

Appendix D

Low Impact Development Consistency Analysis

Consistency with the Low Impact Design Handbook

All Priority and Standard projects as identified in this manual must be consistent with the Low Impact Design Handbook. To achieve consistency, a project must earn a minimum of 15 credits (18 credits for rural development).

Consistency	Credits Single Family Residence	Credits Urbanized Development	Credits Rural Development
Inconsistent. The project is inconsistent with the LID Handbook.	0-14	0-14	0-17
Consistent. The project is consistent with the LID Handbook.	15-25	15-25	18-25
Exemplary. The project meets and exceeds compliance with the LID Handbook.	26+	26+	26+

Single Family Residence – is any Priority or Standard Project proposing a single family residence, secondary residence, and/or residential accessory structures. Subdivisions of 10 or more units do not fall under this category

Urbanized Development – includes any Priority or Standard Project (other than a single-family residence) occurring within an urban or village reserve line.

Rural Development – includes any Priority or Standard Project (other than a single-family residence) occurring outside of urban and village reserve lines.

Inconsistent

If the project earns less than 15 credits (18 credits for rural development), the project would be considered inconsistent with the LID Handbook. The project must incorporate additional LID measures to achieve 15 (or 18) credits, or may pursue waiver or modification (see “Waiver or Modification” heading on the following page). Projects which fail to meet one or more of the prerequisites would also be considered inconsistent. Prerequisites include the following:

- *Construction Activity Pollution Prevention* – see Prerequisite A.1 in Part A
- *Mark Public Storm Drain Inlets* – see Prerequisite C.1 in Part C
- *Biological, Archaeological, and Geological Special Areas* – see Prerequisite D.1 in Part D
- *Treatment Design Standards* – see Prerequisite E.1 in Part E (does not apply to Standard Projects)
- *Receiving Water Limitations (TMDLs)* – see Prerequisite E.2 in Part E
- *Basins: Peak Storm Water Discharge Runoff Rates* – see Credit E.5.1 in Part E (does not apply to Standard Projects)
- Source Control Credits C.2 through C.8 are required for Priority Projects where applicable to the proposed use.

Consistent

Projects earning between 15 and 25 credits (between 18 and 25 credits for rural development) are considered consistent with the LID Handbook. To qualify as consistent, the project must also meet all of the prerequisite requirements. All LID techniques proposed by the applicant to qualify for these credits will be carried over through the project's conditions of approval. While projects earning 18 or more credits are considered consistent with the LID Handbook, the Review Authority does retain its ability, through the discretionary review process, to require incorporation of additional LID techniques.

Exemplary

Projects earning 26 or more credits (in addition to prerequisites) are considered *exemplary*. These projects not only meet, but exceed compliance with the LID Handbook. Exemplary status will be noted in project staff reports, and a certificate from the Department of Planning and Building will be awarded upon final inspections. Applicants awarded exemplary status may reference this feature in the marketing of their developments, and may, at their option and expense, install a placard with the County logo noting that the project has been certified by the County as an exemplary LID project. County Planning may explore other incentives for exemplary projects.

Waiver or Modification

In certain circumstances, a project may not be able to achieve the minimum required 15 credits (18 credits for rural development) to qualify as consistent with the LID Handbook. This can be due to such issues as site constraints. In these circumstances, the applicant may request that the Review Authority process a waiver or modification of the standard LID requirements. The waiver or modification shall follow the procedure identified in LUO Section 22.10.155I and CZLUO Section 23.04.450.i.

In order to authorize the waiver or modification, the Review Authority must first find that:

- All other structural or treatment Best Management Practices (BMPs) have been considered and rejected as infeasible; and
- Adherence to LID Handbook consistency is impracticable for the project site because of one or more of the following reasons:
 - Extreme limitations of space for treatment on a redevelopment project.
 - Soil conditions at a site, which are unstable or unfavorable for infiltration.
 - Risk of groundwater contamination because a known unconfined aquifer lies beneath the land less than 10 feet from the soil surface.
 - Strict application of LID Measures would not result in an enhancement of water quality, and where other appropriate treatment control and/or source control measures will be used.

Examples of cases where waiver or modification may be suitable include the following;

- Projects where the site has only clayey soils which are impermeable and non-conductive to using such practices as retention basins and biofiltration, and where there is no other suitable alternative.
- A change in use in an existing development – such as a new restaurant occupying a tenancy in an existing commercial development. In these cases, BMPs must be put in place to control for use-specific pollutants (e.g. oils, greases, etc.), but larger site design measures may not be warranted.

All waiver of modification requests must be accompanied by written justification, including a description of cause for rejecting individual BMPs as infeasible.

LID Scorecard

As specified in Chapter 3, the applicant is required to submit an LID Scorecard and associated information to demonstrate how the project will obtain the requisite number of credits. The LID Scorecard (Pages D-4 and D-5) should be used throughout the design and development of your building project to track your anticipated LID score.

This scorecard will also be available in spreadsheet format on County Planning's website. The spreadsheet automatically dates each printout to give you a snapshot of your LID score as your project progresses. The active spreadsheet sums the credit points for each category and provides a total score for the project. Do not input values in the category subtotal or in the project total fields as this will be done automatically.

The prerequisites are required and must be achieved. Thus, a "Y" appears in the appropriate column for each prerequisite. Beside each credit are three boxes to indicate the likelihood of achieving each credit. To score the project appropriately, input the number of points for that credit into the first column labeled "Y" if this credit will be pursued. Input the number of points in the second column labeled "?" if it is unsure if this credit will be pursued. Finally, input the number of points in the third column labeled "N" if this credit will not be pursued or is not applicable to the project. The possible points available for each credit are shown in the far right column in each category.

For each credit, provide a brief discussion of strategies considered for obtaining the credit, and reference the location within the project plans (i.e. sheet number) where the measure can be found. If the credit is not being pursued, provide justification for limitations of the project that prevent the credit from being achieved.

A more detailed discussion of each of the credits, what submittals are required, and what criteria are used to determine whether the credit has been earned, is provided starting on page D-6.

Determination of Credits

The applicant is responsible to demonstrate how they comply with the criteria specified in this document in order to earn each credit. County Planning and Building staff will review the applicant's documentation in consultation with the Department of Public Works. During the 30-day completeness review period, staff will request any additional information necessary to confirm whether or not the project qualifies for each credit. Prior to acceptance of a project for processing, staff will inform the applicant of which credits they have successfully earned or what design modifications would be necessary to achieve the credit. Staff's determinations will serve as a recommendation to the Review Authority. The ultimate determination pertaining to credits rests with the Review Authority.

In some cases, multiple credits may be earned under one credit heading. In these cases, credits are cumulative unless otherwise specified. For example, a project proposing roof catchment of 90 percent would earn three credits: Credits B.6.1, B.6.2, and B.6.3. In other cases, one design feature may qualify for multiple different credits. For example, a project using roof catchment (Credit B.6) may also earn a credit for segregation of clean water (Credit C.13).

LID Registered Project Checklist **PRELIMINARY DRAFT** (December 2009)

Project Name

Project Location

Instructions

Yes	?	No		Priority Projects	Standard Projects	Reference
			A. Soils	9 Points	9 Points	
Y			Prereq 1 Construction Activity Pollution Prevention	Required	Required if >1 ac	N/A
			Credit 1.1 Conserve Top Soil, 50%	1	1	4.2.5
			Credit 1.2 Conserve Top Soil, 75%	1	1	4.2.5
			Credit 2.1 Restore Top Soil, 50%	1	1	4.2.5, 4.4.3
			Credit 2.2 Restore Top Soil, 75%	1	1	4.2.5, 4.4.3
			Credit 3 Conserve Well Draining Soils	1	1	N/A
			Credit 4.1 Retention Grading, 75%	1	1	4.4.4a
			Credit 4.2 Retention Grading, 90%	1	1	4.4.4a
			Credit 4.3 Retention Grading, Distribution	1	1	4.4.4a
			Credit 5 Landform Grading	1	1	4.2.2
Yes	?	No				
			B. Impervious Surfaces	17 Points	17 Points	
			Credit 1.1 Rational Coefficient, Proposed = Existing	1	1	Appendix F (Part 2)
			Credit 1.2 Rational Coefficient, Proposed < Existing	1	1	Appendix F (Part 2)
			Credit 1.3 Rational Coefficient, Proposed = Pre-developed	1	1	Appendix F (Part 2)
			Credit 1.4 Rational Coefficient, Proposed < Pre-developed	1	1	Appendix F (Part 2)
			Credit 2.1 Alternative Parking Arrangements, Covered Parking	1	1	4.2.4
			Credit 2.2 Alternative Parking Arrangements, Reduce Parking Area	1	1	4.2.4, 4.3.5
			Credit 3.1 Disconnect Impervious Surfaces, 50%	1	1	4.3.2 - 4.3.4, 4.4.2, 4.4.4c, 4.4.4e, 4.4.5
			Credit 3.2 Disconnect Impervious Surfaces, 75%	1	1	4.3.2 - 4.3.4, 4.4.2, 4.4.4c, 4.4.4e, 4.4.5
			Credit 3.3 Disconnect Impervious Surfaces, >90%	1	1	4.3.2 - 4.3.4, 4.4.2, 4.4.4c, 4.4.4e, 4.4.5
			Credit 4.1 Cluster Development/Street Layout	1	1	4.2.3
			Credit 4.2 Cluster Development/Street Layout	1	1	4.2.3
			Credit 4.3 Cluster Development/Street Layout	1	1	4.2.3, 4.3.1
			Credit 5 Reduce Building Footprint/Foundation Excavation	1	1	4.4.1
			Credit 6.1 Roof Catchment Systems, 50%	1	1	4.4.4, 4.4.4b, 4.4.4d
			Credit 6.2 Roof Catchment Systems, 75%	1	1	4.4.4, 4.4.4b, 4.4.4d
			Credit 6.3 Roof Catchment Systems, >90%	1	1	4.4.4, 4.4.4b, 4.4.4d
			Credit 7 Day Lighting Stormwater Conveyance Facilities	1	1	4.3.2
Yes	?	No				
			C. Source Controls	6 Points	14 Points	
Y			Prereq 1 Mark Public Storm Drain Inlets	Required	Required	5.2.1
			Credit 1 Public Education	1	1	N/A
			Credit 2 Proof of Maintenance	Required	1	Chapter 8
			Credit 3 Fueling Areas	Required*	1	5.3.1
			Credit 4 Maintenance Bays	Required*	1	5.3.2
			Credit 5 Loading Docks	Required*	1	5.3.2

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6	Trash and Recycling Areas	Required*	1	5.3.3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7	Vehicle and Equipment Wash Areas	Required*	1	5.3.4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 8	Material Storage Areas	Required*	1	5.3.5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 9	Pools, Spas and Fountains	1	1	5.3.6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 10	Alternative Building Materials	1	1	4.4.6, 5.2.2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 11	Efficient Irrigation Systems and Landscape Designs	1	1	5.2.4
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 12	Outlet Energy Dissipaters	Required*	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 13	Clean Water Segregation	1	1	4.4.4b, 4.4.4d, 5.2.3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 14	Non-Structural Policy Implementation	1	1	5.3.8

Yes ? No

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D. Natural Systems		8 Points	9 Points	
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	Biological, archeological and geological special areas	Required	Required	4.2.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	Open Channels	1	1	4.3.2, 4.4.4c
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.1	Riparian Setbacks, 10%	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.2	Riparian Setbacks, 20%	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	In-Stream Improvements	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.1	Plant Interceptor Trees, 10%	1	1	4.3.6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.2	Plant Interceptor Trees, 30%	1	1	4.3.6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5.1	Basins: Peak Storm Water Runoff Discharge Rates	Required	1	4.3.3.c
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5.2	Basins: Mult-Stage Discharge	1	1	4.3.3.c
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6	Time of Concentration	1	1	Appendix F (Part 3)

Yes ? No

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E. Water Quality		4 Points	6 Points	
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	Treatment Design Standards	Required	1	Chapter 7
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 2	Receiving Water Limitations (TMDLs)	Required	Required	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	Additional WQ Treatment	1	1	Chapter 7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.1	Natural, Passive Treatment, 50%	1	1	Chapter 7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.2	Natural, Passive Treatment, 75%	1	1	Chapter 7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2.3	Natural, Passive Treatment, distribution per acre	1	1	Chapter 7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	Self-Treatment Areas	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	CPSWQ or other County approved training	1	1	N/A

Yes ? No

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F. Innovation & Design Process		6 Points	6 Points	
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.1	Innovation in Design - Soils	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.2	Innovation in Design - Impervious Surfaces	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.3	Innovation in Design - Source Controls	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.4	Innovation in Design - Natural Systems	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.5	Innovation in Design - Water Quality	1	1	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	Team Trained in LID	1	1	N/A

Yes ? No

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Project Totals (pre-certification estimates)		50 Points	61 Points	
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Summary of LID Scorecard Credits

PART A SOILS

PREREQUISITE A.1

CONSTRUCTION ACTIVITY POLLUTION PREVENTION

Priority: **REQUIRED**

Standard: **REQUIRED**

Reference – LUO Sections 22.52.110 through 22.52.150; CZLUO Sections 23.05.040 through 23.05.048.

Applicability – All projects.

Submittals – Applications should include the following submittals:

- Drainage plan.
- Erosion and sedimentation control plan.
- Stormwater Pollution Prevention Plan (SWPPP) [if required].
- Grading Plan (as applicable).

Criteria – Projects must be designed to ensure against construction-related stormwater discharge. Compliance will be verified through review of the above referenced submittals. Criteria for compliance are as established in Titles 22 and 23.

Exceptional Performance – An extra point under Credit F.1.1 may not be earned solely for exceptional performance concerning the construction-phase pollution prevention. The point may be earned for projects using exceptional construction-phase pollution prevention techniques only in combination with other exceptional and innovative techniques concerning Soils (Part A).

CREDIT A.1 CONSERVE TOP SOIL

Priority: **Voluntary (1-2 Points)**

Standard: **Voluntary (1-2 Points)**

Reference – Section 4.2.5

Applicability – All projects.

Submittals – Applications proposing to use Credit A.1 should include the following submittals:

- An area map and calculations showing the areas to be conserved, the areas slated for landscaping or designated as open space and the areas to be built upon.
- Project plans with construction fencing details and plan view that will bar vehicle access to top soil conservation areas.
- Records of inspection over the life of the project demonstrating that the Contractor protected the area so designated.

Criteria – Up to two credits may be earned under Credit A.1.

To earn Credit A.1.1, a project must conserve soil in place over at least 50 percent of the site and meet the following criteria:

- Stage project to limit equipment and stockpiling impacts to those areas that will be ultimately be converted to impervious areas as part of the project or concentrate development on previously disturbed sites.
- Use orange construction fencing to delineate work areas from conservation areas.

- Include soil conservation area as a topic in the pre-construction meeting with the Contractor.

To earn Credit A.1.2, a project must meet conserve soil in place over at least 75 percent of the site and meet the criteria specified above under Credit A.1.1.

Failure to Meet Criteria – Projects that conserve soil in place over less than 50 percent of the site will fail to meet this requirement. Soils that have been previously disturbed and do not share characteristics with of healthy native soils are ineligible to earn Credits 1.1 and 1.2 and should instead seek to restore the damaged soils through Soil Credit 2.1 and 2.2.

Exceptional Performance – An extra point under Credit F.1.1 may not be earned solely for exceptional performance concerning the protection of top soil. The point may be earned for projects preserving top soil over more than 75 percent of the site only in combination with other exceptional and innovative techniques concerning Soils (Part A).

Other Resources – *Protecting Urban Soil Quality: Examples for Landscape Codes and Specifications*¹ by Dallas Hanks and Ann Lewandowski, USDA-NRCS.

CREDIT A.2 RESTORE TOP SOIL

Priority: **Voluntary (1-2 Points)**

Standard: **Voluntary (1-2 Points)**

Reference – Sections 4.2.5 and 4.4.3

Applicability – All projects.

Submittals – Applications proposing to use Credit A.2 should include the following submittals:

- An area map and calculations showing the areas to be conserved, the areas slated for landscaping or designated as open space and the areas to be built upon.
- Project plans with delineation of areas to be amended.
- Provide records of inspection over the life of the project demonstrating that the Contractor restored the site soils over the area so designated.

Criteria – Up to two credits may be earned under Credit A.2.

To earn Credit A.2.1, a project must save and restore top soil, and incorporate soil amendments over at least 50 percent of the area with compacted soils (excluding structures). Additionally, the following criteria must be met:

- Cuts should have native top soil removed and stockpiled for replacement.
- Stockpile depths should not exceed 3 feet if left in place for more than 6 months.
- Top soil should be spread on slopes that have been tilled to a depth of 6 inches.
- Top soil should be placed in lifts not exceeding 1 foot.
- Compaction should be limited to the density of existing undisturbed areas.
- Soils that have been compromised due to overuse of pesticides and fertilizers or compacted as a result of previous land uses should be amended to restore the texture, structure and biology to that of undisturbed soils. Amended soils increase the infiltration capacity of the soil and can reduce runoff, the need for fertilizers, pesticides and irrigation.
- Existing undisturbed soils should not be amended.
- Avoid amending site soils during period of high rain or wind.
- Prevent and control erosion during the construction period through the use of an erosion and sediment control plan.

To earn Credit A.2.2, a project must meet earn Credit A.2.1, but the area of top soil to be amended must be at least 75 percent of the area with compacted soils (excluding structures).

Failure to Meet Criteria – Projects that do not save and restore topsoil and projects that amend soils over less than 50 percent of the compacted soils area will fail to earn these credits.

Exceptional Performance – An extra point under Credit F.1.1 may not be earned solely for exceptional performance concerning the restoration of top soil. The point may be earned for projects restoring top soil over more than 75 percent of the disturbed area only in combination with other exceptional and innovative techniques concerning Soils (Part A).

CREDIT A.3 CONSERVE WELL DRAINING SOILS

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – No reference.

Applicability – All projects where development on well-draining soils can be avoided. This credit can be earned where development can be accommodated on poorly draining soils or in previously developed areas.

Submittals – Applications proposing to use Credit A.3 should include the following submittals:

- A site plan showing the extent and location of NRCS hydrologic soil groups.
- A site plan showing the extent of previous development.

Criteria – To earn Credit A.3, a project must comply with one or more (or a combination) of the following:

- Development occurs entirely on soils in hydrologic soils group C or D; or
- Development occurs entirely in previously developed areas.

Failure to Meet Criteria – Projects that fail to earn this credit might involve development on soils in hydrologic soils group A or B, in a previously undeveloped area.

Exceptional Performance – An extra point under Credit F.1.1 may not be earned solely for exceptional performance concerning development on poorly drained soils. The point may be earned only in combination with other exceptional and innovative techniques concerning Soils (Part A).

CREDIT A.4 RETENTION GRADING

Priority: **Voluntary (1-3 Points)**

Standard: **Voluntary (1-3 Points)**

Reference – Section 4.4.4a; Appendix F, Part 1

Applicability – Projects in areas with permeable soils.

Submittals – Applications proposing to use Credit A.4 should include the following submittals:

- A grading plan showing the location of all proposed retention devices.
- An estimate of the volume of stormwater to be retained for each proposed retention device.
- An estimate of the area of the site being drained to retention devices.
- Support documentation to demonstrate that Steps 1 through 4 (Appendix F, Part 1) have been followed to determine appropriate retention grading design.
- Calculations showing stormwater retention volumes in the drainage report.
- Calculations as specified in the criteria section below.

Criteria – Up to three credits may be earned for retention grading.

Credit A.4.1 may be earned for projects retaining at least 75 percent of water. This percentage is to be based on project size and average annual rainfall (refer to calculation below). Additionally, retention devices must be designed in compliance with Appendix F, Part 1 of this document.

CALCULATION (A.4.1 and A.4.2)

1. Calculate the entire site area and the runoff generated from the depth of storm shown in the table in Appendix F, Part 1 (see “Hydrograph Analysis” heading).
2. Locate potential retention grading devices and delineate their tributary areas.
3. Size potential earthworks based on the volume of runoff anticipated. Use 40% void ratio for (uniformly graded) rock basins, mulch areas and for runoff retained in porous concrete or unit paver stone recharge beds. The volume of water that fills the soils pore space is not included in this credit.
4. Calculate the percent of runoff retained through retention grading efforts under this credit as follows:

$$[\text{Runoff Retained}] / [\text{Runoff Generated}] \times 100 = \text{Percent of runoff retained on site}$$

Credit A.4.2 may be earned in addition to A.4.1 for projects retaining at least 90 percent of water based on project size and average annual rainfall.

In order to earn Credit A.4.3, you must first earn Credit A.4.1, and must also design the project to disperse rainwater such that the average area drained to retention devices is less than 1 acre. The average area drained to retention devices may be calculated by taking the sum of the area drained to retention devices and dividing it by the number of retention devices.

Projects earning points under this credit may also be eligible for Credits D.5 (Basins) and D.6 (Time of Concentration).

Failure to Meet Criteria – Projects that fail to earn this credit might retain less than 75 percent of their drainage. Additionally projects in locations where retention is impracticable would not qualify for this credit.

Exceptional Performance – Projects which employ exceptional and innovative retention grading techniques may qualify to earn an extra point under Credit F.1.1. To qualify for this credit, 100 percent of water must be retained and design must be fully compliant with the specifications in Appendix F, Part 1.

CREDIT A.5 LANDFORM GRADING

Priority: **REQUIRED**

Standard: **REQUIRED**

Reference – Section 4.2.2

Applicability – All projects.

Submittals – Applications proposing to use Credit A.5 should provide grading plans, including estimated earthwork quantities.

Criteria – These criteria (as applicable) must be met to earn Credit A.5.

- Small pads or stepped foundations should be used for hillside development.
- Slopes should be rounded and natural-appearing.

- Cut and fill slopes should be designed to reduce velocity of flow (e.g. planted slopes, retaining walls, short slope runs, etc.).
- Pads should not be significantly raised above existing topography.
- Directly connected impervious areas should be avoided.
- Areas receiving runoff should be disked or amended prior to planting.
- Concentrated flow paths should have stable outlets.

Failure to Meet Criteria – Projects that fail to earn this point might have one or more the following features:

- Unnatural-appearing grading features, such as sharp angular cut and fill slopes.
- Large, flat, level pads in areas with steeply sloping natural terrain.
- Steep, unbroken cut and fill slopes.
- A large portion of the drainage to be conveyed through directly connected impervious surfaces.
- Inappropriately designed drainage systems.

Exceptional Performance – Projects which employ exceptional and innovative landform grading techniques may qualify to earn an extra point under Credit F.1.1. To qualify for this credit, the applicant must demonstrate how the grading design goes above and beyond the criteria in Section 4.2.2 and will result in an overall long-term improvement in water quality. Additionally, Prerequisite A.1 and Credits A.1.1, A.1.2, A.2.1, and A.2.2. (Protection of Top Soil) must also have been earned.

Other Resources – Schor, H. June 1980, “Landform Grading: Building Nature’s Slope.” Pacific Coast Builder, pp. 80-83²; *City of Encinitas Design Guidelines*, April 2005³

PART B IMPERVIOUS SURFACES

CREDIT B.1 RATIONAL COEFFICIENT

Priority: **Voluntary (1-4 Points)**

Standard: **Voluntary (4 Points)**

Reference – Appendix F, Part 2

Applicability – All projects.

Submittals – Applications proposing to use Credit B.1 should include the following submittals:

- Documentation of the percent of soil protected from compaction during construction activities.
- A spreadsheet of the composite rational coefficients based on an analysis of the site in discrete units such as driveways, roads, roofs, lawns, and natural vegetation areas (instead of larger categories) for the pre-developed condition, current condition, and post-developed condition.

Criteria – Up to four credits can be earned under Credit B.1.

Credit B.1.1 may be earned if the rational coefficient for the post-development condition is equal to the rational coefficient for the current condition.

Credit B.1.2 may be earned if the rational coefficient for the post-development condition is less than the rational coefficient for the current condition.

Credit B.1.3 may be earned if Credit B.1.2 is earned and the rational coefficient for the post development condition is equal to the rational coefficient for the pre-development condition.

Credit B.1.4 may be earned if Credit B.1.3 is earned and the rational coefficient for the post-development condition is less than the rational coefficient for the pre-development condition.

Failure to Meet Criteria – Projects that fail to earn this credit would have a post-development rational coefficient that is greater than the current rational coefficient.

Exceptional Performance – Projects which substantially reduce the post-development rational coefficient to a level that is less than 85 percent of the pre-development rational coefficient may qualify to earn an extra point under Credit F.1.2.

CREDIT B.2 ALTERNATIVE PARKING ARRANGEMENTS

Priority: **Voluntary (1-2 Points)**

Standard: **Voluntary (1-2 Points)**

Reference – Section 4.2.4 and 4.3.5

Applicability – All projects, but particularly applicable for urban infill development.

Submittals – Applications proposing to use Credit B.2 should include the following submittals:

- Site plan showing parking lot layout.
- Required parking calculations based on Title 22 or Title 23.
- Justification for any reductions in parking calculations, and any applications/submittals required by Titles 22/23 in order to reduce required parking (B.2.2 only).
- Calculations showing the percentage of parking area that is covered (B.2.1 only).
- Calculations showing the percentage of parking area using pervious surfacing (B.2.2 only).
- A drainage plan showing how parking lot/area drainage is being handled.

Criteria – Up to two credits may be earned under Credit B.2.

To earn Credit B.2.1 (Covered Parking), a project must meet these criteria (as applicable):

- 75 percent of parking spaces should be covered or enclosed.
- Downspouts should not discharge to impervious areas.

To earn Credit B.2.2 (Reduce Parking Area), a project must meet at least one of these three criteria:

- Reduce parking to 20 percent below the standard parking requirements established in Titles 22 and 23.
 - To qualify for parking reduction, a project must comply with the procedures established to waive or modify parking requirements in Titles 22 and 23.
 - Reducing parking areas may also be accomplished through shared parking agreements amongst uses which have different peak hour parking demands.
- Use pervious surfaces for all parking areas.
- Use bioretention areas in parking lots (i.e. concave planted areas) to the maximum extent practicable.

Failure to Meet Criteria – Projects that fail to earn these credits might have one or more the following features.

- All parking is uncovered. (Credit B.2.1)
- Carport downspouts drain to directly connected impervious areas. (Credit B.2.1)
- Parking lots are surfaced with impervious surfacing and do not drain to areas with treatment control measures (Credit B.2.2)
- The number of parking spaces has not been reduced to at least 20 percent below the number required by Title 22 and 23 (Credit B.2.2).

Exceptional Performance – Projects which employ exceptional and innovative alternative parking techniques may qualify to earn an extra point under Credit F.1.2. To qualify for this credit, the applicant must earn Credit B.2.2, and all of three of the criteria in Credit B.2.2 must be met. If also earning Credit B.2.1, only the uncovered spaces must use pervious surfacing.

CREDIT B.3 DISCONNECT IMPERVIOUS SURFACES

Priority: **Voluntary (1-3 Points)**

Standard: **Voluntary (1-3 Points)**

Reference – Section 4.4.2; additionally some techniques are discussed in Sections 4.3.2 through 4.3.4 and in Appendix F, Part 3.

Applicability – All projects.

Submittals – Applications proposing to use Credit B.3 should include the following submittals:

- Grading and drainage plans with delineated and quantified areas that drain to vegetation, the area draining to a MS4 system, and overland escape calculations.
- A spreadsheet with the basis for the percentage of impervious area that discharges to a vegetated area versus impervious area that discharges to a MS4 system.

Criteria – Up to three points can be earned under Credit B.3.

To earn Credit B.3.1, drainage on at least 50 percent of the impervious surfaces of a project must be directed to a vegetated area. Additionally the following criteria must be met:

- Roofing downspouts should be directed towards yards, gardens, or swales.
- Runoff from driveways should not drain directly to roads. Instead driveways should be constructed from pervious materials or sloped to drain on stabilized groundcover, or designed to be intercepted and dispersed to adjacent vegetated areas.
- Sidewalk and street runoff should drain to stabilized vegetated areas.
- Some techniques that may be employed include:
 - Vegetated open channels as discussed in Section 4.3.2;
 - Concave planted areas, as discussed in Section 4.3.3.a;
 - Vegetated filter strips, as discussed in Section 4.3.3.b;
 - Detention and retention basins, as discussed in Section 4.3.3.c; and
 - Curb and gutter alternatives, as discussed in Section 4.3.4.
 - Bioswales, as discussed in Section 4.4.4.c
 - Infiltration trenches, as discussed in Section 4.4.4.e
 - Level spreaders, as discussed in Section 4.4.5

To earn Credit B.3.2, drainage on at least 75 percent of the impervious surfaces of a project must be directed to a vegetated area. The criteria provided in Credit B.3.1 must also be met.

To earn Credit B.3.3, drainage on at least 90 percent of the impervious surface of a project must be directed to a vegetated area. The criteria provided in Credit B.3.1 must also be met.

Failure to Meet Criteria – Projects in which less than 50 percent of impervious surfaces will drain towards vegetated areas will fail to earn points under this credit.

Exceptional Performance – An extra point under Credit F.1.2 may not be earned solely for exceptional performance concerning disconnected impervious areas. The point may be earned for projects where more than 90 percent of the impervious surfaces are drained to vegetated area, only in combination with other exceptional and innovative techniques concerning Impervious Surfaces (Part B).

Other Resources – Stormwater Center “Performance Criteria: Open Channel Systems”⁴; Bay Area Stormwater Management Agencies Association *Start at the Source*⁵ CASQA “Vegetated Swale”⁶; CASQA “Vegetated Buffer Strip”⁷ EPA Stormwater Fact Sheet: Vegetated Swales⁸; San Diego County LID Handbook Fact Sheet (curb cuts)⁹; Lower Columbia River Field Guide to Water Quality Friendly Development¹⁰

CREDIT B.4 CLUSTERED DEVELOPMENT / STREET LAYOUT

Priority: **Voluntary (1-3 Points)**

Standard: **Voluntary (1-3 Points)**

Reference – Section 4.2.3 and Section 4.3.1

Applicability – All projects, but generally more appropriate to subdivisions of large parcels.

Submittals – Applications proposing to use Credit B.4 should include the following submittals:

- A site plan showing sensitive areas and areas with high infiltration capacity.
- Building envelopes and clusters identified on the site plan.
- A drainage plan.
- Justification for street design and layout (B.4.3 only)

Criteria – Up to three credits may be earned under Credit B.4.

To earn the first credit (Credit B.4.1), a project must meet these criteria (as applicable):

- Preserve areas within or adjacent to identified sensitive areas, or with high infiltration capacity.
- Run-on to preserved areas should mimic natural drainage patterns.
- Bioretention and open swales should be integrated into the landscaping.
- Road and driveway runoff should be dispersed to adjacent landscaped areas.
- Pre-development flow path links should be maintained.
- Native vegetation and soils should be preserved to disperse, store, and infiltrate stormwater.

To earn Credit B.4.2, you must earn Credit B.4.1 and meet these criteria (as applicable):

- For subdivision projects, the project is a cluster division pursuant to LUO Section 22.22.140 or CZLUO Section 23.04.036.
- For non-subdivision projects, all existing and proposed development is clustered on 50 percent of the site or within a 2.5 acre envelope (whichever is lesser in area).
 - Multiple cluster “pods” are acceptable where necessary to avoid significant natural features, and where the aggregate area meets the above standard.

To earn Credit B.4.3, you must earn Credit B.4.1 and meet these criteria (as applicable):

- Provide pedestrian and bike path connections, without adding significant impervious areas.
- Reduce the length of residential streets or explore alternative street layouts.
- Reduce width of streets to the minimum necessary for emergency services.
- Streets should be located with consideration of natural drainage patterns and soil permeability.

Failure to Meet Criteria – Projects that fail to earn these credits might have one or more the following features.

- Areas of significant native vegetation are removed to accommodate development.
- Waterways are altered or modified to accommodate development, which would increase runoff rates.
- Impervious surfacing covers all or most of the site.
- Streets are excessively wide and are not designed in consideration of natural drainage conditions.

Exceptional Performance – Projects which employ exceptional and innovative clustered development techniques may qualify to earn an extra point under Credit F.1.2. To qualify for this credit, the applicant must earn all three B.4 credits, and the project will substantially enhance significant native vegetation or riparian areas, resulting in an improvement in water quality conditions.

Other Resources – Public Improvement Standard Section 5.2.2 “Basins”; See California Stormwater BMP Handbook Infiltration Basin and Extended Detention Basin Treatment Control Fact Sheets at Detention basins¹¹.

CREDIT B.5 REDUCE BUILDING FOOTPRINT/FOUNDATION EXCAVATION

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – Section 4.4.1

Applicability – All projects, but may be more amenable to projects in rural areas.

Submittals – Applications proposing to use Credit 4.4.1 should include the following submittals:

- Description of the foundation system proposed.
- Calculation of the area of disturbance required to accommodate the foundation system.
- Total gross structural area broken down by floor.

Criteria – A project may earn Credit 4.1.1, in one of two ways:

- *Reduce building footprint* – Reduce the building footprint such that at least 40 percent of the gross structural area is located on an upper floor.
- *Use an alternative foundation system* – Use a foundation system that minimizes ground disturbing activities, such as:
 - Stem wall foundation
 - Pin foundation
 - Stepped foundation
 - Pillar foundation

Failure to Meet Criteria – Projects that fail to earn this credit might have a slab-on-grade foundation and more than 60 percent of the gross structural area on the ground floor.

Exceptional Performance – An extra point under Credit F.1.2 may not be earned solely for exceptional performance concerning reduction of footprints and foundation area. The point may be earned for projects exceeding the above requirements only in combination with other exceptional and innovative techniques concerning Impervious Surfaces (Part B).

CREDIT B.6 ROOF CATCHMENT SYSTEMS

Priority: **Voluntary (1-3 Points)**

Standard: **Voluntary (1-3 Points)**

Reference – Section 4.4.4.b and 4.4.4.d

Applicability – All projects.

Submittals – Applications proposing to use Credit B.6 should include the following submittals:

- Rainwater collection and reuse plans.

- A spreadsheet with the basis for the percentage of design storm intercepted.

Criteria – Up to three credits may be earned for roof catchment systems.

To earn Credit B.6.1, a minimum of 50 percent of design storm roof runoff must be intercepted. This is typically accomplished by directing downspouts towards rain barrels, cisterns, or rain gardens.

- Rain gardens should be designed in compliance with Section 4.4.4.b
- Rain cisterns and barrels should be designed in compliance with Section 4.4.4.d

To earn Credit B.6.2, the project shall meet the requirements of B.6.1, except that the minimum percentage described in B.6.1 shall be 75 percent.

To earn Credit B.6.3, the project shall meet the requirements of B.6.1, except that the minimum percentage described in B.6.1 shall be 90 percent.

Projects using roof catchment may also be eligible for Credit B.13 – Clean Water Segregation.

Failure to Meet Criteria – Projects in which less than 50 percent of roof runoff (based on the design storm) is not intercepted will fail to earn points under this credit.

Exceptional Performance – An extra point under Credit F.1.2 may not be earned solely for exceptional performance concerning disconnected impervious areas. The point may be earned for projects where more than 90 percent of the impervious surfaces are drained to vegetated area, only in combination with other exceptional and innovative techniques concerning Impervious Surfaces (Part B).

Other Resources -- Rain Barrel Guide¹²; Aquabarrel Rain Barrel¹³.

CREDIT B.7 DAY LIGHTING STORMWATER CONVEYANCE FACILITIES

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – Section 4.3.2 and 4.4.4.c

Applicability – All projects.

Submittals – Applications proposing to use Credit B.7 should include the following submittals:

- Drainage plan.
- An estimate of the percentage of drainage from the design storm that will be conveyed to vegetated stormwater devices (e.g. bioswales, vegetated channels, etc.)
- For redevelopment projects, an estimate of the linear length of existing drainage pipes.

Criteria – To earn this credit, a project must incorporate the following criteria (as applicable):

- New development projects should have at least 75 percent of runoff from the design storm directed towards a vegetated drainage conveyance system (e.g. bioswales, vegetated channels, etc.)
- Redevelopment project should alter the drainage system such that at least 50 percent of the existing pipe length is day lighted.

Project's earning Credit B.7 may also be eligible to earn Credit D.1.

- Drainage plan showing the location of public storm drain inlets, and including a note showing the location of storm drain markers and referencing Public Improvement Specification M-6 for storm drain marker design.

Criteria – Compliance with Public Improvement Specification M-6.

CREDIT C.1 PUBLIC EDUCATION

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – No reference.

Applicability – All projects.

Submittals – Applications proposing to use Credit C.1 should include the following submittals:

- A sample of public education materials proposed for distribution.

Criteria – To earn this credit, a project must provide written materials to prospective owners and tenants discussing LID and the importance of protecting water quality. Content and format of the materials should be easily accessible and understandable by the general public. The materials should, at a minimum, include the following:

- Background information on LID and stormwater pollution prevention.
- A description of the owner/tenant’s responsibilities to maintain and monitor BMPs.
- Guidance on how best to maintain the BMPs.
- Direction on how additional information and resources can be obtained.

Additionally, a mechanism must be in place to ensure that subsequent owners and tenants would also receive this information.

Alternative means of achieving public education may be considered on a case-by-case basis where it can be anticipated that the same or better end result will be achieved.

Failure to Meet Criteria – Projects that fail to earn this credit might have one or more the following features:

- No educational materials will be provided.
- Written materials provided are overly technical and difficult to interpret.
- Contents of the written materials do not effectively convey the information.
- There is no means to ensure that future owners and tenants will receive the information.

CREDIT C.9 POOLS, SPAS, AND FOUNTAINS

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – Section 5.3.7

Applicability – Any project with a pool, spa, or fountain.

Submittals – Applications proposing to use Credit C.9 should include the following submittals:

- A site plan showing:
 - The location of pools, spas, and fountains.
 - The location of the land area that will be used to drain pools, spas, and fountains (if draining on land).

- The method used to connect pool/spa/fountains to the sanitary sewer system or septic system (if this is the proposed means).
- A service letter from the wastewater provider allowing pools/spas/fountains to be drained to the sanitary sewer system, or documentation that the septic system can handle the drainage of the pool/spa/.fountain (if this is the proposed means).

Criteria – To earn this credit, the applicant must demonstrate that there is adequate land area for pools/spas/fountains to drain to. Alternatively, the applicant may demonstrate that the pool/spa/fountain may be feasibly drained to a wastewater system.

Failure to Meet Criteria – Projects that fail to earn this credit might be designed such that pools, spas, and fountains drain to the street or stormwater system.

CREDIT C.10 ALTERNATIVE BUILDING MATERIALS

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – Sections 5.2.2 and 4.4.6

Applicability – All projects.

Submittals – Applications proposing to use Credit C.10 should include the following submittals:

- A list of materials proposed to be used in building construction, and any potential contaminants associated with these materials.
- A signed statement from the project architect asserting that the materials were selected to ensure that they would not leach toxic compounds or require toxic compounds to maintain their integrity. A supplemental statement from the architect will be required before final building inspections to ensure that materials installed remain in compliance with the provisions of this credit.

Criteria – To earn this credit, a project must incorporate the following criteria:

- Building materials must not be prone to leach toxic compounds.
- Building materials must not require application of toxic compounds to maintain their integrity.

Failure to Meet Criteria – Projects that fail to earn this credit might have one or more the following features:

- Building materials include toxic compounds or require treatment with toxic compounds.

CREDIT C.11 EFFICIENT IRRIGATION SYSTEMS AND LANDSCAPE DESIGNS

Priority: **Voluntary (1 Points)**

Standard: **Voluntary (1 Points)**

Reference – Section 5.2.4

Applicability – All projects.

Submittals – Applications proposing to use Credit C.11 should include the following submittals:

- Landscape plans, including a planting plan and irrigation plan.

Criteria – To earn this credit, a project must incorporate the following criteria:

- Landscaping should include a minimum of 50 percent native plants.
- Landscaping requiring minimal or no irrigation is encouraged.

- Irrigated areas should include irrigation controllers with evapotranspiration, high wind, and rainfall sensors to prevent over- or under-watering.
- A “smart” irrigation controller with master valve should be used to allow detection and shut-off in the case of leaks.

Failure to Meet Criteria – Projects that fail to earn this credit might have one or more the following features:

- Less than 50 percent native landscaping.
- No use of specialized irrigation controllers.

CREDIT C.12 OUTLET ENERGY DISSIPATERS

Priority: **REQUIRED**

Standard: **Voluntary (1 Point)**

Reference – Public Improvement Standards Section 5.2.5.C

Applicability – All projects.

Submittals – Applications proposing to use Credit C.12 should include the following submittals:

- Drainage plan showing energy dissipaters.

Criteria – To earn this credit, a project must include outlet energy dissipaters designed in compliance with CASQA¹⁴ specification EC-10.

Failure to Meet Criteria – Projects that do not incorporate outlet energy dissipaters or project’s with dissipaters not designed in compliance with CASQA specification EC-10 would fail to achieve this credit.

CREDIT C.13 CLEAN WATER SEGREGATION

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – Section 5.2.3

Applicability – All projects with roof drains or vegetated areas.

Submittals – Applications proposing to use Credit C.13 should include the following submittals:

- Drainage plan demonstrated the methods used to segregate clean water. .

Criteria – Runoff originating from roof and landscaped areas is generally considered “clean.” To earn this credit, a project must incorporate a combination of any of the following measures (as applicable) to retain clean water at the source and/or keep it separated from water requiring treatment:

- Retain runoff on-site.
- Direct runoff into vegetated areas.
- Connect roof and landscaped area runoff into a separate storm drain system.
- Connect roof and landscaped area runoff into the site’s storm drain system at a point after treatment control BMPs have been implemented.
- Detain roof and landscape runoff long enough for first flush of parking lot runoff to be treated and then send it to the project’s common storm drain system.

Failure to Meet Criteria – Projects that fail to earn this credit would be designed to direct runoff from roofs and landscaped areas towards treatment control devices (necessitating additional capacity).

CREDIT C.14 NON-STRUCTURAL POLICY IMPLEMENTATION

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – No reference.

Applicability – All projects.

Submittals – Applications proposing to use Credit C.14 should include the following submittals:

- A detailed description of the non-structural policies that will be employed to reduce potential stormwater contaminants at their source.
- A detailed description of how the policies will be implemented, monitored, and enforced.

Criteria – To earn this credit, a project must incorporate policies which would reduce pollutant sources. These policies may be implemented in one or more of the following ways:

- A source of pollutants will be avoided through non-structural project features .
 - *Example:* contamination by washing cars will be avoided by not providing accessible outdoor hose bibs in a multi-family residential project.
- A source of pollutants will be avoided through enforceable written policies.
 - *Example:* tenant lease agreements and/or CC&Rs which prohibit draining of pools to the stormwater system.

Failure to Meet Criteria – Projects that fail to earn this credit might have one or more the following features:

- Infeasible or unenforceable policies.
- Design features which meet the criteria, but can be easily circumvented.

PART D NATURAL SYSTEMS

PREREQUISITE D.1

BIOLOGICAL, ARCHAEOLOGICAL, AND GEOLOGICAL SPECIAL AREAS

Priority: **REQUIRED**

Standard: **REQUIRED**

Reference – Section 4.2.1

Applicability – All projects.

Submittals – Applications should include the following submittals:

- A site plan showing the boundaries of any biologically sensitive areas, archaeological sites, or geologically unique areas.
- A grading and drainage plan.
- Justification for locating development features in any environmentally sensitive area and proposed mitigation to offset the impacts.

Criteria – Projects must seek to avoid impacts to biologically, culturally, or geologically sensitive areas to the maximum extent feasible. Ideally, drainage facilities should not be located in these areas. Additionally, special consideration should be given for how drainage might impact environmental resources (such as redirecting runoff away from an oak woodland). In cases where environmentally sensitive areas cannot feasibly be avoided, appropriate mitigation shall be applied through the environmental review process.

Failure to Meet Criteria – Projects that fail to comply with this prerequisite might have one or more of the following characteristics:

- Development located in environmentally sensitive areas, when this can be reasonably avoided.
- Impacts to environmental sensitive areas which are not appropriately mitigated.
- Alteration of drainage which might affect biological resources, without appropriate mitigation.

Exceptional Performance – An extra point under Credit F.1.4 may not be earned solely for exceptional performance concerning environmentally sensitive areas. The point may be earned only in combination with other exceptional and innovative techniques concerning Natural Systems (Part D).

Other Resources – Various sections in Title 22 (Land Use Ordinance), Title 23 (Coastal Zone Land Use Ordinance), and planning area standards, apply requirements and limitations for projects occurring in environmentally sensitive areas.

CREDIT D.1 OPEN CHANNELS

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – Section 4.3.2 and 4.4.4.c

Applicability – All projects with ground slopes less than 4 percent. Please refer to Section 4.3.2 for limitations.

Submittals – Applications proposing to use Credit D.1 should include the following submittals:

- Drainage plan.

Criteria – To earn this credit, a project should incorporate the use of a concave vegetated swale, as specified in Section 4.3.2, meeting the following criteria:

- Swales should be sized to maintain low velocity during small storms and to accommodate larger storms without significant erosion.
- Swales should have shallow depths and gentle side slopes.
- Swales should be planted with appropriate native vegetation.
- Pipes or subsurface recharge beds should be used where driveways or roads cross the swale.

Failure to Meet Criteria – Projects that fail to earn these credits might have one or more the following features.

- No swales are proposed as part of the project.
- Swales do not meet the above-specified design criteria.
- Swales are designed in a manner that would not effectively achieve water quality results.

Exceptional Performance – An extra point under Credit F.1.4 may not be earned solely for exceptional performance concerning open channels. The point may be earned only in combination with other exceptional and innovative techniques concerning Natural Systems (Part D).

CREDIT D.2 RIPARIAN SETBACKS

Priority: **Voluntary (1-2 Points)**

Standard: **Voluntary (1-2 Points)**

Reference – No reference.

Applicability – Projects adjacent to creeks and areas of riparian vegetation.

Submittals – Applications proposing to use Credit D.2 should include the following submittals:

- Site plan showing stream centerline, top-of-bank, extent of riparian vegetation, and setback distance.

Criteria – Two credits may be earned under Credit D.2

To earn the first credit (Credit D.2.1), a project must exceed the required riparian setback by 10 percent. In areas where no required riparian setback has been established, projects set back a minimum of 30 feet from top-of-bank may also earn this credit.

To earn the second credit (Credit D.2.2), a project must exceed the required riparian setback by 20 percent. In areas where no required riparian setback has been established, projects set back a minimum of 50 feet from top-of-bank may also earn this credit.

For projects that do not have riparian setbacks established by ordinance or planning area standard, riparian setbacks shall be measured from top-of-bank to the edge of development (as defined in Titles 22 and 23) to qualify for these credits.

Failure to Meet Criteria – Projects that fail to earn this credit might have one or more the following features:

- Projects do not meet the established riparian setbacks (i.e. variance, waiver, or modification) or do not exceed the required riparian setbacks by at least 10 percent.
- Projects do not have a riparian setback of at least 30 feet (where no riparian setback is otherwise required).
- Structures comply with the riparian setback criteria, but impervious surfacing, fill slopes, and other project features (falling under the definition of “development”) fail to meet the criteria.

Exceptional Performance – In addition to earning Credits D.2.1 and D.2.2, projects which exceed riparian setback requirements by more than 30 percent may qualify to earn an extra point under Credit F.1.4. For projects where no riparian setback is established, adhering to a 100-foot riparian setback would also qualify the project to earn the extra point under Credit F.1.4.

CREDIT D.3 IN-STREAM IMPROVEMENTS

Priority: **Voluntary (1 Points)**

Standard: **Voluntary (1 Points)**

Reference – No reference.

Applicability – Project's with streams located on-site or nearby.

Submittals – Applications proposing to use Credit D.3 should include the following submittals:

- Riparian restoration and revegetation plan prepared by a registered civil engineer in consultation with a qualified biologist.

Criteria – To earn this credit, a project must include restoration of a degraded stream in accordance with the recommendations of an engineer and biologist. Restoration may include:

- Removing impediments such as dams or impoundments.
- Removing invasive species and replacing with riparian species (i.e. willow staking).
- Provide grade controls where headcutting is occurring.
- Other riparian improvements that would promote water quality.

Failure to Meet Criteria – Projects would fail to earn this credit in the following circumstances:

- No streams are located on site or nearby.
- Streams proposed for restoration are already in pristine condition.
- Proposed restoration would not effectively improve water quality.

Exceptional Performance – Projects which employ exceptional and innovative techniques for stream restoration and improvement may qualify to earn an extra point under Credit F.1.4. To qualify for this credit, the applicant must demonstrate how the proposed restoration goes above and beyond the above-listed criteria and will result in an overall long-term improvement in water quality.

CREDIT D.4 PLANT INTERCEPTOR TREES

Priority: **Voluntary (1-2 Points)**

Standard: **Voluntary (1-2 Points)**

Reference – Section 4.3.6

Applicability – All projects.

Submittals – Applications proposing to use Credit D.4 should include the following submittals:

- Preliminary landscaping plans.
- Calculations to establish the percentage of interceptor tree area (as discussed below)

Criteria – Up to two credits can be earned for the planting of interceptor trees.

To earn the first credit (Credit D.4.1), a project must plant interceptor trees such that the percentage of project area dedicated to interceptor trees (using the calculation below) is 10 percent or greater. Please refer to Section 4.3.6 for design criteria and preferred species.

To earn the second credit (Credit D.4.2), the percentage of project area dedicated to interceptor trees must be 30 percent or greater.

CALCULATION:

1. Calculate the total interceptor tree area.
 - Trees used in this calculation must be planted within 15 feet of impervious surfaces.
 - Evergreen trees are assigned 200 square feet of interceptor tree area. Evergreen trees must be a minimum of 5 feet in height to qualify.
 - Deciduous trees are assigned 100 square feet of interceptor tree area. Deciduous trees must have a minimum of 7 feet in height and a minimum diameter at breast height of 1.5 inches to qualify.
 - One-half of the canopy coverage of existing on-site trees may be used toward this calculation for any trees within 30 feet of impervious surfaces which have a diameter at breast height of at least 4 inches.
2. Calculate the total project area located within 15 feet of an impervious surface or creek bank.

3. Divide the interceptor tree area (calculated in Step 1) by the project area (calculated in Step 2) to arrive at the percent of project allocation towards interceptor trees.

Failure to Meet Criteria – Projects that fail to earn this credit would have less than 10 percent area dedicated to interceptor trees.

Exceptional Performance – Projects with a project allocation towards interceptor trees of 50 percent or more are eligible to earn an extra point under Credit F.1.4.

Other Resources – Cal Poly Urban Forest Ecosystems Institute¹⁵

CREDIT D.5 BASINS

Priority: **REQUIRED (D.5.1)**
Voluntary (D.5.2 – 1 point)

Standard: **Voluntary (1-2 Points)**

Reference – Section 4.3.3.c

Applicability – All projects; however basins may not be appropriate in areas with clayey soils, on steep terrain, or in areas with high groundwater.

Submittals – Applications proposing to use Credit D.5 should include the following submittals:

- A grading and drainage plan showing the location of all proposed basins.
- Drainage calculations supporting the sizing of the basin(s)

Criteria – Credit D.5.1 is required for Priority Projects, but an extra point may be earned for Credit D.5.2. For Standard Projects, up to two points may be earned.

To earn Credit D.5.1, the project must include basins (or alternative retention grading practices) sized adequately to maintain the peak stormwater runoff discharge rates, and meeting the following criteria:

- Controls must be developed for the 2-year and 10-year 24-hour storm events. The 100-year 24-hour storm event must be evaluated to demonstrate that there will not be increased flooding impacts offsite.
- Measurement of peak discharge rates must be calculated using the point of discharge or downgradient property boundary. The topography of the site may require evaluation at more than one location if flow leaves the property in more than one direction. An applicant may demonstrate that a feature beyond the property boundary (e.g. culvert) is more appropriate as a design point.

To earn Credit D.5.2, the project must first comply with Credit D.5.1 criteria, and also employ the use of a multi-staged basin system meeting the following criteria:

- Drainage should be designed to pass through more than one basin before leaving the site.
- Basins should be situated along natural flow paths, acknowledging pre-development drainage patterns.
- Conveyance of drainage from multiple discharge areas to a single point should be avoided.

Failure to Meet Criteria – Projects that fail to earn this credit might have one or more the following features:

- Project is not designed to maintain pre-development peak discharge.

- Project is not designed with a multi-stage basin system (D.5.2).

Exceptional Performance – An extra point under Credit F.1.4 may not be earned solely for exceptional performance concerning open channels. The point may be earned only in combination with other exceptional and innovative techniques concerning Natural Systems (Part D).

CREDIT D.6 TIME OF CONCENTRATION

Priority: **Voluntary (1 Points)**

Standard: **Voluntary (1 Points)**

Reference – Appendix F, Part 3 (“Maintain or Increase the Time of Concentration” heading)

Applicability – All projects.

Submittals – Applications proposing to use Credit D.6 should include the following submittals:

- Documentation showing how the project will maintain or increase the time of concentration.

Criteria – To earn this credit, a project must maintain or increase the time of concentration (i.e. the time it takes for runoff to travel across the site), when compared to existing conditions. Some measures that can be used to increase the time of concentration include:

- Roughening the travel path surface (vegetation vs pavement or pipes)
- Incorporating check dams and grade changes to allow interim ponding
- Lengthening the flow path
- Converting concentrated flow back into sheet flow
- Disconnecting impervious areas (*see also Credit B.3*)

Failure to Meet Criteria – Projects that fail to earn this credit would result in a reduction in the time of concentration.

Exceptional Performance – An extra point under Credit F.1.4 may not be earned solely for exceptional performance concerning time of concentration. The point may be earned only in combination with other exceptional and innovative techniques concerning Natural Systems (Part D).

PART E WATER QUALITY

PREREQUISITE E.1 TREATMENT DESIGN STANDARDS

Priority: **REQUIRED**

Standard: **Voluntary (1 Point)**

Reference – Chapter 7

Applicability – All projects.

Submittals – Applications demonstrating compliance with Prerequisite E.1 should include the following submittals:

- Stormwater Quality Plan (SWQP)
- Plans and calculations showing the tributary area for water quality best management practices used on site.
- Design criteria for each individual treatment control BMP used (i.e. hydraulic residence times, WQ depths, etc).

Criteria – To earn this credit, a project must follow the procedures outlined Step 6 (Chapter 3) and follow the guidelines provided in Chapter 7.

Failure to Meet Criteria – Projects that do not include appropriate treatment control BMPs to treat for potential pollutants would fail to earn this credit.

Exceptional Performance – Projects performing exceptionally with regards to treatment may be considered for a point under Credit E.1 (see below).

PREREQUISITE E.2 RECEIVING WATER LIMITATIONS (TMDLs)

Priority: **REQUIRED**

Standard: **REQUIRED**

Reference – No reference.

Applicability – All projects draining to an impaired watercourse (i.e. a watercourse appearing on the list maintained by the Regional Water Quality Control Board under Section 303(d) of the Clean Water Act)

Submittals – Projects should include the following submittals:

- A list of receiving waters that the site drains to.
- Reference to any pollutants for which total maximum daily loads (TMDLs) are established on the 303(d) list for the receiving waters.
- A list of the pollutants potentially generated from the site, both during construction (short-term) and operation of the use (long-term).
- A stormwater quality plan showing all BMPs proposed which will address potential pollutants.
- A sampling/monitoring plan, if required as part of a Stormwater Pollution Prevention Plan (i.e. for “Risk Level 3” projects).

Criteria – Projects must not result in receiving waters exceeding their total maximum daily load (TMDL) for any specified pollutants appearing on the 303(d) list. A TMDL is the amount of a pollutant that a water body can receive and still safely meet water quality standards. Projects discharging to Clean Water Act 303(d) listed water bodies must address all constituents that will contribute to impairment of the water body.

Failure to Meet Criteria – Projects will fail to meet the criteria for this prerequisite if they would result in receiving waters exceeding the total maximum daily load (TMDL) for any specified pollutants appearing on the 303(d) list.

Exceptional Performance – An extra point under Credit F.1.5 may not be earned solely for exceptional performance concerning total maximum daily loads. The point may be earned only in combination with other exceptional and innovative techniques concerning Water Quality (Part E).

CREDIT E.1 ADDITIONAL WATER QUALITY TREATMENT

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – Chapter 7

Applicability – All projects.

Submittals – Applications proposing to use Credit E.1 should include the following submittals:

- Stormwater Quality Plan (SWQP)

- Plans and calculations showing the tributary area for water quality best management practices used on site.
- Design criteria for each individual treatment control BMP used (i.e. hydraulic residence times, WQ depths, etc).

Criteria – A project seeking to earn Credit E.1 may achieve compliance using a combination of the methods below (as applicable):

- *For volumetric treatment control*
 - Projects should exceed the volumes determined through hydrograph analysis using the stormwater depths provided in Table F-2 (Appendix F, Part 1) by 10 percent on average for all BMPs sized using volume design criteria.
- *For flow-based treatment control*
 - Projects should use the peak flow rates determined through the Rational Formula using a rainfall intensity of 0.31 inches per hour for all BMPs sized using volume design criteria.

Failure to Meet Criteria – Projects that will fail to earn this credit if BMPs are not designed to exceed the

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Exceptional Performance – An extra point under Credit F.1.5 may not be earned solely for exceptional performance regarding treatment. The point may be earned only in combination with other exceptional and innovative techniques concerning Water Quality (Part E).

CREDIT E.2 NATURAL PASSIVE TREATMENT

Priority: **Voluntary (1-3 Points)**

Standard: **Voluntary (1-3 Points)**

Reference – Chapter 7

Applicability – All projects.

Submittals – Applications proposing to use Credit E.2 should include the following submittals:

- Plans and calculations showing the tributary area for water quality BMPs used on the site.
 - Highlight and quantify areas where water quality BMPs will be achieved through natural, passive systems.

Criteria – Up to three credits may be earned under Credit E.2

To earn the first credit (Credit E.2.1), a project must use natural, passive systems to meet volume and rate design standard requirements for more than 50 percent of the tributary area producing runoff.

To earn the second credit (Credit E.2.2), a project must use natural, passive systems to meet volume and rate design standard requirements for more than 75 percent of the tributary area producing runoff.

To earn Credit E.2.3, a project must first earn Credit E.2.1. Additionally passive systems would need to be distributed throughout the site, such that the average impervious tributary area to each system is less than 0.5 acres. The average area drained to each system may be calculated by taking the sum of the impervious tributary area drained and dividing it by the number of separate drainage systems.

Failure to Meet Criteria – Projects that fail to earn this credit might have one or more the following features:

- A majority of drainage is handled through conventional means and not through natural systems.
- For Credit E.2.3, all drainage over a large area is directed through a single drainage system rather than being dispersed through multiple systems.

Exceptional Performance – An extra point under Credit F.1.5 may not be earned solely for exceptional performance concerning natural, passive treatment. The point may be earned only in combination with other exceptional and innovative techniques concerning Water Quality (Part E).

CREDIT E.3 SELF TREATMENT AREAS

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – No reference.

Applicability – All projects with self treatment areas (i.e. natural areas, large landscaped areas).

Submittals – Applications proposing to use Credit E.3 should include the following submittals:

- Grading and drainage plan labeling self treatment areas.

Criteria – Self treatment areas are areas where the runoff is naturally treated without any other measures being applied. Examples include conserved natural areas and large landscaped areas (such as lawns). To earn this credit, a project must direct drainage from self treatment areas away from other areas of the site that do require treatment. Doing so will reduce the volume of water requiring treatment.

Failure to Meet Criteria – Projects that fail to earn this credit would direct drainage from self treatment areas to portions of the site that require treatment.

Exceptional Performance – An extra point under Credit F.1.5 may not be earned solely for exceptional performance concerning natural, passive treatment. The point may be earned only in combination with other exceptional and innovative techniques concerning Water Quality (Part E).

CREDIT E.4 CPSWQ OR COUNTY APPROVED TRAINING

Priority: **Voluntary (1 Points)**

Standard: **Voluntary (1 Points)**

Reference – No reference.

Applicability – All projects.

Submittals – Applications proposing to use Credit E.4 should include the following submittals:

- Documentation that the preparer of the grading plan, drainage plan, erosion and sedimentation control plan, and stormwater pollution prevention plan (as needed) is a Certified Professional in Storm Water Quality (CPSWQ) or has completed County-sponsored training in stormwater quality.

Criteria – To earn this credit, a project's grading plan, drainage plan, erosion and sedimentation control plan, and stormwater pollution prevention plan shall have been prepared by a professional with CPSWQ certification. Alternatively, the preparer of these plans may have completed County-sponsored training in stormwater quality within the last two years.

Failure to Meet Criteria – Projects with a grading plan, drainage plan, erosion and sedimentation control plan, and stormwater pollution prevention plan (if needed) that were prepared by an individual who is not CPSWQ-certified and who has not completed county-sponsored training within the previous two years would not be eligible for this credit.

Exceptional Performance – An extra point under Credit F.1.5 is not available for exceptional performance.

PART F INNOVATION AND DESIGN PROCESS

CREDIT F.1 INNOVATION IN DESIGN

Up to five additional points can be earned for a project where exceptional and innovative design techniques are employed to result in an overall water quality improvement. The five points are divided as follows:

- Credit F.1.1 – One point may be earned for exceptional performance for soils-based techniques described in Part A. The point may be earned in one of two ways:
 - By meeting the exceptional criteria for Prerequisite A.1 or Prerequisite A.2.
 - By using a combination of innovative techniques concerning soils-related practices that, when considered together, constitute exceptional performance.
- Credit F.1.2 – One point may be earned for exceptional performance for impervious surface-based techniques described in Part B. The point may be earned in one of two ways:
 - By meeting the exceptional criteria for any one of the credits in Part B.
 - By using a combination of innovative techniques which would reduce impervious surfacing, which, when considered together, would constitute exceptional performance.
- Credit F.1.3 – One point may be earned for exceptional performance for source control techniques described in Part C. The point may be earned when the applicant has demonstrated that source control practices proposed as part of the project would go above and beyond source control requirements and obligations.
- Credit F.1.4 – One point may be earned for exceptional performance for techniques using natural systems, as described in Part D. The point may be earned in one of two ways:
 - By meeting the exceptional criteria for any one of the prerequisites or credits listed in Part D.
 - By using a combination of innovative techniques employing the use of natural systems, which, when considered together, would constitute exceptional performance.
- Credit F.1.5 – One point may be earned for exceptional performance for water quality treatments techniques described in Part E. The point may be earned when the applicant has demonstrated that treatment control practices proposed as part of the project would go above and beyond treatment control requirements and obligations.

Submittals – Detailed justification as to why a point should be awarded for exceptional performance.

CREDIT F.2 TEAM TRAINED IN LID

Priority: **Voluntary (1 Point)**

Standard: **Voluntary (1 Point)**

Reference – No reference.

Applicability – All projects.

Submittals – Applications proposing to use Credit F.2 should include the following submittals:

- Documentation that the person(s) designing the site plan, grading plan, and drainage plan have attended training in LID practices within the last two years.

Criteria – To earn this credit, a project's site plan, grading plan, and drainage plan must have been designed by a person who has attended training in LID practices within the last two years.

Failure to Meet Criteria – Projects will fail to earn this credit if the site plan, grading plan, or drainage plan were designed by someone who had not attended training in LID practices in the last two years.

¹ http://soils.usda.gov/sqi/management/files/protect_urban_sq.pdf

References

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⁴ http://www.stormwatercenter.net/Manual_Builder/Performance%20Criteria/Open%20Channels.htm

⁵ http://scvurppp-w2k.com/pdfs/0203/c3_related_info/startatthesource/Start_At_The_Source_Full.pdf

⁶ www.cabmphandbooks.com/Documents/Development/TC-30.pdf

⁷ <http://www.cabmphandbooks.com/Documents/Development/TC-31.pdf>

⁸ <http://www.epa.gov/owm/mtb/vegswale.pdf>

⁹ <http://www.co.san-diego.ca.us/dplu/docs/LID-Handbook.pdf>

¹⁰ <http://www.lcrep.org/fieldguide/examples/curbalternatives.htm>

¹¹ <http://www.cabmphandbooks.com/Documents/Municipal/TC-22.pdf> and

<http://www.cabmphandbooks.com/Documents/Development/TC-11.pdf>

¹² <http://www.rainbarrelguide.com/>

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¹⁴ <http://www.cabmphandbooks.com/Documents/Construction/EC-10.pdf>

¹⁵ <http://selectree.calpoly.edu/>