples anchor through the nettings of both blankets.
3. Where exposed to overland sheet flow, a trench shall be located at the uphill termination erosion control blanket shall be stapled to the bottom of the trench.
 - a. The trench shall be backfilled and compacted.
 - b. Where feasible, the uphill end of the blanket shall be extended 3 feet over the crest of the slope.

3.04 FILTER FABRIC FENCE CONSTRUCTION METHODS

- A. Attach filter fabric to minimum of 1-inch by 2-inch wooden stakes or driven steel rods spaced a maximum of 3 feet apart and embedded minimum of 8 inches or deeper to hold fence in place.
 - 1. If filter fabric is factory preassembled with support netting, then maximum spacing allowable is 8 feet.
 - 2. Install anchoring stakes or rods at slight angle toward source of anticipated runoff.
 - 3. Contractor is responsible for providing adequate fence anchoring appropriate for the varying soil and rock conditions at the well sites.
- B. Trench in toe of filter fabric fence with spade or mechanical trencher so that downward face of trench is flat and perpendicular to direction of flow.
 - 1. V-trench configuration ~~as indicated on the Drawings~~ may also be used.
 - 2. Lay filter fabric along edges of trench.
 - 3. Backfill and compact trench.
- C. Filter fabric fence shall have a minimum height of 18 inches and a maximum height of 36 inches above natural ground.
- D. Provide filter fabric in continuous rolls and cut to length of fence to minimize use of joints.
 - 1. When joints are necessary, splice fabric together only at support post with minimum 6-inch overlap and seal securely.

Delete as per Bid
Addendum 06

3.05 TRIANGULAR FILTER FABRIC FENCE CONSTRUCTION METHODS

- A. Attach filter fabric to fence structure fashioned from 6 gauge, ~~6-inch~~ by 6-inch wire mesh, 18 inches on each side ~~as indicated on the Drawings~~.
 - 1. Fabric cover and skirt should be continuous wrapping of fabric.
 - 2. Skirt should form continuous extension of fabric on upstream side of fence.
- B. Secure triangular fabric filter fence in place using one of the following methods:
 - 1. Toe-in skirt 6 inches with mechanically compacted material.
 - 2. Weight down skirt with continuous layer of 3-inch to 5-inch graded rock.
 - 3. Trench-in entire structure 4 inches.
- C. If provided, anchor triangular fabric filter fence structure and skirt securely in place using 6-inch wire staples on 2-foot centers on both edges and on skirt, or staked using 18-inch by 3/8-inch diameter re-bar with tee ends.
- D. Lap over fabric filter material by 6 inches to cover segment joints.
 - 1. Fasten joints with galvanized shoat rings.

Delete as per Bid
Addendum 06

3.06 STRAW BALE FENCE CONSTRUCTION METHODS

- A. Bound bales with either wire, nylon or polypropylene rope tied across hay bales.
 - 1. Do not use jute or cotton bindings.

- B. Place bales in row with ends tightly abutting adjacent bales.
 - 1. Place bales with bindings parallel to ground surface.
- C. Embed bale in soil a minimum of 4 inches.
- D. Securely anchor bales in place by 3/8-inch rebar stakes driven through bales a minimum of 18 inches into ground.
 - 1. Angle first stake in each bale toward previously laid bale to force bales together.
- E. Fill gaps between bales with straw to prevent water from escaping between bales.
 - 1. Wedge carefully in order not to separate bales.
- F. Replace with new straw bale fence every 2 months.

3.07 BRUSH BERM CONSTRUCTION METHODS

- A. Construct brush berm along contour lines by hand placing method.
 - 1. Do not use machine placement of brush berm.
- B. Use woody brush and branches having diameter less than 2-inches with 6-inches overlap.
 - 1. Avoid incorporation of annual weeds and soil into brush berm.
- C. Use minimum height of 18-inches measured from top of existing ground at upslope toe to top of berm.
 - 1. Top width shall be 24 inches minimum and side slopes shall be 2:1 or flatter.
- D. Embed brush berm into soil a minimum of 4-inches and anchor using either wire, nylon or polypropylene rope across berm with a minimum tension of 50 pounds.
 - 1. Tie rope securely to 18-inch x 3/8-inch diameter rebar stakes driven into ground on 4-foot centers on both sides of berm.

END OF SECTION



Reliant Trucking Incorporated
PO Box 1178
Aiea, Hawaii 96701
(808) 277-9057

CARRIFF ENGINEERED FABRICS DATA SHEET

Reliant Trucking Incorporated manufactures its erosion control socks utilizing durable, circular-knitting technology, heavy duty, high flow, fabric weight, and stitch density from Carriiff Engineered Fabrics. The solutions offered by Reliant Trucking Incorporated are effective in various construction phases, offering perimeter control, soil retention, and runoff diversion. Our erosion control fabrics not only contain eroded soils and contaminants within site boundaries, protecting nearby water bodies and sensitive environments but also superior water flow rates, reducing pooling and blowout risks in heavy rains. As a photodegradable and reusable product, they support wildlife ecosystems, provide cost-effective alternatives to traditional methods, and minimize clean-up costs, making them an excellent choice for both the construction industry and environmental conservation.

We currently offer the “Heavy Duty”, “High-Flow” erosion control sleeve. The Heavy-Duty fabric is resistant to damage during use; high flow and features an open-weave construction and larger opening size for increased water flow rates. Diameter, fabric weight, color and stitch densities are available, determined based on need.

PHYSICAL PROPERTIES AND LOGISTICS **MANUFACTURED BY RELIANT TRUCKING INCORPORATED**

- Puncture/Tensile Strength : 213.57 Pound-Force (Min.) (ASTMD6241)
- Water Permittivity : 4.0 (ASTM4751)
- Bursting Strength : 130.0 PSI
- Water Flow Rate : 300 Gal/Min/Ft²
- Fiber Content : Polyester
- Fabric Construction : Circular Knitted Fabric Structure
- Fill Material and Size : Ground up, Un-Treated Wood Pallets- ¼” Minus (+/- .375”)
- Standard Manufactured Unit : 9” Diameter x 20’ (Unit size can vary depending on need)
- Weight Per Unit : 75-125 Pounds (Weight can vary depending on moisture content)
- Manufacturing Location : Hilo, Hawaii
- Number of Units Per Pallet : 6-8 Units per Pallet
- Delivery: : Delivery Free (Island of Hawaii)
- Outer-Island Shipping : Yes (Dock to Dock)



Carriff Canada
688 Sovereign Road
London, Ontario, Canada, N5V 4K7
Tel. (519) 457-7166 Fax (519) 457-3277

www.carriff.com

Carriff Corporation
3500 Fieldstone Trace
Midland, North Carolina, U.S.A. 28107
Tel. (704) 888-3330 Fax (704) 888-1246

TYPE "A" CIRCULAR-KNITTED SOCK™ and DRAIN-SLEEVE® GEOTEXTILES

PERFORMANCE DATA GUIDE

REVISION 011 Effective January 2021
Supersedes Data Sheet REVISION 011 October 2020

		Test Method	TYPE "A" "White" or "Black" SOCK™ and DRAIN-SLEEVE® Geotextile Fabrics
TESTED IN ACCORDANCE WITH ASTM D6707 "Standard Specification for Circular-Knit Geotextile for use in Subsurface Drainage Applications"			
Permittivity	(min.)	ASTM D4491	4.5 sec ⁻¹
Puncture Resistance	(min.)	ASTM D6241	1000 N
AOS	(max.)	ASTM D4751	.600 mm 30 U.S. Sieve
ADDITIONAL INFORMATION			
FOS	(max.)	CAN/CGSB-148.1, M10-94)	450 microns
Mass	(relaxed)	ASTM D3887	2.8 - 3.9 oz/yd ² 95 - 135 gm/m ²
Mass	(applied minimum)		2.6 - 3.5 oz/yd ² 90 - 120 gm/m ²
Thickness	(min.)	ASTM D4491	.75 mm
Permeability (K)	(min.)	ASTM D4491	.390 cm/sec
Burst Strength	(min.)	ASTM D3786	760 kpa
Water Flow Rate	(min.)	ASTM D4491 (2" constant head)	300 U.S. gal/min/ft. ²
Fiber Content			polyester 100%
Yarn Denier			150
Specific Gravity			1.3
Melt Temperature			450° F (230° C)

NOTES:

- 1) Carriff Engineered Fabrics Corporation (CEFC) and its subsidiaries support the use of ASTM D6707 "Standard Specification for Circular-Knit Geotextile for use in Subsurface Drainage Applications" protocol when evaluation of their fabrics are undertaken. The reporting of additional fabric properties are provided for the benefit of the specifiers and users of these products.
- 2) Values reported are based on independent laboratory evaluation and are considered to be true and accurate.
- 3) The manufacturer certifies that all values provided are indicative of the fabrics properties at the time of manufacture and shipment to the original purchaser only. This certification is not transferable. Any required certifications of compliance to a specific characteristic are the responsibility of the final seller of the fabric.
- 4) Product SKU's containing the suffix "C" are certified as being manufactured in Midland, North Carolina, U.S.A. by Carriff Corporation. Product SKU's not containing the suffix "C" are manufactured in London, Ontario, Canada by Carriff Canada. Both firms are wholly owned subsidiaries of Carriff Engineered Fabrics Corporation.
- 5) The information provided on this data sheet is provided by Carriff Engineered Fabrics Corporation (CEFC) at no cost and without liability on the part of CEFC or its subsidiaries, Carriff Canada and Carriff Corporation (the Manufacturers). The individual using this information assumes full responsibility for its application and agrees to contact the manufacturers to ensure that this Data Sheet is the most recent version available. Furthermore, CEFC and its subsidiaries, offer no guarantee as to the use, installation or suitability of the products described in this document. Since conditions surrounding the use and handling of these products can vary and are beyond the control of the manufacturer, they can in no way be held responsible for the performance of the products, nor consequences arising from their improper installation or use. The manufacturer must be informed of any product defect or deficiency found, prior to the products use or installation. The liability of CEFC and its subsidiaries is limited to the refund of or replacement of the deficient or defective product.

CARRIFF CANADA and CARRIFF CORPORATION are WHOLLY OWNED SUBSIDIARIES OF CARRIFF ENGINEERED FABRICS CORPORATION, DELAWARE U.S.A.

"SOCK" and "DRAIN-SLEEVE" are trademarks of CARRIFF ENGINEERED FABRICS CORPORATION