



# Green Shores for Homes Credit Interpretations April 2018





# Green Shores for Homes

## Credit Interpretations (April 2018)



This document contains interpretations to augment the Green Shores for Homes Credits and Ratings Guide (January 2016). These interpretations are intended to address issues or answer questions that have arisen in the first two years of implementation of the GSH Credits and Ratings System. Some credits (marked with an asterisk below) have been revised substantially, requiring revisions to the applicable submittal forms in the Credits Checklist.

**MAKE SURE TO USE THE REVISED VERSION OF THE CREDITS CHECKLIST DATED APRIL 2018.**

Introduction .....	1
Application Requirement: Critical or Sensitive Habitats .....	2
Credit 1.1 No Protection Structures .....	3
Credit 1.2 Setback* .....	4
Credit 1.3 Bulkhead Removal .....	6
Credit 1.4 Groin Removal .....	6
Credit 1.5 Soft Shore Protection .....	7
Credit 1.6 Managed Retreat .....	8
Credit 2.1 Riparian Vegetation* .....	9
Credit 2.2 Trees and Snags .....	10
Credit 2.3 Invasive Species .....	10
Credit 2.4 Woody Material* .....	11
Credit 2.5 Overwater Structures* .....	12
Credit 2.6 Access Design .....	13
Credit 3.1 Site Disturbance* .....	13
Credit 3.2 Reduce and Treat Runoff* .....	14
Credit 3.5 Herbicides, Pesticides and Fertilizers.....	14
Credit 3.6 On-site Sewage Treatment* .....	15
Credit 4.1 Shoreline Collaboration .....	16
Credit 4.2 Public Information and Education .....	17
Glossary .....	18





## Introduction

### ***Issue: GSH and Climate Change***

The GSH credit and rating system does not include a specific requirement for projects to address predicted sea level rise (SLR) associated with climate change. As such, although Green Shores approaches can be used to address SLR, the GSH credit and rating system does not attempt to address the technical requirements to fully deal with SLR effects. Nor does the program provide the associated expertise to verify that any given project rated under the GSH system will protect adequately against SLR. Hence, many GSH certified projects will not address SLR and may lack the required engineering analysis to do so.

### **Answer: Additional Text to be added to the GSH Guide:**

The next version of the GSH Guide shall be clear on this issue by incorporating the following text in the Introduction (bottom of page 2 in the current version):

“The GSH credit and rating system does not include a specific credit or requirement for projects to address predicted sea level rise (SLR) associated with climate change. SLR is referenced in Credit 1.2 Setback as one of its Basic Points options, and in Credit 1.6 Managed Retreat as a bonus point. Both these credits address potential effects of SLR on structures but not on the shoreline itself.

Although Green Shores approaches can be used to address SLR, the GSH Guide and rating system does not attempt to address the more complex coastal engineering needed to fully deal with SLR effects. Nor does the program provide the associated expertise to verify that any given project rated under the GSH system will protect adequately against SLR. Both the design and verification for projected SLR require a higher level of coastal expertise than Various levels of governments are developing guidance and regulations that address projected SLR. Applicants are encouraged to meet or exceed such guidance.”

## Application Requirement: Critical or Sensitive Habitats

**Question:**

*Does a critical or sensitive habitat have to be on my property to be accounted for in the requirement?*

**Answer:**

The critical habitats listed under this credit on p. 21 – 22 of the Guide (e.g., eelgrass beds, fish spawning areas, shellfish beds, marshes, estuaries, etc.) may occur on or immediately adjacent to the project site. If present, these habitats should be shown on the Existing Conditions Plan; and the Site Design Plan or Environmental Management Plan should indicate how impacts to these areas will be avoided.

Areas that are *designated* environmentally sensitive or significant areas, such as provincial Wildlife Management Areas in B.C., may encompass a larger area in your region, and may have specific regulations associated with them. Property owners should check whether their property falls within one of these designated areas and design their project to meet applicable regulatory requirements.

## Credit 1.1 No Protection Structures

**Question:**

*Is constructing a soft shore (i.e., beach nourishment) considered a protection structure?*

**Answer:**

Yes: while perhaps not a 'structure' in the hard sense, beach nourishment is still a human-made protection measure. To qualify for this credit, there must be no bulkheads, groins, beach nourishment or other shore protection measures taken on the shoreline, and none proposed for the foreseeable future. (Note: this credit will be renamed "No Protection Measures" in the next edition of the Credits and Ratings System.)

**Question:**

*Which credits cannot be applied for in combination with this credit?*

**Answer:**

This credit **CANNOT** be combined with:

- Credit 1.3 Bulkhead Removal; you cannot get points for this credit once a bulkhead or other shore protection structure is removed.
- Credit 1.5 Soft Shore Protection; credit 1.5 refers to creating a soft shore as a protective measure whereas this credit refers to leaving a natural shore (soft or hard) alone.

**Question:**

*What if my shore is part bedrock and part sediment?*

**Answer:**

If the shore is partially bedrock and partially sediment-based, determine the points based on the proportion of each shore type - i.e., (proportion bedrock x 10) + (proportion sediment x 15) = total points

E.G.: if on a 100 ft. shoreline:

60 ft is bedrock -  $0.60 \times 10 = 6$  points

40 ft is sediment -  $0.40 \times 15 = 6$  points

Total points applied for = 12 points

## Credit 1.2 Setback

**NOTE:** *The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.*

**Question:**

*To what types of buildings does this credit apply?*

**Answer:**

This credit applies to “Major Buildings”, which are permanent houses/dwellings or building intended for human habitation. Hence, the setbacks required to achieve points apply only to major buildings. They do not apply to “Minor Buildings”, which are secondary buildings that are not intended for human habitation such as a garage, shed, gazebo, patio, deck, etc.

**Question:**

*What if I meet the regulatory setback as well as anticipated sea level rise (SLR) but not the 75 year setback?*

**Answer:**

We realize that the current credit does not allow for this combination of factors. Therefore, we have revised this credit to separate SLR from a 75-year setback requirement (see next page):



Credit Requirements	Points available
<p><b>Current Regulatory Setback:</b> meet the setback from the Ordinary High Water Mark (OHWM) or Natural Boundary (NB) currently required in your local jurisdiction with no variance or relaxation from that requirement. This setback may be specified in a zoning regulation, shoreline development or habitat protection regulation, or be determined on a site-specific basis by local regulators.</p>	3
<p><b>Add SLR:</b> For a marine shoreline, along with the regulatory setback, show that the setback also reflects changes in the level or location of the OHWM based on the predicted sea level rise (SLR) used by the local jurisdiction. Use a 3-foot/1-meter SLR if there are no specific predictions for your area.</p>	4
<p><b>Or, instead of accounting for SLR:</b></p>	
<p><b>75-year Setback:</b> meet the distance from OHWM/NB needed to allow for natural beach/bluff processes, without armoring or other shoreline protective action, over 75 years or the life of the building, whichever is greater. Calculate this distance based on an erosion rate estimate for the site provided by a qualified source such as a Qualified Coastal Professional. OR If there are no data available to estimate an erosion rate, provide a 75-year setback required by the local jurisdiction or <b>minimum 75 feet (25 m), whichever is greater.</b></p>	6
<p><b>BONUS:</b> Apply the SLR or 75-year setbacks above on a <b>feeder bluff</b> site (see Guide sec. 2.2 or Glossary for definition of a feeder bluff. This bonus point is to encourage the maintenance of a feeder bluff sediment input and to maintain the habitats of a bluff-beach system.</p>	1
<p><b>Maximum points available (i.e., 3+6+1):</b></p>	<b>10</b>

### Credit 1.3 Bulkhead Removal

**Question:**

*Which credits cannot be applied for in combination with this credit?*

**Answer:**

Note that this Credit CANNOT be combined with:

- Credit 1.1 No Shoreline Protection Measures; i.e., you cannot get points for Credit 1.1 once a bulkhead or other shore protection is removed.
- Credit 1.5 "Soft Shore Protection" EXCEPT if a bulkhead is removed from one portion of the shoreline (this Credit) and another portion of the shoreline that was previously unprotected is treated with soft shore methods (Credit 1.5).

NOTE that if you have a shoreline that is part bulkhead removal and part soft shore protection and are applying for both credits 1.3 and 1.5, you can apply for the bonus points regarding spawning habitat and a monitoring plan under one of these credits only, not both.

### Credit 1.4 Groin Removal

**Question:**

*Which credits cannot be applied for in combination with this credit?*

**Answer:**

This Credit CANNOT be combined with Credit 1.1 No Shoreline Protection Measures; i.e., you cannot get points for Credit 1.1 once a groin or other shore protection structure is removed. However, this credit CAN be combined with Credit 1.3 Bulkhead Removal (if a bulkhead is also removed) or Credit 1.5 Soft Shore Protection or Enhancement (if a soft shore is also constructed).

## Credit 1.5 Soft Shore Protection

**Question:**

*Which credits cannot be combined with this credit?*

**Answer:**

This credit CANNOT be combined with:

- Credit 1.1 No Shoreline Protection Measures: this Credit refers to creating a soft shore as a protective measure whereas Credit 1.1 refers to leaving a natural shore (soft or hard) alone.
- Credit 1.3 Bulkhead Removal: you cannot get points for this credit as well as for a bulkhead removal EXCEPT if a bulkhead is removed from one portion of the shoreline (Credit 1.3) and another portion of the shoreline that was previously unprotected is treated with soft shore methods (this credit).

NOTE that if you have a shoreline that is part bulkhead removal and part soft shore protection and are applying for both credits 1.3 and 1.5, you can apply for the bonus points regarding spawning habitat and a monitoring plan under one of these credits only, not both.

**Question:**

*Can there be hard elements (e.g., riprap) in a soft shore project?*

**Answer:**

Yes. Buried bulkheads or revetments are a type of 'hybrid' soft shore, where the hard elements are buried below a substantial soft surface that mimics the surrounding soft beach environment.

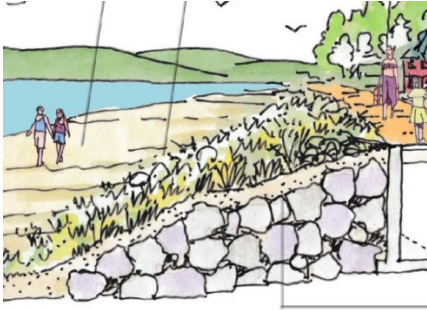
For this type of design, the revetment should not be buried minimally with easily erodible materials that will rapidly be lost. Such designs could quickly become exposed "hard armour" shorelines in the years following construction, and thereby no longer qualify as soft shore designs.

To prevent this, hybrid soft shores must be designed by a Qualified Coastal Professional (see Glossary for definition) and should meet the following criteria:

- The buried revetment should be intended only as additional protection against an extreme sequence of consecutive storm events that could excessively damage a soft shore between maintenance cycles.
- The soft shore should be designed to cover hard elements for a minimum of ten (10) years without anticipated re-nourishment or maintenance for typical seasonal conditions.

Examples of hybrid soft shores (see next page):

## Examples of hybrid soft shores



Adapted from Town of Qualicum Beach  
Waterfront Master Plan, 2016. P.6



From Zelo, I., H. Shipman and J. Brennan. 2000. Alternative Bank Protection Methods  
for Puget Sound Shorelines. Wash. Dept. Ecology Pub.# 00-06-012. P.57,58.

## Credit 1.6 Managed Retreat

### **Question:**

*To what types of buildings does this credit apply?*

### **Answer:**

This credit applies to both Major Buildings (permanent houses or buildings used for human habitation) and Minor Buildings (secondary buildings not intended for human habitation such as a garage, shed, boathouse, gazebo, patio, deck, etc.).



## Credit 2.1 Riparian Vegetation

**NOTE:** The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.

**Issue:**

This credit specifies what percentage of the riparian buffer must be occupied by existing or new riparian vegetation to achieve points, with higher percentages required on lots  $> \frac{1}{4}$  acre than on lots  $\leq \frac{1}{4}$  acre. However, the percentages for lots  $> \frac{1}{4}$  acre have been found to be too stringent to attain; i.e., there are cases where no points could be awarded even though there was a significant improvement over the existing vegetation condition.

**Answer:**

The differentiation between  $\leq \frac{1}{4}$  acre and  $> \frac{1}{4}$  acre lot sizes is removed and the % of riparian buffer associated with  $\leq \frac{1}{4}$  acre lots is applied to all cases.

**Question:**

*Do the points for retaining or planting emergent vegetation apply to marine (saltwater) shores?*

**Answer:**

Emergent vegetation is defined as vegetation that grows in partially submerged conditions in freshwater or estuarine/brackish environments. Examples of emergent plants are: cattails (*Typhus* spp.), bulrushes (*Scirpus* spp.) and sedges (*Carex* spp.) in freshwater environments; and sedges, pickleweed (*Salicornia* spp.) and salt grass (*Distichis* spp.) in estuarine environments. Marine intertidal vegetation such as rockweed (*Fucus*) and eelgrass (*Zostera*) are not considered to be emergent vegetation with respect to this riparian vegetation credit.

In addition, points for retaining or planting emergent and/or overhanging vegetation in the riparian buffer are simplified to just 2 categories ( $>50\%$  and  $20-49\%$  of the shoreline) and available points are reduced to avoid 'double counting' with Credit 2.2 Trees and Snags.

**Question:**

*What are minimum densities for plantings in the riparian buffer required to meet this credit?*

**Answer:**

Planting density can vary considerably depending on factors such as aesthetics, nursery stock size at the time of planting and expected mature plant size. As a guide for typical riparian vegetation restoration plantings, plants should be no further apart (on center) than:

- grasses and forbs – 1-2ft/0.3-0.6m using 4" pots or 2-3ft/0.6-0.9m using 1 gallon pots or larger;
- shrubs - 3-5ft/1-1.5m depending on species and using minimum 2 gallon pots;
- trees - 10-14ft/ 3-4m depending on species and using minimum 5 gallon pots.

Note that clustering of trees and shrubs within the designated riparian zone is permitted as long as the overall plant densities follow the guidance provided above. Time Saver Standards for Landscape Architecture 2<sup>nd</sup> Edition (C. Harris & N. Dines, 1998) provides additional information on planting density calculations, typical plant sizes, etc. The Canadian Landscape Standard First Edition (2016), produced by the Canadian Nursery & Landscape Association (CNLA) and the Canadian Society of Landscape Architects (CSLA), is a Canadian standards reference that has a section on planting and nursery stock quality standards.

### Credit 2.2 Trees and Snags

**Note:** The bonus point for installing nest boxes is eliminated.

### Credit 2.3 Invasive Species

**Question:**

*Does removal of submerged (underwater) or emergent invasive plants score any points under credit 2.3?*

**Answer:**

Invasive species in this credit refers to invasive plants above the Ordinary High Water Mark (OHWM); i.e., in the riparian and upland portions of a property. At this time, removal of invasive species below the OHWM in fresh or marine systems is not addressed by this credit.

## Credit 2.4 Woody Material

**NOTE:** *The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.*

**Question:**

*Can points be awarded for woody material that may be recruited to the project site by natural forces after construction but before final verification?*

**Answer:**

Woody material includes trees, branches and stumps that have naturally washed up onto the beach or fallen into the water. For this credit, it includes woody material that occurs on the beach prior to construction and/or is added as part of the shoreline design. It does not include woody material that is 'recruited' by natural processes after the project has been completed.

**Question:**

*What if existing woody material is moved, stockpiled and then replaced as part of constructing a soft shore?*

**Answer:**

Points can still be achieved if it is necessary to remove, stockpile and replace existing natural woody material – the same as though that material was maintained on the shore.

**Issue:**

*Basing points on % of shoreline occupied by woody material gives an unfair advantage to properties with short shorelines; e.g., it may take only 1 log to occupy 30% of a 20 m shoreline but several logs for a 60 m shoreline.*

**Answer:**

The basis for points has been changed to actual length of shoreline: 1 pt per 30 ft/10 m of length of shoreline occupied by added woody material, to a maximum of 3 points

**Question:**

*Does removal of garbage/human-made debris such as discarded metal, plastic, styrofoam, etc. score any points?*

**Answer:**

A Bonus point is added to this credit for the removal of a significant amount of refuse/garbage from the beach above and below the OHWM; e.g., 20 kg/50 lb. of metal, 60 l/ 2 ft<sup>3</sup> of styrofoam or similar material. As much as possible, such material must be disposed of in appropriate recycling facilities.

## Credit 2.5 Overwater Structures

**NOTE:** The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.

**Issue:**

The “no pre-existing/no new” overwater structures (OS) category in this credit is problematic in that a large number of points (8) could be attained where site conditions or regulations make it not feasible to have an OS in the first place.

**Answer:**

This credit is revised to apply only to sites where circumstances support the construction and operation of an overwater structure. If the site meets the following criteria, an applicant can apply for points under this credit:

1. Local regulations allow the construction of overwater structures in the area of interest;
2. Appropriate regulatory approvals have been obtained, including demonstration that the dock design and construction does not impact sensitive or critical habitats; and
3. The shoreline conditions make the construction and operation of an overwater structure feasible – i.e., the site is not subject to high wave exposure, strong currents, breaking waves and swell.

In the event of a disagreement between the applicant and the verifier regarding criterion #3, the applicant can have a wave and current analysis conducted by a *qualified coastal professional* (see Glossary for definition) that confirms the following:<sup>1</sup>

- a. The site is not subject to high wave exposure (a sea state that exceeds 30 cm/1 ft wave height more than 2% of the time).
- b. The site is not subject to strong currents (currents that exceed 0.60m/sec or 2 ft/sec, either seasonally in freshwater or tidally in marine water).
- c. The site is not subject to breaking waves or swell waves (waves with heights exceeding 0.15m/0.5 ft at wave periods less than 1 minute).

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<sup>1</sup> Sources for specifications: Fisheries and Oceans Canada, Small Craft Harbour Accommodations Guidelines; American Society of Civil Engineers, Small Craft Harbour Guidelines.



## Credit 2.6 Access Design

**NOTE:** *The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.*

**Question:**

*What if an existing access already meets the Best Practices outlined in the Guide?*

**Answer:**

This credit has been revised to recognize that having an existing access that meets Best Practices as well as replacing an existing access or building a new access in a manner that conforms to Best Practices for access design, are all eligible for 1 point.

## Credit 3.1 Site Disturbance

**NOTE:** *The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.*

**Issue:**

*The current credit is structured to differentiate between projects on undeveloped (greenfield) sites and previously developed sites. However, in most of shore projects we have looked at to date, the main factor in assessing site disturbance is that the project involves the whole property.*

**Answer:**

This credit has been restructured to apply to whole-site development only.

### Credit 3.2 Reduce and Treat Runoff

**NOTE:** The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.

**Issue:**

In the current credit, “Treated Area” is erroneously calculated as the area of surface runoff treatment features used on a site. The correct approach is to determine the area of impervious surface area that is drained to a properly designed runoff treatment feature.

**Answer:**

The submittal sheet is revised to reflect the correct approach to determining Treated Area. Impervious surface area (ISA) on a site refers to all areas that are impermeable, human made surfaces, such as conventional roofs, conventional pavement, concrete, etc.

Green roofs and absorbent landscapes, being permeable, should not be included in calculating ISA, but they do not receive and treat runoff from other impervious areas of the site.

However, rain gardens and pervious paving, properly designed, are intended to receive and treat runoff from impervious surfaces. Treated Area is the portions of ISA that drain into these features. Note that pervious pavement can absorb runoff from ISA up to a 2:1 ratio; e.g., 100m<sup>2</sup> of pervious pavement can absorb/treat 200m<sup>2</sup> of area drained to it. Properly designed rain gardens can treat directed runoff from ISA areas up to a 20:1 ratio.

Therefore, the Effective Impervious Area Calculation Table in the Submittal sheet for this credit is revised as follows:

	m <sup>2</sup> or ft <sup>2</sup>
<b>Lot Area</b>	
<b>Impervious Surface Area (ISA)</b>	
<b>Treated Area:</b>	
Rain Garden (portion of ISA diverted, up to 20X area of rain garden)	
Pervious paving (portion of ISA diverted, up to 2X area of pervious paving)	
Other (state method)	
<b>Total Treated Area</b>	<b>= ISA-Treated Area</b>
<b>Effective Impervious Surface Area (%)</b>	<b>=ISA-Treated Area/ Lot Area</b>

### Credit 3.5 Herbicides, Pesticides and Fertilizers

**Note:** the Landscape Maintenance Checklist can now be ‘checked off’ electronically in the column marked “X”.

## Credit 3.6 On-site Sewage Treatment

**NOTE:** The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.

**Issue:**

*Demand has grown in recent years to armor waterfront properties to protect water-side septic tanks and drainage fields from coastal erosion. In many cases, such on-site systems were installed before adequate setbacks from the shoreline were established.*

**Answer:**

The Submission Requirements in the worksheet for this credit are revised to require that existing or new on-site sewage treatment systems meet the current standards or regulations for distance from a shoreline of the applicable local jurisdiction, or a minimum 15m/50 ft, whichever is greater.

For example, in BC, the following setback distances are set out in the “Sewerage System Standard Practice Manual Version 3 (September 2014)” established under the Provincial Sewerage System Regulation (page II-31):

	Distance from Dispersal System	Distance from watertight treatment or pump tank
For permanent fresh water body, measured from the high water mark	30 m	10 m
For marine water body, measured from the mean high tide	15 m	7.5 m

Therefore, GSH projects in BC with on-site treatment systems need to meet these standards in order to achieve points under this credit. Standards may vary in other jurisdictions.

**Issue:**

*Some waterfront landowners may voluntarily relocate their sewage treatment systems away from the shoreline or replace their existing system to avoid the risk of erosion – a form of “managed retreat” for these systems. This should be acknowledged in the credit system.*

**Answer:**

Points are now available (see revised Submittal worksheet) for relocating or replacing an on-site sewage treatment system, provided it meets or exceeds the setbacks specified by local regulations or the minimum setback specified above. Note that there are onsite treatment systems that do not require the large dispersal fields associated with traditional septic systems. These systems may be more suitable for some waterfront properties than the traditional septic and drain field systems.

## Credit 4.1 Shoreline Collaboration

**Question:**

*Should shoreline projects that are being constructed collaboratively across 2 or more properties be rated collectively (i.e., 1 rating for all properties involved), or property by property?*

**Answer:**

In general, a collective application is always encouraged if the shoreline project is contiguous and comparable across all properties involved. However, whether collaborating properties/owners are rated individually or collectively would depend on the nature of the projects and/or interest of the owners involved:

- If only some of the owners are interested in being rated and they are not contiguous, then rating would be on an individual basis.
- If all owners are keen to be rated, then a collective application should be encouraged.
- However, if one or a subset of the properties involves more development than the collaborative shoreline project (e.g., upland redevelopment) and that development could be eligible for credits, there should likely be an independent application for the property with additional, eligible development activities.



## Credit 4.2 Public Information and Education

**NOTE:** The Submittal form for this credit has been revised; make sure to use the April 2018 version of the Credits Checklist.

**Question:**

*A maximum of 2 points seems inadequate if a variety of 3 or more public information measures are undertaken.*

**Answer:**

Agreed. This credit is revised to allow a maximum of 3 points as follows:

Public Information and Education	Base points
Provide one public education measure regarding your shoreline project; OR	<b>1</b>
Provide two or more public education measures regarding your shoreline project; OR	<b>2</b>
{NEW} Provide 3 or more public education measures, one of which is hosting an on-site open house or public demonstration about your shoreline project.	<b>3</b>

## Glossary

The following definitions are added:

Qualified Coastal Professional – an engineer, geoscientist or geotechnical engineer in good standing with her/his professional organization, acting within her/his abilities and with demonstrated experience and/or training pertaining to shore protection and coastal processes.

Qualified Environmental Professional – a profession habitat biologist, landscape architect, environmental land use planner or other suitably qualified professional in good standing with his/her professional organization, acting within her/his professional abilities with expertise in marine coastal ecology and habitat function.

When the term “Qualified Professional” appears in the current Guide or Submittal worksheets, unless specified otherwise, use the appropriate definition from above, depending on the context.

[When the Guide undergoes a full revision, a global search and edit for “qualified professional” will be done to insert the appropriate terms.]