Community Services - Planning Section

1450 K.L.O. Road
Kelowna, B.C. V1W 3Z4

Telephone: (250) 868-5227
Fax: (250) 762-7011
www.regionaldistrict.com

Terms of Reference
Professional Reports for Planning Services

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The purpose of this document is to describe the requirements for technical and professional reports submitted to meet requirements of land and development bylaws of the Regional District of Central Okanagan (RDCO). These requirements have been reviewed by local, regional and provincial agencies and associations.[1] The referenced reports are typically requested at time of neighbourhood planning, property rezoning, or subdivision to ensure that the property is suitable for the use intended.

Professional Reports may also be required for Development Permits to demonstrate how environmental and design objectives will be met or at time of Building Permit if the owner is seeking a design that does not coincide with earlier professional recommendations.

Applicants are encouraged to discuss the requirements below with RDCO Planning Services staff, and to coordinate these requirements with those of other departments and agencies. The requirements below are minimum standards, and allow staff to process an application for development without delay. They are intended as a reference to property development proponents in determining the scope of work required by qualified registered professionals. In all cases, qualified registered professionals need to prepare their reports through an integrative process whereby recommendations concerning one aspect of development (e.g. storm water management) are integrated with other aspects (e.g. fish habitat protection).

The requirements are detailed as follows:

General

1. Professional standards (applicable to all technical and professional reports)
2. Bonding (applicable to all remediation work)
3. Location of Project and Mapping

Specific

4. Geotechnical Study
5. Environmental Impact Assessment
6. Wildfire Hazard Assessment
7. Stormwater Management and Drainage Plans
8. Groundwater Management Assessments
9. Flood Protection
10. Visual Quality Assessments
11. Traffic Impact and Pedestrian Safety Studies

[1] BCSLA, AIBC, CAB, UDI, APEGBC, CHBA, COEAC, MOE, MOT, and MOF.

1.0 PROFESSIONAL STANDARDS

1. Reports are to be prepared by, **signed and sealed** by a Professional Registered in British Columbia (e.g. RPBio, PEng, MBCSLA, RPF, PGeo) and signed off within the document or by a covering letter bound into the document. A photocopy signature and seal is not accepted; an original signed and sealed report must be retained on Regional District files. The person and corporation who prepared the report must be identified, and the person or corporation who provided the funding, or at whose bequest the report was prepared must be identified.
2. The qualified professional personnel should include, at minimum, a Registered Professional Biologist with extensive experience with the ecosystems and wildlife species of the Okanagan region, with standard development practices and with published Best Management Practices. The professional must be prepared to work within a comprehensive design process where the development proposal adapts to requirements from multiple approval agencies.
3. The report must reflect the site conditions **prior** to disturbance and the anticipated site conditions post development.
4. The report must acknowledge off-site developments (both existing and those permitted by current regulation) and the impact these developments may have on the subject site.
5. The report must conform to all regional bylaws, federal and provincial legislation, regulations and standards.
6. Methods must be repeatable and results based on agency or scientific standards appropriate to the landscape being assessed.
    a. All personnel working on the report and their contributions must be acknowledged.
    b. Because disciplines are not equally standardized in all professions, a one-page Biography or C.V. of each professional and technical staff contributing to the results and interpretations in the report must be included as an addendum.
    c. The level of effort in terms of personnel and time spent on site evaluations must be clearly stated including time of year and length of site evaluations. Site conditions likely to be absent during the period of evaluation need to be documented and assessed by alternative methods.
    d. All data and non-standard methods contributing to the results and interpretations contained in the report must be included in the report or in appendices, either copies of hand-written field sheets or the data as entered in a digital format.

2.0 BONDING

If development conditions include mitigation, maintenance or monitoring plans, the applicant shall post a maintenance/monitoring bond or other security in a form and amount **determined by the qualified professional** and deemed acceptable by the RDCO. The bond shall be sufficient to guarantee that all required mitigation measures will be completed and furthermore continue to function properly as prescribed. Bonds shall also be required for restoration of significant natural features (i.e. ecological corridors) and buffers not performed as part of a mitigation or maintenance plan. Bonding requirements shall be split into two (2) components: *Performance Bonds* and *Maintenance Bonds*.

2.1 Performance Bonds

Performance bonds guarantee the faithful performance and that work will be completed according to the contract terms and conditions. A performance bond will be required as a financial tool used to guarantee that in the event of a developer or contractor default, funds are available to finish the construction of prescribed environmental mitigative and compensative works.

2.2 Maintenance Bonds

Maintenance bonds may be required after construction to guarantee the performance / proper functioning of the works. The role of a maintenance bond is to protect against design defects and/or failures in workmanship, and to guarantee that the works constructed under the permit will be regularly and adequately maintained throughout the maintenance period. Thus, the maintenance bond guarantees that the faulty work of the developer or contractor will be corrected or defective materials will be replaced.

2.3 Bond Amount

The performance bond shall be in the amount of 125% of the estimated cost of the prescribed works (including monitoring). Maintenance bonds will be in the amount of 10% of the performance bond.

Bonds shall be in the form of a surety bond, assignment of savings account, or an irrevocable letter of credit guaranteed by an acceptable financial institution with terms and conditions acceptable to the RDCO attorney.

2.4 Duration

The duration of maintenance/monitoring obligations shall be established by the RDCO, based upon the nature of the proposed mitigation, maintenance or monitoring and the likelihood and expense of correcting mitigation or maintenance failures with respect to design and ecological function.

Performance bonds shall remain in effect until the RDCO has been notified, in writing, by the qualified professional that the standards bonded for have been met and substantial completion of the works has been satisfied. Once substantial completion of the works have been certified, the RDCO will withhold 10% of the credit as the maintenance bond. Maintenance bonds (10% of the performance bond) shall be held for a minimum of two (2) years (growing seasons) to ensure that the required mitigation has been fully implemented and demonstrated to function (ecologically or as designed). The maintenance bond may be held for longer periods if, throughout the initial 2-year period the persistent failure of the works is documented.

3.0 LOCATION OF PROJECT AND MAPPING

The proponent should commit to provide the following in the application:

1. Legal site description including plan number, lot number, and district lot. For large parcels, UTM coordinates of the site location where specific works will occur may be required.

2. Location map at appropriate scale (1:20,000) indicating the regional setting. This information should be overlaid on the most current cadastral map.

3. Site map at appropriate scale (minimum 1:200 and maximum 1:5,000) indicating the layout of project components and activities. This information should be overlaid on the most current cadastral map outlining all surrounding property boundaries. Map legends should show clear descriptions of all symbols used as per provincial standards.

4. Site profiles and cross sections in sufficient number to demonstrate terrain conditions prior to disturbance and intended conditions post development. When development is occurring on or near slopes that are greater than 20%, a topographic survey may be required. The survey is to show natural slope contours (at appropriate contour intervals of 1 to 5 meters) and the post development contours.

5. Maps should be presented in full-size, colour format and at least one copy must be printed to scale. Any additional copies at a reduced size must be clearly marked “Not to Scale”.

6. Site plans / sketches / colour photographs indicating project location, site features and activities identified in relation to easily identifiable landmarks such as those found on accompanying maps.

7. Proximity to designated environmentally sensitive areas such as those previously identified in RDCO documents (Official Community Plans or otherwise). This includes aquatic, terrestrial and hillside areas, watercourses and updated sensitive ecosystem inventory locations.

8. Where available, digital copies of supporting information presented should be provided in a format compatible with the ESRI platform (shapefiles) in NAD83 UTM Zone 11.

9. All image and data sources will be appropriately referenced and clearly indicate the date when this information was developed to certify that the most up-to-date information available was used in completing the relevant assessments.

4.0 GEOTECHNICAL STUDY

1. A geotechnical engineering review is required to assess slope stability on sites that exceed 25% natural grade, or otherwise identified as having geotechnical hazard (such as identified hazardous areas, erosion potential areas or floodplains).

2. A site survey will include topographic and features showing natural slope contours in 1 to 5 meter contour intervals, spot elevations, swales, knolls, ridgelines, bedrock outcrops, cliffs and slope transitions, seasonal and permanent watercourses, drainage routes, vegetation, top of bank and break lines.

3. The topographic survey will include current and future roads, site grading and post development contours.

4. The geotechnical engineer will determine whether the proposed development is feasible in a safe manner.

5. The geotechnical report will identify potential hazards to the subject land and to neighbouring properties from existing or future development.

6. Slope stability should be addressed such that there is no net decrease in overall slope stability resulting from the proposed development and off-site slope instabilities are mitigated to provide for safe occupation and use of nearby lands.

7. Where a potential hazard is identified, a construction management plan must be developed and monitored by the geotechnical engineer.

8. Where a potential hazard is identified, specific geotechnical assurance, provision of insurance, and the provision of bonding to secure the safe completion of on-site and off-site construction works will be required.

5.0 ENVIRONMENTAL IMPACT ASSESSMENT

The following definitions apply to this section:

Avoidance – means the elimination or moving of proposed development activities, (including but not limited to land clearing, grading and blasting), away from identified sensitive areas through appropriate project siting and design.

Mitigation – means actions taken during the planning, design, construction and/or operation of works to minimize potential adverse effects on sensitive habitats, and includes (but is not limited to) redesign or relocation of project components, timing of works, and methods of construction or operation which minimize changes to habitat attributes that affect its habitat function.[2]

Compensation – means the replacement of natural habitat and/or features or the increase in the productivity or function of existing habitat or ecosystems where avoidance, mitigation techniques and other measures are not adequate to maintain those habitats or ecosystems

[2] Derived from City of Kelowna Official Community Plan

affected by human activity.[3] It may include, in order of preference, creating, restoring, enhancing or preserving habitats or ecosystems, or recovering species or enhancing populations, on the development site, and is meant to replace an area equal to or greater in size and quality than that which was lost or impacted.[4]

Compensation Ratio – means the proportion of habitat area replaced to area of lost or disturbed habitat displayed, e.g. 3:1.

Ecosystem – means a functional unit consisting of all of the living organisms and abiotic (non-living) factors of a unit or portion of the landscape, together with the processes that link them including nutrient cycling and energy flow. An ecosystem can be any size, but here we define them as a portion of the landscape with relatively uniform vegetation and soils.[5]

5.1 General

1. The policy, legislation, bylaw or regulatory framework (e.g. Sensitive Terrestrial Ecosystem Development Permit) that triggered the preparation of the Environmental Impact Assessment must be clearly described within the introductory section of the EIA. The Terms of Reference for any specific project will usually be required within the regulatory framework, and the associated regional policies. The regulatory/policy framework will determine the actual issues addressed in the EIA.

2. Assessments will be broken down into two phases:

    - **Inventory Phase**, or pre-planning phase, based on existing biological and physical conditions, or such conditions prior to any recent site disturbances; and,
    - **Impact Assessment and Mitigation Phase**, outlining the impact of proposed or intended developments to be addressed in the EIA. Not every EIA will address both phases, but the phase(s) being addressed will be identified in each EIA.

3. The time, number of personnel, and type of expertise of each person contributing to the assessment will be specified, and justification, or the reason for choosing this type and level of effort must be included. This will include the level of knowledge and/or inventory required to assess impacts to meet regulatory and policy requirements.

4. Pre-existing information for the site collected by government agencies or in the published literature will be gathered, assessed and presented.

5. Gaps in the existing information will be clearly identified and the best ways to fill these information gaps will be stated. Additional fieldwork as identified to fill information gaps to reach the desired level of information to conduct the EIA will be provided. Information gaps may also be filled from local information sought from other interested parties including current and past owners, neighbors, and other local

[3] (Derived from City of Kelowna Official Community Plan).
[4] (derived from Ministry of Environment – Towards an Environmental Mitigation and Offsetting Policy for Provincial Crown Land in British Columbia, draft 2010).
[5] (District of West Kelowna Official Community Plan)

groups to make up for the typical short time-frame and limited fieldwork undertaken to complete EIAs.

6. Field assessments will be conducted to meet the policy and regulatory requirements and to identify impacts on the environment.

7. A Cumulative Impact Analysis will consider surrounding lands, and their uses and impacts. In most cases on very small parcels, individual environmental impacts may be small, and therefore difficult to measure and/or assess, or seem negligible in total impact. However, cumulative impacts of the same nature on adjacent lands, or all similarly-zoned land, or all land with similar future generalized use, may be large or even extreme. The RDCO can provide consultants with GIS files of zoning, future land uses and ecosystem inventories (at cost) that will allow for Cumulative Impact Assessments over entire community (or perhaps even larger) areas in a GIS framework.

8. Where facts are incomplete or surmised, the levels of confidence or reliability in the environmental knowledge will be assessed and documented. Knowledge gaps required for an assessment that could not be filled will be assessed and the impact of a lack of such knowledge documented.

5.2 Environmentally Sensitive Areas[6] (ESAs)

A fundamental task within the Inventory Phase is the identification of sites within the study area that qualify as ESAs. Areas are considered to have some degree of environmental sensitivity if they fulfill one or more of the following criteria:

a) Areas described according to the Standard for Terrestrial Ecosystem Mapping in British Columbia and qualifying as Sensitive or Other important ecosystems according to the regional Sensitive Ecosystem Inventory (SEI) or a similar evaluation protocol.
b) Suitable habitat areas for threatened or endangered plant or wildlife species, so classified at the local, provincial or federal level.
c) Natural areas that are known to be important in the life cycle of one or more indigenous plant, fish or wildlife species. This includes, but is not limited to, breeding/spawning areas, winter habitat, critical habitat features (e.g. hibernacula), wildlife corridors, or migration stop-over points.

ESAs differ in their biological value within the study area and within the context of their surrounding region. Their biological value at the time of assessment can be positioned along a continuum from very high to low biological value depending on a number of factors. The potential biological value must also be considered in ranking ESAs, particularly when considering areas to be avoided or mitigated and potential compensation areas.

5.2.1 ESA Stratification Criteria

Several factors may contribute to an area's environmental sensitivity rating. The importance of various factors will vary from site to site. It is recognized that qualified environmental

[6] Adapted from the works of J. Grods RPBio, L. Gyug RPBio, and M.Sarell RPBio.

professionals use a variety of methods to weight the various factors. The professional report **must describe the rationale used to determine biological value and the methodology used to rank ecological sensitivity such that the rankings and weightings will be reproducible and are transparent**. The current condition arising from previously approved development will be taken into account in the determination of ESA ranking; however, previous development not approved will consider habitat potential rather than current condition.

The four classes of ESA value will be called Very High (ESA 1), High (ESA 2), Moderate (ESA 3), and Low (ESA 4). The qualified environmental professionals must utilize the best available local data for ecosystem mapping and biological values and are expected to refine the mapping to a suitable resolution appropriate to the size of the site. Smaller sites (e.g. single lots) require larger scales up to 1:200, while larger sites (e.g. sector plans, neighbourhood plans) require smaller scales as low as 1:5000. On small lots (e.g. less than 1 ha) it may not be possible to distinguish ESA rankings. In this case, the professional report will as a minimum identify important habitats/features for retention and mitigation for any proposed development.

At a minimum, the following factors are to be considered in assigning a value to ESA areas:

1. Physical features

a) Ecosystem inventories and mapping
   - Biogeoclimatic Ecosystem Classification (BEC) zone
   - Sensitive Ecosystem Inventory (SEI)
   - Foreshore inventory and Mapping (FIM)/Aquatic Habitat Index (AHI)
   - Sensitive Habitat Inventory and Mapping (SHIM)
   - Seral and structural stage
   - Biodiversity Conservation Strategy[7]
   - Conservation Analysis for the Central Okanagan Valley[8]
   - Any and all past environmental assessments on the property and adjacent lots

b) Landscape context
   - Contiguity to other ESAs (buffering function)
   - Edge effects
   - Cumulative impacts
   - Relation/dependence of ecosystems beyond its boundaries.
     Examples include but are not limited to:
     - Water storage
     - Recharge zones
     - Range of lifecycle habitat requirements

c) Unique or rare landforms or other aesthetic considerations
d) Size of the lot under consideration

2. Indigenous plant and animal species, and plant communities

a) Suitability for rare species (red- and blue-listed species provincially and Species at Risk federally).
b) Critical and specialized habitat features. Examples include but are not limited to:
   - Breeding/denning/roosting/nesting/spawning areas
   - Migration routes/stop-over
   - Hibernacula

[7] Forthcoming
[8] Haney and Iverson, 2009

- Connection/movement corridors/habitat connectivity
- Reported sightings of uncommon species and species at risk
- Winter range
- Wetland/aquatic habitats
- Fisheries sensitive zones
- Riparian communities
- Floodplains

c) Species diversity/habitat complexity/habitat potential
d) Rarity in the local/regional context

3. Sensitivity

- Ability to tolerate anthropogenic disturbance
- Resilience to imposed stresses on an ecosystem
- Current condition such as biological integrity
- Potential for rehabilitation or recovery after disturbance
- Long term impacts on habitat values and ecosystem functionality
- Severity or extent of the disturbance

The above factors shall be applied to the following four-class rating system and shall be applied to all ESA evaluations:

Very High (ESA – 1) contain rare physical features, plants and animals or are ecologically functioning natural systems. Various types of habitat will qualify on the basis of sensitivity, vulnerability, connectivity and biodiversity. All wetlands, high value foreshore, locally/regionally rare plant communities, animals and habitats will be considered as Very High.

Areas given this rating are considered the highest priority for protection of ecosystem function and values and should be left undisturbed. Avoidance and conservation of Very High ESA designations should be the primary objective. If development is required and justified within these areas, mitigation to reduce or eliminate environmental impacts shall be required. Only when residual, permanent loss of habitat is unavoidable and after it proves impossible or impractical to maintain the same level of ecological function, will compensation be considered. It is expected that there will be 100% retention of Very High value habitat. A minimum of 80% of these ESAs are to be retained and the rest will be compensated. Refer to Section 5.4 for further direction on compensation.

High (ESA – 2) contain physical features, plants, animals and habitat characteristics which contribute toward the overall diversity and contiguous nature of the surrounding natural features. These will include Sensitive Ecosystems (SEI) as refined according to the ESA stratification criteria at the appropriate scale for the site. These may also include areas used to buffer ecological functions of Very High ecosystems.

An area given this rank is of only slightly lower priority for protection of ecosystem function and values. Therefore, clear rationale and criteria for distinction between Very High and High values shall be provided. Some degree of development may be considered as long as this does not have any potential impact on Very High priority ESA's on the site. If development is pursued in these areas, portions of the habitat should be retained (40% – 80%) and integrated to maintain the contiguous nature of the landscape. Any loss over 20% to these ESAs will be offset by habitat improvements to the remaining natural areas found on property and must ensure habitat function is maintained or improved in the retention areas.

Moderate (ESA – 3) contain important features or remnant stands/sites with ecological value that are not identified in the Sensitive Ecosystems Inventory as refined according to the ESA stratification criteria at the appropriate scale for the site and are not locally/regionally rare.

The moderate ESA still contributes to the diversity and connectivity of the landscape, and may contain natural habitats, and some features of interest (e.g. tree patches, rock outcroppings, drainages and corridors). Based on the condition and adjacency, portions of moderate ESA may have significant ecological functions within the landscape (e.g. buffers to ESA 1 or 2, corridors) that should be retained.

Low (ESA – 4) polygons contribute little or no value to the overall diversity of vegetation, soils, terrain and wildlife characteristics of the area. These areas have generally experienced anthropogenic disturbances (e.g. a driveway or other approved land clearing but does not include land cleared for agriculture) with little or no possibility for recovery or rehabilitation.

Development is encouraged to be focused to these sites before consideration developing higher rated sites of the area. These areas shall not be considered as areas for restoration and enhancement or as recruitment as higher value ESA in offsetting development in other areas.

5.3 Environmental Impact Mitigation and Enhancement

1. This will depend on the regulatory and policy framework, which required the preparation of an EIA. The TOR will need to specify which impacts are being addressed, and the level of possible mitigation, enhancement and or replacement. These will be based on the facts as based on the assessment (Inventory Phase).

2. Habitat or biological assessments completed to satisfy legal requirements of other levels of government (e.g. Riparian Areas Regulation) may be included within an EIA, but should be identified as to the requirements they are addressing and assessing, and their relationship to any RDCO requirements. This may include:

    a. Recommending environmental works that could mitigate fish, wildlife or environmental impacts, e.g. by providing modifications to development design, footprint, timing, equipment, or providing on/off site habitat or environmental improvements to avoid or minimize adverse impacts.
    b. Providing ‘typical’ design drawings in addition to text. The intent is to apprise other members of the development team of the technical considerations that need to be incorporated into the design.
    c. Providing improved or new fish, wildlife or environmental enhancement opportunities.
    d. Providing details stating how the works or strategies for mitigation and/or enhancement will be carried out and provide approximate cost estimates (See Bonding).

3. A mitigation or enhancement report is to include an Evaluation of Impacts as follows:
    a. Provide measurable parameters that will help establish whether the development has caused impacts, or that mitigation was actually achieved and successful.
    b. Identify who is accountable for potential impacts that might occur, and who would be responsible for unintended but foreseeable impacts.

c. Identify who (e.g., agencies, departments, developers and/or personnel) will be responsible for monitoring potential impacts, and propose a monitoring schedule including identifying the expertise of personnel required to perform the monitoring. Provide recommendations for future assessments (procedure/protocol/TOR)
d. All mitigative, restoration, and compensative prescriptions will include clearly articulated performance standards that are based on the best available science and that reflect the structural and functional objectives of projects.

5.4 Compensation

Compensation refers to a variety of options for managing proposed disturbances of areas of Very High and High environmental value (ESA-1 and 2) on a development site. Total Compensation would require that any unavoidable disturbance in such areas be compensated by equivalent or net gain in environmental value elsewhere within the same development site.

The hierarchy of approach is:

- Avoid
- Mitigate
- Compensate

The following Guiding Principles are applicable.

1. **Avoid:** Strenuous effort must be made to avoid development of areas of Very High and High environmental value (ESA-1 and ESA-2).

2. **Mitigate:** If, under unavoidable circumstances, an area graded Very High or High (ESA-1 or ESA–2) must be affected by the proposed development then proven mitigation measures must ensure that the least possible amount of environmental damage occurs during the development of the property. The decision regarding Compensation for the amount of damage will be made on a case by case basis and will follow the Guiding principles set out in paragraph # 3 below. As an example, mitigation may include a way to physically by-pass the area as with a bridge or tunnel. Mitigation can also include items such as silt fencing to prevent impact from erosion or siltation.

3. **Compensate:**
    a. Another area on the same site can be physically upgraded from a lower environmental value to a higher value. The physical extent of the replacement area will be larger than the area for which it is compensating to account for factors such as time to functioning condition, risk of failure, lack of scientific knowledge. The preferred replacement ratio will be 3:1 but larger ratios might be necessary on some sites.
    b. Very High (ESA-1): If it is not possible to avoid proposed disturbance of an area of Very High biological or ecological value, the total allowable disturbance of an ESA-1 area will be <20% of the area and <u>any</u> disturbance in an ESA-1 area must be compensated. Mitigation shall not be accepted as Compensation. This is the least desirable option and will not always be acceptable.
    c. High (ESA-2): Areas graded High or ESA-2 also have high biological or ecological value. Not only will they be SEI areas by definition (see Sec 5.2.1), they may also function as important buffers for ESA-1 areas or provide wildlife corridors. If a proposed development project encroaches on these areas,

Compensation may be required for the disturbed area in order to maintain the ecological function of the adjacent areas. As noted in Section 5.2.1, any disturbance over 20% requires Compensation. This may include habitat improvements to the remaining natural or sensitive areas found on property and must ensure ecological function is maintained or improved in the retention areas.

d. In general, Compensation will seldom be required for development in areas graded ESA-3 but there may be site-specific concerns that alter this usual practice.
e. In general, Compensation will not be required for development occurring in areas graded ESA-4. These areas shall not be considered as areas for restoration and enhancement or as recruitment as higher value ESA in offsetting development in other areas.
f. The details and proposed Compensation measures for disturbances in areas graded Very High and High (ESA-1 and 2) is to be presented in both text and tabular form utilizing a Habitat Balance Sheet

5.4.1 Habitat Balance Sheet

Where it has been demonstrated that avoidance and mitigation of Very High to High ESAs is not possible, a habitat balance sheet is to be provided identifying the following:

- Proposed locations, amounts (m^2), and types of habitat lost or negatively impacted.
- Proposed locations, amounts (m^2) and target habitat types to be gained through habitat construction, restoration or enhancement.
- Indicate whether the target replacement habitat is of the same type or other and how this will address the maintenance of the ecological function of the adjacent areas.
- Identify proposed impacted areas and proposed compensation areas on an accompanying map indicating proposed development and ESAs overlap.
- Describe and provide rationale for each impact and proposed compensation measures with appropriate compensation ratios (e.g. 3:1 ratio for Very High ESA areas).

The habitat disturbances requiring Compensation shall also be displayed in tabular form using the following headings:

- Area disturbed (identification code for the site)
- ESA grade and extent (m^2)
- Type of habitat (SEI)
- Rationale for disturbance
- Type of habitat to compensate
- Location and amount of Compensation
- Rationale for choice of Compensation and Compensation ratio

5.5 Environmental Report and Data Deliverables:

In addition to hard copies provided to the RDCO for review by the Regional Board and relevant Advisory Committees.

a. A digital version (.pdf) of the complete document must also be provided such that all information contained within professional reports are available to the public. It is the intent that digital reports will be posted on the RDCO website and archived.
b. All new and/or updated information (e.g. Rare Element Occurrences and revised TEM polygons and databases) will be provided to appropriate groups and agencies such as the BC Conservation Data Center and the RDCO. All data will be provided in digital format such that it may be incorporated into current works in process such as the Sensitive Habitat Inventory and Mapping (SHIM), and Sensitive Ecosystem Inventory (SEI), both of which are paramount in providing current spatially accurate information used in responsible planning and development.

6.0 WILDFIRE HAZARD ASSESSMENT

1. The assessment must utilize the BC Ministry of Forests supported assessment methodology.
2. The assessment must be prepared by a Registered Professional Forester (RPF) licensed in BC specializing in forest wildfire assessments.
3. The assessment must evaluate the site as it pertains to the land use or subdivision proposed in the application not just the current land use.
4. The assessment of the site for susceptibility to wildfire requires evaluation from conditions both on and off-site including neighbouring lands that may present a wildfire hazard to the site in question.
5. The assessment and subsequent recommendations must consider evaluation of the proposal for wildfire susceptibility, site modification requirements and any requirements for subdivision or home construction.
6. The Wildfire Interface Development Permit Guidelines must be considered. A series of development permit design guidelines have been developed based upon the document "*FireSmart, Protecting Your Community from Wildfire*" supported by the Alberta Department of Sustainable Resource Development, the British Columbia Forest Service, Natural Resources Canada, most Canadian provinces and endorsed by the report of the Province of BC "*2003 Firestorm Provincial Review*".
7. Where a large remainder (e.g. a property greater than 8 hectares) abuts a lot 1 hectare in size or smaller, the wildfire hazard report must include methods for reducing hazard along that property line to "moderate" or less and must address management of the interface.
8. In most cases, the report will be registered as a restrictive covenant against title of the lot prior to subdivision.

7.0 STORMWATER MANAGEMENT AND DRAINAGE PLANS

A stormwater management plan will be required which establishes the hydrology, drainage, and stormwater quality of the subject site under existing conditions, identifies the impacts of the proposed development on these items, and recommends solutions to mitigate and manage these impacts. Several documents are required as part of a stormwater management plan, and may include some or all of the following:

1. A drawing showing the location of existing on and off-site stormwater management system, including natural drainage courses, streams, ponds, springs, etc..
2. A drawing showing the identification of tributary (upstream) drainage areas and major off-site drainage routes;

3. Drawings showing the proposed development layout and stormwater management system(s), including overland emergency drainage routes from all low points on the proposed roads;
4. Copies of consultation with the Ministry of Environment regarding any concerns or background information;
5. A topographical survey of pre-development conditions;
6. A report summarizing the stormwater management concepts, design criteria, and pertinent analyses (see next items);
7. Analyses showing the pre and post-development runoff peak flows and volumes from the critical rainfall events;
8. Analyses of the potential downstream problems (system capacities, erosion, flooding, fish habitat) considering both peak and low flow conditions;
9. A discussion of stormwater quality and drawings showing the location and details of proposed Best Management Practices; and
10. Liaison with a qualified professional to determine fish flow requirements (i.e. low flow and pond requirements.)

It is expected that both potential erosion and flooding will be controlled by way of the stormwater management system, and therefore, the stormwater management plan should also identify areas potentially susceptible to these issues and include recommendations to address possible concerns. It may also be desirable to discharge runoff to ground to reduce downstream impacts and to enhance groundwater recharge. These issues could necessitate a geotechnical study and report prepared by a qualified profession which includes the following:

1. A drawing showing potential flooding and/or erosion locations;
2. An investigation of infiltration capacities and recommended design parameters;
3. An investigation of soil stability under projected conditions, and
4. Recommended works and construction methods to prevent or mitigate potential issues.

8.0 GROUNDWATER MANAGEMENT ASSESSMENTS

Certain sites are subject to groundwater movement. In some areas, natural springs are known to occur. An environmental review of the development site should:

1. Include all available information from previous well drilling;
2. Assess of pre-development groundwater conditions;
3. Identify and map all natural spring locations;
4. Identify existing and potential groundwater recharge/discharge areas;
5. Include recommendations for groundwater management; and
6. Assess, map, and discuss anticipated post-development groundwater conditions.

A hydrogeological assessment will include:

1. An assessment of predevelopment groundwater conditions including identification of natural springs, description of the hydrogeology and vulnerability of aquifers, map of the capture zone, and identification of connections between ground and surface water;
2. Assess the anticipated post development situation with respect to groundwater;
3. Potential contaminants will be identified; and
4. Recommendations for managing contaminant sources will provide direction to future permitted land uses or development designs permitted on the site.

9.0 FLOOD PROTECTION

The foreshore of Okanagan lake as well as other areas within the RDCO such as creeks entering the valley are subject to flooding.

In order to reduce the potential damage that may occur should one of these watercourses overtop their banks, the RDCO and the province of BC have developed appropriate flood protection requirements for various forms of development.

On May 9, 2005, the Regional Board adopted Floodplain Regulations (Schedule N of Bylaw No. 871-96) which generally increases the floodproofing requirements for most forms of development.

1. The underside of any floor system, or the top of any *pad* supporting any space or room, including a *manufactured home*, that is used for dwelling purposes, business, or the storage of goods, which are susceptible to damage by floodwater must be above the applicable *flood construction level* specified herein:

    1.1 The following elevations are specified as *flood construction levels*, except that where more than one *flood construction level* is applicable, the higher elevation shall be the *flood construction level*:

        1.1.1 343.66 metres (1,127.49 ft) Geodetic Survey of Canada datum for land adjacent to Okanagan Lake;
        1.1.2 3.0 metres (9.8 ft) above the *natural boundary* of Mission Creek;
        1.1.3 1.5 metres (4.9 ft) above the *natural boundary* of any other *watercourse*.

    1.2 The specified *flood construction levels* shall not apply to:

        1.2.1 That portion of a *building* or *structure* used exclusively as a carport, garage or entrance foyer;
        1.2.2 Farm *buildings* excluding *dwelling units* and *buildings* for the keeping of animals;
        1.2.3 Hot water tanks and furnaces behind *standard dykes*;
        1.2.4 *Building* for the keeping of animals behind *standard dykes*;
        1.2.5 Heavy industry behind standard dykes; and
        1.2.6 On-loading and off-loading facilities associated with water-oriented industry and portable sawmills;

        Except that all main electrical switchgear for any of the uses listed above shall be no lower than the *flood construction level*.

2 Any landfill required to support a floor system or pad must not extend within any applicable *floodplain setback* specified herein:

    2.1 The following distances are specified as *floodplain setback*s, except that where more than one *floodplain setback* is applicable, the greater distance shall be the *floodplain setback*:

        2.1.1 15.0 metres (49.2 ft.) from the *natural boundary* of Okanagan Lake;

2.1.2 7.5 metres (24.6 ft.) from the *natural boundary* of a lake, swamp or pond;
2.1.3 30.0 metres (98.4 ft.) from the *natural boundary of* Mission Creek;
2.1.4 15.0 metres (49.2 ft.) from the *natural boundary* of any other nearby *watercourse*;
2.1.5 7.5 metres (24.6 ft.) from the *natural boundary* of any *standard dyke* right-of-way, or *structure* for flood protection or seepage control.

3 Pursuant to the Local Government Act, and subject to the Provincial regulations or a local government plan or program developed under those regulations; the *Regional District* may exempt types of development from the requirements of *flood construction levels* and *floodplain setbacks* in relation to a specific parcel of land or a permitted use, *building* or other *structure* on the parcel of land, if the *Regional District* considers it advisable; and

3.1 Considers that the exemption is consistent with the Provincial guidelines; or

3.2 Has received a report that the land may be used safely for the use intended, which report is certified by a person who is:

3.2.1 A professional engineer or geoscientist and experienced in geotechnical engineering and having appropriate errors and omissions and professional liability insurance; or
3.2.2 A person in a class prescribed by the minister charged with the administration of the Environmental Management Act.

4 The granting of the exemption, and the exemption, may be made subject to the terms and conditions that the *Regional District* considers necessary or advisable, including, without limitation:

4.1 Imposing any term or condition contemplated by the Provincial guidelines in relation to an exemption;
4.2 Requiring that a person submit a report described in Section 3.28, Subsection 3.2 above; and
4.3 Requiring that a person enter into a covenant under section 219 of the Land Title Act including a waiver of liability in favour of the Regional District in the event of any damage caused by flooding or erosion.

5 By the enactment, administration or enforcement of this bylaw the *Regional District* of Central Okanagan does not represent to any person that any *building* or *structure*, including a *manufactured home*, located, constructed, sited or used in accordance with the provisions of this bylaw, or in accordance with any advice, information, direction or guidance provided by the *Regional District* of Central Okanagan in the course of the administration of this bylaw will not be damaged by flooding.

10.0 VISUAL QUALITY ASSESSMENTS

1. Visual quality will be integrated into development design through inventory, analysis, interpretation and design conducted by a Landscape Architect.

2. Visual Quality Assessments shall be based on standard methodology such as that applied by Ministry of Forests, Ministry of Transportation, and/or applicable Official Community Plans and Development Permit guidelines.

3. The inventory will include the identification of visual sensitivity units occurring on the property, visual factors, site factors, ecological and management factors. The inventory will provide the basis of visual quality analysis, interpretation and development of design concepts.

4. Concepts are to be presented together with a report on constraints and opportunities, and a plan of implementation for each concept. Concepts must be illustrated in a 3-dimensional format.

5. In the case of a neighbourhood plan, the selected design concept will be included as part of the land use plan. In the case of a Hillside Development Permit Area, the selected design concept will govern subsequent issued development permits.

11.0 TRAFFIC IMPACT AND PEDESTRIAN SAFETY ASSESSMENTS

1. Traffic Impact Assessments must use the Ministry of Transportation supported methodology and trip generation rates (as a minimum). Reference the January 2005 Ministry of Transportation *Site Impact Analysis Study Recommended Terms of Reference.*

2. Pedestrian Safety Assessments must use a methodology supported by the Ministry of Transportation and RDCO and that is recognized by professionals specializing in transportation planning and pedestrian safety.

3. The assessment must be prepared by a professional engineer licensed in BC or a member of the Canadian Institute of Planning, specializing in transportation planning.

4. Regional District staff and, where applicable, Regional Transportation Demand Management, Agricultural Land Commission, and/or Westbank First Nation staff will participate in the *Scope Development Meeting* arranged between Ministry of Transportation and the development proponent.

5. The assessment evaluates the site as it pertains to the land uses or subdivision proposed in the application, not just the current land use, and not just new residential development.

6. The assessment requires evaluation of future conditions from other development approved in the region.

7. The assessment includes all modes of transportation including vehicular, transit, pedestrian and cyclist.

8. The assessment identifies conditions of the site that indicate that standard methodology, design standards, and / or trip generation rates may not apply.

9. The traffic impact study will be based upon the Road Network Plan approved in the RDCO Official Community Plan. Where recommendations indicate an alternate network road, the plan will not be accepted until an amendment to the Official Community Plan is adopted.

10. The assessment and subsequent recommendations must include specific implementation activities that are based on current provincial and regional district regulations (such as latecomer agreements, development cost charges, standard rights of way).