EXHIBIT A

ISLAND COUNTY
STORMWATER DESIGN MANUAL

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INTRODUCTION

The Island County Stormwater Design Manual is adopted pursuant to the Island County Stormwater and Surface Water Ordinance, ICC 11.03 and the Clearing and Grading Ordinance, ICC 11.02.

1.1 ADOPTION BY REFERENCE WITH EXCEPTIONS AND ALTERNATIVES

Pursuant to ICC 11.03.040, the Board of Island County Commissioners shall adopt and amend a Drainage Manual and/or adopt by reference all or in part an existing drainage manual of another municipality. The Drainage Manual and any amendments thereto will be available to the public at the Public Works Department. The Drainage Manual contains standards and technical guidance for complying with the Island County Stormwater and Surface Water Ordinance, ICC 11.03 and the Clearing and Grading Ordinance, ICC 11.02, including recommended best management practices, engineering design storm requirements, engineering design requirements for various drainage facilities, and other drainage control measures.

The Board of County Commissioners adopts by reference *The Washington State Department of Ecology Stormwater Management Manual For The Puget Sound Basin, The Technical Manual* with those additions hereinafter specified and those exceptions and alternatives that are specified herein, including Section 4.

1.2 ADDITIONAL REFERENCES

There are a number of references and standards available which address stormwater management in the Puget Sound basin. Where conflicts exist between this manual and those other references or standards, the performance objectives of the Island County Stormwater and Surface Water Ordinance, ICC 11.03 and the Clearing and Grading Ordinance, ICC 11.02 will prevail.

This manual does not attempt to include all design procedures, standards, and standard drawings related to stormwater quantity and quality control. This is particularly true in its coverage of hydrological analysis methods. The design engineer is expected to refer, as necessary, to the following publications:

- The Washington State Department of Ecology Stormwater Management Manual For The Puget Sound Basin, The Technical Manual

- Kitsap County, Stormwater Design Manual

- The publication Technical Release 55: Urban Hydrology for Small Watersheds, 2nd Edition, together with a computer program on floppy disk, available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161 [Telephone (703) 487-4650]. Request NTIS ACCESS # PB 87-101580/AS A08. This publication can be viewed and copied at the Island County Conservation District Office in Coupeville.

- Low-Impact Development Design Manual, Department of Environmental Resources, Prince George's County, Maryland. Address orders to Inglewood Center Three 9400 Peppercorn Place, Sixth Floor, Largo Maryland 20774 or telephone (301) 883-5903 or 883-5834

- WSDOT/APWA Standard Specifications for Road, Bridge and Municipal Construction. Address orders for all WSDOT manuals to Engineering Publications, Transportation Building, P. O. Box 47400 Olympia, Washington 98504-5201, or telephone (360) 705-7430.

- Washington State Department of Transportation Hydraulics Manual and Highway Runoff Manual.

1.3 ACCOUNTABILITY FOR DRAINAGE DESIGN

This manual presents Island County's general standards for engineering and design of drainage facilities. While the County believes these standards are appropriate for a wide range of development proposals, compliance solely with these requirements does not relieve the professional engineer submitting designs of his/her responsibility to ensure drainage facilities are engineered to provide adequate protection for public and private property, and natural resources.

1.4 ENGINEERS' RESPONSIBILITIES

Information covered in this manual is primarily addressed to professional engineers. Where strict application of the measures or requirements of this manual result in low cost/benefit ratios, the project engineer may propose modifications as provided for in ICC 11.03. In order to assist the professional engineer in fulfilling his/her responsibilities related to a development project, the following comments are included addressing Island County's expectations regarding the responsibilities of the engineer:

1.4.1 Project Engineer's Responsibilities

All engineered plans submitted to the Director for review and approval shall be prepared by a professional engineer, licensed in the State of Washington. The engineer shall be responsible for the following:

1. The engineer shall prepare site development construction plans and erosion and sedimentation control plans meeting the standards and requirements of the Stormwater and Surface Water Ordinance, including this manual. The engineer shall remain responsible for the accuracy, completeness and scope of all work submitted to the Director. Should errors, omissions or inaccurate data due to the engineer's work come to the Director's attention in the future, the engineer shall be responsible for correcting all deficiencies, when necessary, and shall be responsible for any damages resulting from the incorrect work.

2. The engineer shall incorporate recommendations from soils engineering reports, geotechnical engineering reports, and any other engineering recommendations into the site development construction plans and the erosion and sedimentation control plans.

3. The engineer shall be responsible for the professional inspection and approval of the construction within the engineer's area of technical expertise. This responsibility shall include, but need not be limited to, inspection and approval as to the establishment of line, grade, and drainage of the development area.

4. The engineer shall act as the coordinating agent in the event the need arises for liaison between the owner, other professionals, contractors, the County, and other agencies.

5. The engineer shall be responsible for the preparation of revised plans and the submittal of as-built plans upon completion of work.

6. The engineer shall be responsible for verification of excavation and embankment quantities, detention/retention pond volumes, and slope steepness.

1.4.2 Soils Engineer's Responsibilities

When a soils investigation report is required, the minimum responsibilities of the soils engineer shall be as follows:

1. The preparation of any required soils investigation report.

2. All reports, field data, test data, and recommendations shall be submitted to the Project Engineer.

3. When required by the Project Engineer, the soils engineer shall provide professional inspection and approval concerning the preparation of ground to receive fills, testing for required compaction, stability of all finished slopes and

the design of embankment fills, incorporating recommendations of the geotechnical engineer.

4. When required by the Project Engineer, the soils engineer shall prepare a final soils report which includes locations and elevations of field density tests, summaries of field and laboratory tests and other substantiating data and comments on any changes made during site development.

1.4.3 Geotechnical Engineer's Responsibilities

When a geotechnical engineering report is required, the minimum responsibilities of the geotechnical engineer shall be as follows:

1. The preparation of any required geotechnical engineering investigation report.

2. All reports, field data, test data, and geotechnical engineering recommendations shall be submitted to the Project Engineer.

3. When required by the Project Engineer, the geotechnical engineer shall provide professional inspection and approval concerning the adequacy of natural ground for receiving fills and the stability of cut or fill slopes with respect to geological matters, and the need for subdrains or other groundwater drainage devices.

4. When required by the Project Engineer, the geotechnical engineer shall prepare a final report following the completion of work, which includes a final description of the geology of the site including any new information disclosed during the site grading, and the effect of same on recommendations incorporated into the approved site development construction plans.

5. When required, the geotechnical engineer shall, following the completion of site grading, provide approval as to the adequacy of the site for the intended use as affected by geologic factors.

1.4.4 Transfer Of Engineering Responsibility

For major developments, there shall at all times during the course of work be an engineer of record for the project performing the function of Project Engineer. If the engineer of record is changed during the course of the work, the work shall be stopped until the replacement engineer has agreed to accept the responsibilities of the Project Engineer.

1.5 EXISTING HAZARDS

Whenever the Director determines that any excavation, embankment, erosion/ sedimentation control or drainage facility has become a safety hazard; endangers

property; or adversely affects the safety, use or stability of a public way, critical area, or drainage course, the owner of the subject property and/or the person or agent in control of the property will be required to repair or eliminate the hazard in conformance with the requirements of the Stormwater and Surface Water Ordinance and this manual. At the time that the Director makes the determination that a hazardous condition exists, the property owner and/or person or agent in control of the property will be notified in writing that the hazard exists. The Director will order the specific work to be undertaken or will order that an engineering design be submitted for review and approval by the Director, and will specify the time period within which the hazardous conditions be repaired or eliminated. In the event that the owner and/or the person or agent in control of the property fails to comply with this order, that person shall be subject to the penalties specified in the Stormwater and Surface Water Ordinance, ICC 11.03.

1.6 PENALTIES AND ENFORCEMENT

Unless exempt from the terms of the Stormwater and Surface Water Ordinance, no person, firm, corporation or entity shall do any regulated grading, filling, clearing, excavating, ditching, or create an impervious surface, unless the work is in accordance with a valid permit issued by Island County. Each project site, which may be composed of one or more contiguous parcels of land, shall have a separate permit, unless otherwise allowed/required in the governing regulation.

Island County is authorized to make inspections and take such actions as required to enforce the provisions of the Stormwater and Surface Water Ordinance. The County has the authority to enter onto land for the purpose of inspection of site development activities or to perform any duty imposed upon the County by ordinance, provided that the County present proper credentials and make a reasonable effort to contact the property owner before entering onto that property.

The Director may require the owner of a site to remove any unpermitted or illegal facilities placed, constructed or installed on the site, and to implement a plan for the restoration or stabilization of the site or correct work that has adversely impacted adjacent or downstream property owners, with all costs borne by the owner.

Any person, firm or corporation violating any of the provisions of the Stormwater and Surface Water Ordinance, whether they be the property owner, the applicant, the contractor, or any other person acting with or without the authorization of the property owner or Applicant, shall be subject to the penalties prescribed in the Stormwater and Surface Water Ordinance and/or Clearing and Grading Ordinance.

1.7 COUNTY STAFF ASSISTANCE

Island County Department of Public Works staff is available to discuss or provide clarification for any of the matters addressed in this manual. Inquiries should be directed to:

Island County Department of Public Works
Surface Water Division
PO Box 5000
Coupeville, WA 98339-5000
(360) 679-7331
Fax: (360) 678-4550

1.8 DRAINAGE REVIEW REQUIRED BY OTHER AGENCIES

Drainage review for a proposed project's impact on surface and stormwaters may be addressed by processes or requirements apart from Island County's. Agencies such as those listed below may require some form of drainage review and impose drainage requirements that are separate from and in addition to Island County's drainage requirements. The applicant is responsible for coordinating with these agencies and resolving any conflicts in drainage requirements. Note also that Island County is required to advise the specific Indian Tribes of development proposals affecting certain sensitive areas.

Agency	Permit/Approval
Island County Health Department	Onsite Sewage Disposal and Well Permits
City/Town - In UGAs	Conformance with municipal requirements
Washington State	
Department of Transportation	Developer/Local Agency Agreement
Department of Fish and Wildlife	Hydraulic Project Approval
Department of Ecology	Short Term Water Quality Modification Approval Dam Safety permit NPDES Stormwater permit
Department of Natural Resources	Forest Practices Class IV permit
United States Army Corps of Engineers	Sections 10, 401, and 404 permits

SUBMITTAL REQUIREMENTS

2.1 INTRODUCTION

This chapter describes the requirements for submittal of plans and other documents for review by the Island County Department of Public Works.

The requirements of this manual cover three basic types of reviews: drainage narratives, preliminary drainage plans and final drainage or construction plans.

- Drainage Narrative reviews are alternative requirement for small development activities or development activities proposing the use of low-impact development concepts.

- Preliminary drainage reviews are a requirement for various land use applications.

- Final review of construction plans and related documents is part of the process administered by the Department of Public Works prior to commencement of construction activities on a project site. Often, the application for a Development Activity Permit requires preliminary approval of a Land Use Permit application.

2.2 DRAINAGE NARRATIVE

Drainage Narratives may be prepared by the applicant and need not bear the seal of a licensed professional engineer, except when being submitted for Major Development Activities. The number of copies of the Drainage Narrative to be submitted for review shall be determined by the Department of Public Works.

"Drainage Narrative" means a written report specifying the proposed conventional rate and water quality control BMPs/proposed improvements, or, alternatively, the proposed low-impact BMPs/proposed improvements, to mitigate the surface water impacts of the proposal.

Following review of the Development Activity Permit Application for which a Drainage Narrative has been submitted, the Department of Public Works may attach conditions to the project as deemed necessary to control erosion and runoff. These conditions may include, but not be limited to, the following:

- Drainage control measures that the Director deems appropriate for the size of the project.

- Erosion control best management practices (BMPs) and other measures as appropriate to meet the intent of this manual.

Projects that exacerbate existing downstream flooding or water quality problems, or if the project drains to a closed depression/water quality sensitive area, may require additional controls. In those cases, the Director may impose more stringent stormwater quality and quantity control measures and require a Drainage and Erosion and Sedimentation Control Plan.

Plans shall be drawn to scale with a straight edge and features/improvements shall be drawn to scale. The drawing shall be sufficiently clear and of a large enough scale to clearly delineate the footprint of structures and other features.

The ordinance provides an opportunity for the applicant to prepare the Drainage Narrative for small development activities. In such cases the items in bold denote the minimum requirements of the Drainage Narrative, otherwise the Drainage Narrative shall contain the following information:

1. Name, address and telephone number of the applicant, agent, or owner.

2. Name, address and telephone of the person preparing the plan.

3. Parcel number(s) and legal description of property.

4. Scale and north arrow.

5. Legend, if symbols are used that are not labeled in the plan.

6. Vicinity map of sufficient clarity to locate the property.

7. Property boundaries, dimensions, and area (in square feet or acres).

8. Contour lines from the best available source, spot elevations, or indications of direction and steepness of slopes, with the source clearly identified.

9. Adjoining street names.

10. Existing and proposed structures and other impervious surfaces such as parking lots, driveways, patios, buildings, ground cover, etc.

11. **Location of on-site** and adjacent off-site **waste treatment systems**, such as septic tanks and distribution systems.

12. Existing and/or proposed utilities, with easements identified.

13. Established buffers, significant trees, and natural vegetation easements, if any.

14. **Natural drainage channels, wetlands, water bodies, etc.**

15. **Proposed clearing limits.**

16. **Areas to be graded, filled, excavated, or otherwise disturbed**. The location of graded slopes shall be indicated, together with the proposed steepness and height. The location of stockpiles, haul roads and disposal sites shall also be indicated.

17. **The location of on-site and adjacent off-site wells**, underground storage tanks, etc.

18. **The location and type of erosion and sedimentation control measures proposed**.

19. **The proposed conventional rate and water quality control BMPs/proposed improvements, or, alternatively, the proposed low-impact BMPs/proposed improvements, to mitigate the surface water impacts of the proposal.**

2.3 PRELIMINARY DRAINAGE REVIEW

When, as part of a Land Use Permit application, a preliminary drainage review is required, the submittal requirements for such a drainage review shall be as follows:

All preliminary drainage review documents shall be submitted, along with other Land Use Permit application documents, to the Island County Department of Planning and Community Development. The number of copies of documents to be submitted for the preliminary drainage review shall be determined by the Department.

A preliminary review fee shall be paid to the Department of Public Works to cover the cost of that department's completion of the preliminary review. The amount of the preliminary review fee is included in the Island County Development Application Fee Schedule. The preliminary review fee shall be paid at the time of application

Upon satisfactory completion of the preliminary drainage review, the Department of Public Works recommended conditions of Project Approval will be submitted to the Department of Planning and Community Development for inclusion in the Staff Report to the Hearing Examiner/Decision Maker.

The preliminary drainage review documents shall include a Preliminary Drainage Plan and a Preliminary Drainage Report. The level of design shall be sufficient to demonstrate project feasibility.

2.3.1 Preliminary Drainage Plan

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The Preliminary Drainage Plan shall include the following:

1. Preferred sheet size is 24" x 36" with a maximum sheet size of 36" x 48".

2. Title block, including name of proposed project/development.

3. North arrow indicator, drawing scale, section/township/range.

4. The plan view of detailed drainage plans must be drawn at a scale no smaller than 1" = 100'.

5. Professional Engineer's seal, signed and dated.

6. Vicinity map, showing project boundaries, streets with street names, shorelines if any, city limit boundaries if any, and distance to nearest intersection.

7. Legal description of project site.

8. Name, address and telephone number of project developer and property owner.

9. Name, address and telephone number of Project Engineer.

10. Symbol legend.

11. Property boundaries, dimensions, and area (in square feet or acres).

12. Contour lines, at maximum 5' intervals, with source to datum identified.

13. Adjoining street names and right-of-way widths.

14. Existing and proposed structures and other impervious surfaces such as parking lots, driveways, patios, buildings, etc.

15. Existing drainage facilities, such as pipes, catch basins, channels, ponds, etc.

16. Location of on-site and adjacent off-site waste treatment systems, such as septic tanks and distribution systems.

17. Existing and proposed utilities, with easements identified.

18. Established buffers, significant trees, and natural vegetation easements, if any.

19. Natural drainage channels, wetlands, water bodies, etc.

20. Areas where natural vegetation is to be left undisturbed.

21. Location of on-site and adjacent off-site wells and underground storage tanks.

22. An approximate plan for the collection and conveyance of stormwater through the project site. As a minimum, show by flow arrows the directions of proposed stormwater flow and indicate the method for conveyance (pipe, ditch, biofiltration swale, overland flow, etc.).

23. Proposed locations and sizes of stormwater quantity and quality control facilities.

24. Preliminary road profiles, showing existing grade and proposed finish grade.

2.3.2 Preliminary Drainage Report

The Preliminary Drainage Report shall include the following:

1. Professional Engineer's seal, signed and dated.

2. Description of project location.

3. Description of pre-development site conditions.

4. Downstream drainage analysis - Level 1 Analysis (see description in this chapter).

5. Description of proposed development, including description of proposed developed site.

6. Description of proposed stormwater improvements, including conveyance, stormwater quantity control facilities, and stormwater quality control facilities.

7. Description of the design method, names of computer software routines, and reference design standards utilized in the design process.

8. Preliminary hydrological analysis, including pre-development and post-development runoff hydrographs for the project site.

9. Preliminary sizing of storage facilities proposed for stormwater quantity and/or quality control.

10. Preliminary report addressing potential erosion and sedimentation impacts during construction, and general proposals for the mitigation of these impacts. (See Chapter 3, Erosion and Sedimentation Control).

11. Vicinity map, noting section/township/range.

12. Pre-development and post-development basin maps, showing boundaries of project, any off-site contributing drainage basins, on-site drainage basins, time of concentration routes, approximate locations of all major drainage structures within the basins, and the course of stormwater originating from the subject property and extending all the way to Puget Sound or to the nearest receiving body of water (lakes, creeks, etc.). All basin maps must be legible and at a specified scale.

13. Other resource material such as soils maps, isopluvial maps, nomographs, charts, figures, tables, etc.

14. Surface/subsurface soil test results and test locations (when retention/infiltration is proposed).

2.3.3 Downstream Analysis

The Preliminary Drainage Report submittal shall include a Level 1 downstream drainage analysis. This Level 1 analysis, as well as the location of the project in a drainage basin, will be reviewed by the County to determine whether a Level 2 and/or Level 3 downstream analysis will be required. Any further analysis of downstream conditions required beyond the Level 1 analysis shall become a part of the Drainage Report and must be submitted as part of the Drainage Report.

Level 1 Analysis: All proposed projects requiring a preliminary/final drainage plan shall include at least this level of analysis with the permit application. The following steps should be completed for this level of analysis:

1. Define and physically verify the study area. The upstream portion of the study area shall encompass the entire tributary drainage area (the area that drains to the proposed project site). The remaining portion of the study area shall extend downstream of the proposed project discharge location to a point on the drainage system where the proposed project site constitutes fifteen percent (15 %) or less of the total tributary area, but in no event less than 1/4 mile.

2. Review all available resource information regarding existing and potential water quality, runoff volumes and rates, flooding and streambank erosion problems within the study area.

3. Physically inspect the existing on-site and off-site drainage system problems reported in the resources.

4. On a map (minimum USGS 1:24000 Quadrangle Topographic Map) delineate the study area, together with the drainage system onto and from the proposed site.

5. Describe in a narrative form observations regarding the makeup and general condition of the drainage system.

6. Include such information as pipe sizes, channel characteristics, and stormwater facilities.

7. Identify on the map and describe any evidence of the types of existing or predicted problems listed below in Table 2-1. Following the review of the Level 1 analysis, the County will determine whether a Level 2 analysis is required, based on the evidence of existing or predicted problems.

Table 2-1 EVIDENCE OF EXISTING OR PREDICTED PROBLEMS	
1.	Evidence of potential for contamination of surface waters.
2.	Overtopping, scouring, bank sloughing or sedimentation.
3.	Significant destruction of aquatic habitat or organisms (for example, severe siltation or incision in a stream).
4.	Evidence of potential for contamination of ground water.

Level 2 Analysis: At the location of each existing or predicted water quality or quantity problem identified in the Level 1 analysis, provide a rough quantitative analysis to define and evaluate proposed mitigation for the problem. This analysis shall include the total composite drainage area tributary to that location for pre-development and post-development runoff conditions. For this level of analysis, it will be permissible to use non-survey field data (collected with hand tapes, hand level and rods, etc.) and approximate hydraulic computations using methods described in the DOE manual.

Level 3 Analysis: A Level 3 analysis shall be performed for those existing or predicted drainage problem locations where the Director determines that the analysis results must be as accurate as possible. Examples of conditions that might require a Level 3 analysis are: if the site is flat; if the system is affected by downstream controls; if minor changes in the drainage system could flood roads, buildings or septic systems; or if the proposed project will contribute more than fifteen percent (15 %) of the total peak flow to the drainage problem location. The Level 3 analysis is similar to the Level 2 analysis but is a more precise quantitative analysis, utilizing field survey profile and cross-section topographic data prepared by a licensed professional land surveyor or engineer.

2.3.4 Solutions To Drainage Problems Identified By The Analysis

For any existing or predicted off-site drainage problem, the Project Engineer shall demonstrate that the proposed plan has been designed so that it neither aggravates the existing problem nor creates a new problem. As an alternative, the applicant may arrange with the owners of the affected off-site properties to install measures which will correct the existing or predicted problem, subject to all applicable permit requirements.

Any proposed drainage easements shall be endorsed by the affected property owners and be recorded prior to approval of the proposed plan. In some cases, an existing drainage problem identified by the local government may be scheduled for solution. In these cases, the applicant should contact the County to check for potential cost sharing to solve the existing problem.

2.4 FINAL DRAINAGE REVIEW

It is the responsibility of the Project Engineer to ensure that final engineering plans are sufficiently clear and concise to construct the project in proper sequence, using specified methods and materials, with sufficient dimensions to fulfill the intent of the design guidelines contained in this manual.

All plan reproductions submitted for review must be of sufficient quality of reproduction, draftsmanship, line density, text size, and presentation of information to assure accurate recognition and understanding of plan details by reviewers and construction personnel.

Plans submitted for review which contain deficiencies in legibility or presentation of information which hinder the ability of personnel to properly evaluate proposed facilities will be returned to the Project Engineer and review will be suspended.

All Engineered Final Drainage Plans shall be prepared by and bear the stamp of a professional engineer, licensed in the State of Washington.

2.4.1 The Final Engineered Drainage Plan

The Final Engineered Drainage Plan shall include the following:

1. At least one sheet must contain a plan view of the entire project site. In the event the project site is sufficiently large that detailed drainage plans on any given sheet do not encompass the entire project site, then the sheet containing the plan view of the entire site must serve as an index to subsequent detailed plan sheets.

2. The plan view of detailed drainage plans shall be drawn at a scale no smaller than 1" = 100'.

3. The first sheet, or cover sheet if one is provided, shall include the following:

    a. Vicinity map, project boundaries; streets with street names; shorelines, if any; city limit boundaries, if any; and section/township/range. Reproductions of copyrighted materials without the permission of the owner(s) are not acceptable.

    b. Legal description of project site.

    c. Name, address and telephone number of owner of project.

    d. Name, address and telephone number of Project Engineer.

    e. Datum for project.

    f. Legend, in the event that symbols are used in plans.

4. Plans shall include a topographic map showing existing conditions for the site, including:

    a. Existing topography, using 5' contours, extending ±50' beyond project boundaries in order to delineate drainage patterns. Include at least one-half the adjacent right-of-way width to depict utility connections or other design features. Slopes steeper than 40% shall be identified by shading or cross-hatching.

    b. Locations and elevations of at least two bench marks in the project vicinity.

    c. Existing structures and improvements.

    d. Existing access locations for the project site.

    e. Existing project boundaries, rights-of-way, easements, jurisdictional boundaries, and sectional boundaries. All shall be clearly identified by note or symbol and key. Project boundaries shall include bearings and dimensions.

    f. Adjacent streets, including street names, centerline and right-of-way boundaries, and centerline bearings. Widths of adjacent rights-of-way shall be noted.

    g. Existing utilities, pertinent to design and construction, including franchised utilities located above or below ground and drainage facilities

which transport surface water onto, across, or from the project site. Existing drainage pipes, culverts, and channels shall include invert or flow line elevations.

h. Existing environmentally sensitive areas (e.g. gullies, ravines, swales, wetlands, steep slopes, estuaries, springs, wetlands, creeks, lakes, etc.). For natural drainage features, show direction of flow and 100 year flood plain boundary (if applicable).

i. Existing wells, sanitary sewer systems, septic tanks and drain fields within 100' of project boundaries.

j. Existing fuel storage tanks.

5. Plans for proposed drainage improvements shall include the following:

a. Finished grades. Show the extent of cuts and fills by existing and proposed contours, profiles and/or other explicit designations.

b. Existing structures to be removed.

c. Proposed structures including roads and road improvements, parking surfaces, building footprints, walkways, landscape areas, etc. Exact lines, grades and gradients of proposed public roadways shall be shown.

d. Proposed lot boundaries, tracts, easements. Also, proposed changes to project boundaries, jurisdictional boundaries, rights-of-way boundaries.

e. Proposed utilities, showing exact line and grade of all proposed utilities at crossings with the proposed drainage system.

f. Proposed sanitary sewers, septic tanks, drain fields and water systems.

g. Proposed fuel storage tanks.

h. Setbacks from existing environmentally sensitive areas.

i. Proposed drainage structures, including pipes, open channels, culverts, ponds, vaults, biofiltration swales, infiltration facilities, outfalls, rip rap treatment, energy dissipators, etc.

j. Plan views of drainage conveyance facilities for which there is no accompanying profile view shall include the following information: pipe sizes, pipe types and materials, lengths of runs, gradients and exact

locations of pipes or channels, structure identifier (e.g. catch basin/manhole number), type of structure (e.g. Type 2 CB), exact location of structures (e.g. station and offset, or dimensioning), invert elevations in/out of structures, and top elevations of structures. Notes shall be included referencing details, cross-sections, profiles, etc.

k. Locations of all gutter or ditch flow lines, including flow arrows indicating direction of flow. If a cul-de-sac is proposed as part of the roadway system, show spot flow line elevations at 25' intervals along the perimeter of the cul-de-sac. Spot elevations at flow lines may also be necessary at intersections.

l. Indicate any proposed phasing of construction.

6. In existing and proposed road rights-of-way, drainage conveyance facilities shall be shown in profile view. Profile views shall include:

   a. Existing and finish grades.

   b. Proposed drainage pipes, channels and structures.

   c. Existing underground utilities where such utilities cross proposed drainage facilities.

   d. Profile views shall include the following information: pipe sizes, pipe types and materials, lengths of runs, gradients and exact locations of pipes or channels, structure identifier (e.g. catch basin/manhole number), type of structure (e.g. Type 2 CB), exact location of structures (e.g. station and offset, or dimensioning), invert elevations in/out of structures, and top elevations of structures. In order to minimize duplication of information where plan and profile views appear on the same sheet, drainage facility information provided in the plan view can be limited to the following: structure identifier, type of structure, pipe types and materials, and lengths of runs.

7. Construction notes shall appear on drainage plans.

8. Details shall be provided for all proposed drainage structures for which there is insufficient information in the plan view. Details are not required for structures included in the APWA/WSDOT Standard Plans, provided that the specific APWA/WSDOT Standard Plans are referenced in the construction notes.

9. Typical sections shall be provided for at least the following:

a. Roadways, including access roads.

b. Detention/retention ponds (including parking lot ponds and other multi-use facilities), wet ponds and sediment ponds.

c. Proposed ditches and swales, including biofiltration swales.

2.4.2 The Final Drainage Report

The Drainage Report shall be on 8-1/2" x 11" paper and maps shall be folded to 8-1/2" x 11" size unless another format is approved prior to submittal. The Drainage Report shall be prepared by and bear the stamp of a professional engineer licensed in the State of Washington and shall contain the following information:

1. Cover Sheet, including the project name, applicant's name, address and telephone number, Project Engineer, and date of submittal.

2. Table of Contents, showing the page numbers for each section of the report, including appendices.

3. Vicinity Map.

4. Project Description: Describe the type of permit(s) for which the applicant is applying, the size and location of the project site, address or parcel number and legal description of the property, property zoning, etc. Also describe other permits required (e.g. Hydraulic Project Approval, Corps of Engineers 404 Fill Permit, etc.). Describe the project, including proposed land use, proposed site improvements, proposed construction of impervious surfaces, proposed landscaping, etc.

5. Existing Conditions: Describe existing site conditions and relevant hydrological conditions including but not limited to: project site topography, land cover and land use; abutting property land cover and land use; off site drainage to the property; creeks, lakes, ponds, wetlands, ravines, gullies, steep slopes, springs and other environmentally sensitive areas on or adjacent to the project site; the location of any wells both "of record" and others on the project site and on adjacent property within 100' of the project boundaries; the location of any existing fuel tanks, in-use or abandoned, within the project boundaries; general soils conditions present within the project site; whether or not the project site is located in a groundwater sensitive area (reference reports); existing natural and manmade drainage facilities within and immediately adjacent to the project site; points of discharge for existing drainage from the project site. Include references to relevant reports such as basin plans, flood studies, groundwater studies, wetland designation, sensitive area designation, environmental impact statements, lake

restoration plans, water quality reports, etc. Where such reports impose additional conditions on the applicant, those conditions shall be included in the report.

6. Developed Site Drainage Conditions: Describe the land cover resulting from the proposed project; describe the potential stormwater quantity and quality impacts resulting from the proposed project; describe the proposal for the collection and conveyance of site runoff from the project site, for the control of any increase in stormwater quantity resulting from the project, and for the control of stormwater quality.

7. Drainage Basin Description: Describe the drainage basin(s) to which the project site contributes runoff, and identify the receiving waters for each of these drainage basins.

8. Description of upstream basins: Identify any sources of runoff to the project site. This should be based on a field investigation. Any existing drainage or erosion problems upstream which may have an impact on the proposed development should be noted.

9. Downstream Analysis: (See detailed description below) The initial drainage report submittal must include a Level 1 Downstream Drainage Analysis, for review by the County. Any further analysis of downstream conditions required beyond the Level 1 analysis shall become a part of the drainage report and must be submitted as part of the Drainage Report.

10. Soils Report(s), where applicable, prepared by a qualified professional engineer.

11. Geotechnical Report(s), where applicable, prepared by a qualified professional engineer.

12. Hydrological Analysis: Basin Map(s): Show boundaries of project, any offsite contributing drainage basins, onsite drainage basins, approximate locations of all major drainage structures within the basins, and depict the course of stormwater originating from the subject property and extending all the way to Puget Sound or to the closest receiving body of water (lakes, creeks, etc.). Reference the source of the topographic base map (e.g. USGS), the scale of the map, and include a north arrow.

13. Hydraulic Design Computations, supporting the design of ALL proposed stormwater conveyance, quantity and quality control facilities, and verifying the capacity of existing and proposed drainage facilities. These computations may include capacity and backwater analysis required either as part of the proposed drainage design or as a part of the downstream drainage investigation, and flood

routing computations required for the design of detention/retention storage facilities, for wetland impact analysis, or for flood plain analysis.

14. Erosion and Sedimentation Control Design Report and Computations, including the following: a description of proposed erosion control objectives and strategies; a description of erosion control facilities and other temporary water quality facilities proposed; a description of the revegetation plan for the project site; identification of areas of concern regarding soil stability and/or water quality impacts; computations for the sizing of temporary stormwater conveyance and quantity control facilities; computations for the design and sizing of proposed sediment containment facilities, etc.

15. Operation and Maintenance Manual/Covenant: The Final Drainage Report shall include an Operation and Maintenance Manual and a Maintenance Covenant. The owner shall record the Maintenance Covenant with the Island County Auditor prior to the approval of the development activity. The restrictions and requirements set forth in such covenant shall be included in any instrument of conveyance of the subject property and shall be recorded. Owners and operators of oil/water separators, wet ponds, bio-filtration/biofilter facilities, sediment and erosion control systems, infiltration systems and any other pollution control devices shall operate and maintain such control devices to assure that performance meets the intended level of pollutant removal. Recommended maintenance schedules for these devices are to be included in the Maintenance Covenant.

2.5 FINAL PROJECT APPROVAL

Island County Public Works will not recommend the approval of final plats, short plats, PRDs, Site Plans or the granting of certificates of occupancy, and will not release financial securities until the following applicable items have been completed: (It should be noted that performance bonds may be accepted in lieu of the items listed below, for final plats, in the event that the plat will be recorded prior to construction completion. However, in no event shall a performance bond be accepted for safety items such as guard rails or pond fencing.)

2.5.1 For Permits For Which Compliance With Specified Best Management Practices (Bmps) Is Required

Conditions must be met during construction and before issuance of any occupancy permit.

2.5.2 For Permits Requiring Only A Drainage Narrative Or Preliminary Drainage Plan

Conditions of the Drainage Narrative or Preliminary Drainage Plan must be met, except that final landscape planting, if required, may be delayed to the appropriate season for said planting provided.

2.5.3 For Permits Requiring Final Drainage Plans/Reports, Erosion And Sedimentation Control Plans Or Engineered Grading Plans

1. Completion, to the satisfaction of the Director, of all work indicated on the approved plans.

2. Submittal of one set of as-built plans, if substantially different from the approved final drainage plans. All sheets containing road and drainage plans, profiles and associated details shall be included in the as-built set. It is not necessary to include grading and erosion control plans and details. The as-built plan set shall be stamped "RECORD DRAWING" and shall be signed and stamped by a professional engineer or land surveyor.

3. Submittal of a recorded (with the Island County Auditor) Maintenance Covenant for maintenance of private storm drainage facilities which gives Island County the right to inspect the facilities and guarantees to the County that the facilities will be properly maintained.

4. Review and approval by the Department of Public Works of the final plat, short plat, or site plan map and associated documentation.

5. Fulfillment of all conditions of approval.

6. Permanent stabilization and restoration of the project site. Final replanting may be delayed to the appropriate season, provided that temporary soil stabilization measures are in place and financial security is provided to assure the completion of work.

7. Submittal, by the Project Engineer, of the Operation and Maintenance Manual for privately maintained and/or non-standard stormwater facilities.

8. Payment of all outstanding fees.

9. Submittal of any required maintenance bonds.

2.6 PERMIT APPLICATION REQUIREMENTS

The purpose of this section is to provide guidance on the timing of submittal of the required plans to their highest level of completeness for various applications:

2.6.1 Residential Building Permits

Standard	No submittal requirements; BMPs as condition of approval of the permit.
Critical Drainage Area	Drainage Narrative or elect to accept BMPs as conditions of approval of the permit.
Geological Hazardous Area	Geotechnical Report/Hold Harmless and Covenant
Steep Slope	Soils Engineer Report
2.5 acre parcel or greater	Exempt unless within Critical Drainage Area or potentially impacting a critical area.

2.6.2 Commercial/Non-Residential Building Permits

Standard – Without Prior Site Plan	Final Drainage Plan
Standard – With Prior Site Plan	Final Drainage Plan or Letter of Prior Public Work's Approval of Final Plan.
Critical Drainage Area	Same as above with special Critical Drainage Area conditions
UGA	As applicable, same as above with special UGA conditions

2.6.3 Commercial/Non-Residential Site Plans

Standard	Applicant may choose to submit preliminary drainage plans/narrative, if proposing Low-Impact Development, or final drainage plans at this stage.
Critical Drainage Area	Same as above with special Critical Drainage Area conditions.
2.5 acre parcel(s) or greater	Exempt unless within Critical Drainage Area or potentially impacting a critical area.
UGA	Same as above with special UGA conditions.

2.6.4 Short Plats

Standard	Drainage Narrative
Critical Drainage Area	Preliminary Drainage Plan meeting critical drainage area requirements or Drainage Narrative if proposing Low-Impact Development
2.5 acre parcel or greater	Exempt unless within Critical Drainage Area or potentially impacting a critical area.
UGA	As applicable, same as above with special UGA conditions

2.6.5 Plats

Standard	Preliminary Drainage Plan or Drainage Narrative if proposing Low-Impact Development.
Critical Drainage Area	Preliminary Drainage Plan meeting critical drainage area requirements or Drainage Narrative if proposing Low-Impact Development
UGA	As applicable, same as above with special UGA conditions

2.6.6 PRDs

Standard without land division	Drainage Narrative
Critical Drainage Area	Preliminary Drainage Plan meeting critical drainage area requirements or Drainage Narrative if proposing Low-Impact Development.
UGA	As, applicable, same as above with special UGA conditions

2.6.7 Engineered Grading Permits

Final drainage plan meeting special area requirements. e.g. critical drainage or UGA area.

2.6.8 Grading Permit

Standard	Accept BMPs as a condition of approval.
Critical Drainage Area	Preliminary Drainage Plan meeting critical drainage area requirements or Drainage Narrative if proposing Low-Impact Development
Conversion Option Harvest Plan	Drainage Narrative
Class IV - FPA	Preliminary drainage plan meeting special area requirements, e.g. critical drainage or UGA area.

DESIGN STANDARDS

3.1 STORMWATER QUANTITY CONTROL MINIMUM REQUIREMENTS

The following minimum requirements for stormwater quantity control shall apply to all land developments that meet the definition of a major development, unless otherwise stated:

1. Natural drainage systems. For all developments, including small residential, surface water and stormwater entering the development site in its pre-development state shall be received at the naturally occurring or otherwise legally existing locations. All surface water and stormwater leaving the development site shall be discharged at all times during and after development at the naturally occurring or otherwise legally existing locations so as not to be diverted onto or away from adjacent downstream properties, EXCEPT, diversion which will correct an existing man-made downstream problem may be permitted by the Director. For the purposes of this Ordinance, "naturally occurring location" shall mean the location of those channels, swales, and existing and established conveyance systems as defined by the first documented topographic contours existing for the subject property, either from maps or photographs, site inspections, decisions of a court of law, or other means determined appropriate by the Director.

2. Allowable discharge rate.

   a. The following stormwater runoff quantity controls shall be achieved, except as provided in subsection 2b:

      i. Allowable discharge rate. The post-development peak stormwater discharge rates from the development site for the 25-year, 24-hour duration storm events shall at no time exceed the pre-development peak stormwater runoff rates for the same design storm events, except as expressly permitted herein.

   b. The stormwater runoff quantity controls of subsection 2.a. above, shall not apply if the stormwater runoff generated on-site is treated for water quality using appropriate best management practices, and:

      i. The proposed increase in peak discharge for a 100-year, 24-hour design storm is less than 0.1 cubic feet per second, and the

downstream analysis required by this chapter demonstrates that there will be no adverse impacts to existing drainage facilities or to critical areas within one quarter mile of the subject property; or

ii. The stormwater runoff is discharged to a regional stormwater management facility and the following conditions are met:

a) the facility is in operation by the time construction begins;

b) the conveyance system between the proposed project and the regional facility meets the requirements of this manual; and

c) the regional facility meets the stormwater runoff quantity control standards of subsection 2 a; or

d) The stormwater runoff is discharged directly into Puget Sound and the applicant can demonstrate that the conveyance system between the proposed project and Puget Sound where runoff quantity control is not required by other governmental agencies and streambank or shoreline erosion will not occur.

iii. A proposed project that drains to a “major receiving water” and meets all of the following criteria for direct discharge to that receiving water:

a) The conveyance system between the project site and the ordinary high water line of the major receiving water shall be comprised of manmade conveyance elements (pipes, ditches, outfall protection, etc.) and shall be within public right-of-way or a public or private drainage easement.

b) The conveyance system shall have adequate capacity for the entire contributing drainage area assuming build-out conditions to current zoning for area.

c) The conveyance system must be adequately stabilized to prevent erosion, assuming the same basin conditions as assumed in criteria “b” above.

The direct discharge proposal shall not divert flows from or increase flows to an existing wetland or stream sufficient to cause a significant adverse impact.

c. Streambank erosion control.

i. Streambank erosion control BMPs shall utilize infiltration to the fullest extent practicable if site conditions are appropriate and ground water quality is protected. Streambank erosion control BMPs shall be selected, designed, and maintained according to the Manual. Streambank erosion control BMPs shall not be located within a natural vegetated buffer, except for necessary conveyance systems as accepted by the Island County Department of Community Development.

ii. Where stormwater directly or indirectly discharges to streams, streambank erosion protection is required and the post-development peak stormwater discharge rate from the development site for the 2-year, 24-hour duration storm event shall not exceed fifty percent (50%) of the pre-development peak stormwater runoff rate for the same design storm event. For the purposes of this provision, streams in unincorporated Island County are identified, but not limited to the following:

a) Glendale;
b) Maxwelton;
c) Deer Creek;
d) Cultus;
e) Chapman;
f) Kristoferson;
g) Carp;
h) North Bluff; and
i) Old Clinton

3. Closed depressions. Closed depressions shall be analyzed using hydrograph routing methods. Infiltration shall be addressed where appropriate. If a proposed project will discharge runoff to an existing closed depression that has greater than 5,000 square feet of water surface area at overflow elevation, one of the following requirements must be met:

a. CASE 1: The pre-development 25-year recurrence, 7-day and 24-hour duration design storm events from the drainage basin tributary to the closed depression shall be routed into the closed depression using only infiltration as outflow. If the water surface elevation does not overflow the closed depression, no runoff may leave the site for the same storm events in the post-development condition of the drainage basin. . This may be accomplished by excavating additional volume in the closed depression

subject to all applicable requirements. If a portion of the depression is located off of the project site, impacts to adjacent properties shall be evaluated.

b. CASE 2: The pre-development 25-year recurrence, 7-day and 24-hour duration design storm events from the drainage basin tributary to the closed depression shall be routed into the closed depression using only infiltration as outflow. If overflow occurs, the closed depression shall be analyzed as a detention/infiltration pond. The required performance shall not exceed the pre-development runoff rates for 50% of the 2-year and 100% of the 10-year and 25-year, 24-hour duration design storms. This will require that a control structure, emergency overflow spillway, access road, and other applicable design criteria be met. If the facility is to be maintained by Island County, the closed depression shall be placed in a dedicated tract. If the facility is to be privately maintained, the closed depression shall be located within a drainage easement. If a portion of the depression is located off of the project site, impacts to adjacent properties shall be evaluated.

c. CASE 3: When a proposed project is contributory to a closed depression located off-site, the volume of runoff discharged shall not be increased for the 2, 10 and 25-year, 24-hour duration. The exception to this requirement is in the case where discharge would not result in an increase in water surface elevation of greater than 0.01-foot for the 100-year recurrence, 7 day and 24 hour storm events.

4. Critical drainage areas - For all development. In the event that conditions downstream from a proposed development site are exceptionally sensitive to potential stormwater discharges from the development site and the area has been designated a Critical Drainage Area by the Board of Island County Commissioners, the total retention/detention storage volume and/or a reduction of allowable stormwater discharge rates, will be in accordance with the requirements specified in the Board resolution establishing the Critical Drainage Area.

5. Correction factors. Where stormwater detention is proposed to meet stormwater quantity controls, volume correction factors as outlined in the Manual shall be applied.

3.1.1 Runoff Computation And Analysis Methods

This section presents the following three runoff computation methods accepted for hydrologic analysis and design in Island County:

1. Rational Method: This method is most appropriate for sizing new conveyance systems that drain smaller, quickly responding tributary areas (i.e., less than 10 acres) where very short, intense storms tend to generate the highest peak flows. The Rational Method may also be used for conveyance sizing in any size basin if the attenuation effects of existing storage features within the basin are ignored.

2. TR-55/SBUH Method: The Soil Conservation Service (SCS) TR-55 method or the SBUH method may be used for conveyance sizing where tributary areas are greater than or equal to 10 acres and if storage features are ignored. The peak flows from these single-event models are considered conservative for larger tributary areas if the flows are not routed through existing storage features.

3.1.2 Sizing Detention And Retention Facilities

To size retention or detention facilities, the minimum computation standard shall be the Soil Conservation Service (SCS) method with level pool routing, the Santa Barbara Unit Hydrograph (SBUH) method, or other equivalent method approved by the director. A factor of safety of 1.3 times the calculated retention or detention capacity shall be used for the SCS, SBUH or equivalent method.

3.2 STORMWATER CONVEYANCE FACILITIES

All new conveyance system elements, both onsite and offsite, shall be analyzed, designed, and constructed per the following requirements:

3.2.1 Pipe Systems

1. New pipe systems shall be designed with sufficient capacity to convey and contain (at minimum) the 25-year peak flow assuming developed conditions for onsite tributary areas and existing conditions for any offsite tributary areas. The Department of Fish and Wildlife will require a 100-year peak flow design for projects requiring HPAs.
2. The upstream end of a pipe system that receives runoff from an open drainage feature (pond, ditch, etc.) shall be analyzed and sized as a culvert as described below.

3.2.2 Culverts

1. New culverts shall be designed with sufficient capacity to meet the headwater requirements and convey (at minimum) the 25-year peak flow assuming developed conditions for onsite tributary areas and existing conditions for any offsite tributary areas.

2. New culverts proposed in fish bearing streams shall be designed to provide for fish passage.

3. Culverts installed in County road right-of-way shall be a minimum diameter of 12 inches.

3.2.3 Ditches/Channels

New ditches/channels shall be designed with sufficient capacity to convey and contain, at minimum, the 25-year peak flow assuming developed conditions for onsite tributary areas and existing conditions for any offsite tributary areas.

3.3 STORMWATER QUALITY CONTROL

Water quality BMPs shall be used to the maximum extent practicable to control pollution in stormwater and to comply with the standards of the County's Stormwater Ordinance and the Referenced Design Manual. Water quality BMPs are intended to provide runoff water quality treatment for all storm events with intensities less than or equal to the water quality design storm event. Treatment BMPs shall be sized to capture and treat developed runoff from the water quality design storm, defined as the 6-month, 24-hour duration storm event. For the purpose of this standard, the precipitation from a 6-month, 24 hour storm event shall be considered equivalent to 64% of the precipitation from a 2-year, 24 hour storm event. All treatment BMPs shall be selected, designed, and maintained according to the Manual.

3.3.1 Incorporation Into Stormwater Quantity Control Facilities

Water quality BMPs may be incorporated into the design of stormwater quantity control facilities where appropriate.

3.3.2 Minimum Requirements

The following minimum requirements for stormwater quality control shall apply to all major development activities.

1. Source control of pollution. Source control BMPs shall be applied to the maximum extent practicable.

2. Stormwater treatment BMPs. Treatment BMPs shall be sized to capture and treat developed runoff from the water quality design storm event. Stormwater treatment BMPs shall be selected, designed, and maintained according to the Manual. Stormwater treatment BMPs shall not be built within a natural vegetated buffer, except for necessary conveyance systems or low-impact systems.

3. All major developments shall provide treatment of stormwater discharge utilizing wetponds and/or biofiltration BMPs. Other water quality BMPs may be substituted subject to the granting of a modification pursuant to the requirements of ICC 11.03.

   a. Wetponds. Wetponds shall be required for development sites with greater than five (5) acres of new impervious surface subject to motor vehicle use, which: (a) discharges directly to a regional facility, receiving body of water, or closed depression without providing on-site stormwater quantity control; or (b) discharges directly or indirectly to a fish bearing stream, or wetland within 1 mile downstream of the site.

   b. Presettling basin. All stormwater, prior to discharge to a facility designed to utilize infiltration, shall pass through an appropriate stormwater treatment BMP designed to remove suspended solids as described in the Manual.

4. Water quality sensitive areas. Where the Director determines that the mimimum requirements for major development do not provide adequate protection of water-quality sensitive areas, either on-site or within the drainage basin in which the development is located, more stringent controls shall be required to protect water quality. An adopted and implemented basin plan may be used to develop requirements for specific water quality sensitive areas.

5. Off site analysis and mitigation. Submittals for all Major Development projects shall include an analysis of downstream water quality impacts resulting from the development and shall provide mitigation for these impacts. The analysis shall extend a minimum of one quarter of a mile downstream from the development site.. The existing or potential impacts to be evaluated and mitigated shall include, but not be limited to, excessive sedimentation, streambank erosion, discharges to ground water contributing or recharge zones, violations of water quality standards, and spills and discharges of pollutants. The off site analysis shall include a field investigation of the contributing drainage area.

6. Oil/Water separators. All stormwater from paved areas subject to motor vehicle traffic shall flow through a spill-containment type oil/water separator prior to discharge. Development sites that include use, storage or maintenance of heavy equipment, and those development sites that include storage or transfer of petroleum products, shall utilize appropriately sized API or CPS-type oil/water separators prior to discharge to sanitary sewer or dead end sump.

3.4 DISCHARGES ONTO OR WITHIN STEEP SLOPES AND/OR GEOLOGICALLY HAZARDOUS AREAS

1. For all development, including small residential, the proposed discharge of

surface water in a location where the natural (existing) discharge is unconcentrated over or onto a slope steeper than 40% and/ or over or onto a geologically hazardous area, must meet the following criteria:

a. IF the 100-year peak discharge is less than or equal to 0.2 cfs under existing conditions and will remain less than or equal to 0.2 cfs under developed conditions, THEN outfall runoff may be discharged onto a rock pad shaped in a manner so as to disperse flow, upon the written evaluation and recommendation of a geotechnical engineer and the approval of a grading permit. The outfall and rock pad must be located upslope from the steep slope; or

b. IF the 100-year peak discharge is greater than 0.2 cfs but less than or equal to 0.5 cfs under existing conditions and will remain less than or equal to 0.5 cfs under developed conditions, THEN runoff must be conveyed to a dispersal trench or other dispersal system located upslope from any sensitive area steep slope, upon the written evaluation and recommendation of a geotechnical engineer and the approval of a grading permit; or

c. If the 100-year peak discharge is greater than 0.5 cfs for either existing or developed conditions or when any discharge is proposed without a written evaluation and recommendation of a geotechnical engineer, THEN upon approval of a grading permit, a tightline conveyance system designed by an engineer must be constructed to convey the runoff to the bottom of the slope with adequate energy dissipation at the bottom.

2. New Point Discharges Over Geologically Hazardous Areas: New tightline conveyance systems traversing a geologically hazardous area or slope shall be designed with sufficient capacity to convey and contain (at minimum) the 100-year peak flow assuming full build-out conditions for all tributary areas, both onsite and offsite.

3. The applicant must posses title or easement interest to the property over which a conveyance system and its discharge is proposed to be installed. In areas subject to the State Shoreline Management Act, all permits and approvals must be obtained prior to the installation of the system.

3.5 URBAN GROWTH AREAS

The standards for stormwater quantity, quality, and conveyance for development activities within an Urban Growth Area shall be that of municipality or the County, whichever is the more stringent standard.

EXCEPTIONS AND ALTERNATIVES

These **EXCEPTIONS AND ALTERNATIVES** form a part of, and are incorporated in, the Design Manual and modify, delete, add, and replace provisions of the Design Manual as follows.

4.1 VOLUME III – RUNOFF CONTROL

4.1.1 Control Structures - III-2.4 - Use Of Pumps Or Mechanical Valves

The use of conventional gravity control structures is preferred and should be used unless other constraints are compelling, such as flooding of outfall conveyances due to tidal conditions. The use of pumps or control valves may be allowed in such events to control the discharge from detention ponds to avoid downstream flooding, and to select desired discharge times and pumping duration. All local and state regulations must be followed, placing particular emphasis upon safety, reliability, controls, maintenance, protection of equipment, and long term use. A Licensed Professional Engineer shall design the control pump station, and the design shall meet similar flow criteria of conventional gravity control structures.

4.2 SECTION I-2.4 - SMALL PARCEL REQUIREMENT #2:

Stabilization of Denuded Areas

Soil stabilization. All exposed and unworked soils shall be stabilized by suitable application of BMPs, including but not limited to sod or other vegetation, plastic covering, mulching, or application of ground base on areas to be paved. All BMPs shall be selected, designed, and maintained in accordance with an approved manual. From October 1 through April 30, in areas where construction has been completed or will not undergo additional disturbance for a period of 30 days or greater, no soils shall remain exposed for more than 2 days. From May 1 through September 30, in areas where construction has been completed or will not undergo additional disturbance for a period of 30 days or greater, no soils shall remain exposed for more than 7 days.

4.3 SECTION I-2.5 - EROSION AND SEDIMENT CONTROL REQUIREMENT #1

Stabilization and Sediment Trapping

All exposed and unworked soils shall be stabilized by suitable application of BMPs. From October 1 through April 30, in areas where construction has been completed or will not undergo additional disturbance for a period of 30 days or greater, no soils shall remain unstabilized for more than 2 days. From May 1 through September 30, in areas where

construction has been completed or will not undergo additional disturbance for a period of 30 days or greater, no soils shall remain unstabilized for more than 7 days. Prior to leaving the site, stormwater runoff shall pass through a sediment pond or sediment trap, or other appropriate BMPs.

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Need to attach drawings

EXHIBIT A
Island County Stormwater Design Manual

Saved as DrainageManual,980923.doc

9/23/98: Correction on page 15: After workshop session with Board on 9/23/98: Delete most of 2.4.1 4.a. and move rest of it to 4.b. and renumber.

9/23/98: Put language per Julie's email of 9/23/98 12:02 into 2.4.1 4.b. above (which is now 4.a. since a was deleted.)

Saved as DrainageManual,980925.doc

9/25/98: Made corrections per Julies email this morning

9/25/98: Made corrections per Mac and LK's conversation and DOE request per LK.

9/27/98: Took out most of section 4.1 per LK email of 9/26/98

9/28/97: Put back 9/27/98 deletion per LK.