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Sustainable Site Planning Checklist

Consider on-site natural resources.

Water Resources:

- Wetlands?
- Floodplains?
- FEMA Coastal Hazard Areas (Zones V & A)
- Evidence of erosion? (shoreline, streamside, etc.)
- Shoreline erosion rate?
- Wellhead protection areas?
- Existing well?
- Riparian buffers?
- Naturally vegetated swales/drainageways?
- Seasonal high water table?
- Instream habitat?
- Existing hydrology (drainage swales, intermittent, perennial)?
- Problems with run-on from neighboring properties?
- Receiving water body for site drainage?

Land Forms:

- Steep slopes?
- Unique topographic features?
- Existing topography, contours?
- Depth to bedrock?
- Special geological issues (e.g., karst, limestone)?
- Existing land cover/uses?
- How does size and shape of the site affect stormwater mgmt?
- Are there areas where development should generally be avoided?
- Evidence of soil erosion?

Soils:

- Hydrologic soil groups?
- Tested infiltration rates?
- Erodability?
- Swell potential?
- Hydric soils present?
- Unstable soils/landslide evidence?
- Texture?
- Fertility?
- Soil biology?

- Chemical properties? (pH, macro- & micronutrients)

Livability:

- Aesthetics?
- Viewsheds?
- Sense of place?
- Opportunities to create private, semi-private, and public spaces?
- Noise source?

Microclimate:

- Wind tunnels caused by vegetation/building orientation?
- Wind breaks?
- Solar access?
- Temperature variation?
- Geothermal?
- Evaporation/moisture variation?

Vegetation:

- Special status trees?
- Threatened or endangered species habitat?
- Blocks of habitat and corridors or connections between habitat patches?
- Native plant communities?
- Distinctive individual plants or communities?
- Vegetation that could provide shade to buildings, parking lots, or spaces used for mental restoration, social interaction, or physical activities?
- Invasive species/noxious weeds?
- Wildfire risks?
- Resources to be salvaged (topsoil, boulders, rocks, trees, etc.) ?

Renewable Energy:

- Potential for geothermal?
- ...Wind?
- ...Hydroelectric?
- ...Solar?

Air Quality:

- Pollen sources?
- Smoke sources? (controlled burns, wildfire, etc.)

Consider on-site infrastructure/built environment.

Utilities:

- Wastewater system?
- Stormwater system?
- Structures with potential to serve as cisterns? (pools, spaces under existing buildings, etc.)
- Water?
- Gas?
- Electric?
- Communication?

Livability:

- Beloved infrastructure? (gathering spaces, arbor, etc.)

Cultural:

- Historic infrastructure? (signs, bridges, entryways)
- Historic register? (local, state, or national?)
- Archeological site?

Air Quality:

- Loading dock?
- Areas of idling?
- Outdoor smoking areas?

Land Coverage/Uses:

- Total site area
 - Impervious area:
 - impervious area covered by evergreens
 - roof
 - sidewalks
 - vehicular pavement
 - other (swimming pools, basketball court, etc.)
 - Porous and other vegetated area:
 - lawn
 - naturalized
 - ornamental beds
 - food gardens
 - paving surfaces (pavers, mulch, boardwalk)
 - eco-roof
 - other
 - Contaminants from past uses (leaking tanks, pesticides, herbicides, etc.)?
 - Existing stressors (noise, odor, excessive light, etc.)?
 - Infrastructure to be salvaged (asphalt, concrete, buildings [deconstruction])?

Water Resources:

- Fish/mammal barriers to passage?
- Off-site drainage?
- Drainage patterns before and after finish grading?
- Locations of discharge outfalls/points?
- Size of discharge outfalls/points?
- Type of discharge outfalls/points?
- Areas used for storage of soils or wastes?
- Erosion and sediment control facilities/structures including vegetative practices?

Staging/Storage Considerations:

- Disturbance area?
- Total surface area of the site, broken down by phases of development?
- Timetable for sequence of major events?
- Type of material used for fill?
- Volume of cut?
- Volume of fill?
- Recycling area?
- Composting area?

Consider off-site/regional natural resources.

Water Resources:

- Receiving water body for site drainage?
- Major/minor watershed location?
- EPA Level III ecoregion (EPA website)
- State stream use/standards designation/classification?
- Special high quality designations? (e.g., natural rivers, cold water fishery)
- Rare or endangered species or communities present?
- Are there required water quality standards?
- 303d/impaired stream listing classifications?
- Existing or planned Total Maximum Daily Loads (TMDLs) for the waterbody?
- Aquatic biota, other sampling/monitoring?
- Other special fishery issues?
- Neighboring wells?
- Downstream flooding problems?

Vegetation:

- Major habitat types?
- Regional connection to a special habitat system (migratory routes, wildlife corridors, etc., neighboring publically owned natural lands)?

Consider off-site/regional natural resources. (cont.)

- Wildfire risks?

Land Development Impacts:

- Additional development anticipated for the area that could lead to further restrictions? (e.g., protection of downstream land and water uses)
- Additional development anticipated for the area that could lead to further opportunities (e.g., partnerships in multi-site or regional water quality or quantity controls)?
- Nearby construction sites that may have natural materials that can be salvaged for use on your site?

Macroclimate:

- Seasonal wind direction?
- Wind speed?
- Annual and monthly precipitation patterns?
- Annual solar budget?
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- Air Quality:**
- Particulates?
- Pollen?
- Dissolved pollutants?
- Smoke?

Consider off-site/regional infrastructure/built environment.

Utilities:

- sanitary sewer system?
- water?
- Storm drainage system?
- Gas?
- Electric?
- Communication?

Livability:

- Transportation options (mass transit, bicycle & pedestrian facilities, roadways)?
- Recreational opportunities, community resources, and other amenities?
- Existing stressors (noise, odor, excessive light, etc.)?
- Walkable?
- Neighborhood architectural context?
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- Cultural:**
- Historical values, certified or non-certified?
- Known/potential archaeological values?

Suppliers of materials and services locations:

- Local native plant nurseries?
- Local manufacturers/suppliers of building materials?
- Deconstruction services?
- Re-use facility for salvaged materials (Restore, Rebuilding, etc.)?
- Recycling facility for construction waste?

Air Quality:

- Located on busy street?
- Located on truck route?
- Areas of idling?
- Street canyons?

Consider municipal, state, and federal guidelines/laws.

Master plans (Stormwater, Transportation, Parks, Watersheds, etc.):

- Is development concept consistent with the master plan?
- Consistent with goals/policies of the plan?
- Preservation of natural resources consistent with priority areas/maps?

Water Regulations (e.g., ordinances, engineering standards):

- Consistent with local existing regulations?
- Wetland regulations?
- Tree/woodlands ordinance?
- Riparian buffer ordinance?
- Open space requirements?
- Clustering and/or PUD options?
- Overlay districts?
- Wellhead protection?
- Erosion and sedimentation requirements?
- Are LID solutions:
 - required?
 - or incentivized?
 - or enabled?
 - or prohibited?
- Reduced building setbacks allowed?
- Curbs required?
- Swales allowed?
- Street width, parking requirements, other impervious requirements?
- Grading requirements?
- Landscaping that allows native vegetation?
- Stormwater requirements?
 - Peak rate?

Consider municipal, state, and federal guidelines/laws. (cont.)

- Total runoff volume?
- Water quality?
- Maintenance?
- State floodplain requirements?
- Contaminated sites have followed state “due care” requirements for soil and groundwater?
- Consistent with state and federal wetland and/or inland lakes and streams regulations?

Other Regulations:

- State and federal threatened and endangered species?
- Consistent with county/state road requirements?

Fire Department:

- Recommendations for wildfire areas?
- Vehicular circulation?
- Road widths?
- Cul-de-sac/hammerhead requirements?

Planning:

- Zoning
- Urban renewal?
- Comprehensive plan overlay?
- Historic resource?
- Conservation overlay?
- Setbacks:
 - front
 - side
 - back
 - other
- Required minimum outdoor area

Consider the programmatic requirements.

- Is development concept consistent with the master plan?
- Consistent with owner's programmatic needs for sites and buildings?

Stakeholder Process:

- Does the site have current users? Can these uses be accommodated in the new design?
- Who are the new users?
- Integrated design team roles defined?
- Project principles and goals defined?
- Purpose for project and design intent defined?

- Future primary and secondary stakeholders identified?
- Sustainability goals defined (qualitative, quantitative)?
- Stakeholder engagement/charrette?
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Gather possible investigative reports and other information from other design team members.

Geotechnical report (geotechnical engineer) including:

- boring logs
- depth to groundwater table

Infiltration testing (geotechnical or civil engineer) including:

- a test for every acre, with a minimum of two tests for site under 1 acre
- flow rates in inches/hour of soil horizons that may be used for infiltration considering infiltration facility type and construction
- investigation by overexcavation after testing to confirm sufficient depth to water table (3'), bedrock (2'), or other confining soil layer (2')
- boring or test pit logs
- map locations of testing

Tree inventory (arborist) including:

- For each tree:
 - common name
 - tree number corresponding to mapped location
 - diameter at breast height
 - health
 - height
 - limb spread
- General:
 - maintenance recommendations
 - hazardous trees to be removed
 - specimen or potential heritage trees worth saving
 - tree protection recommendations
 - understory condition
 - limits of contiguous cover
 - areas where stands of trees might be healthy if other trees are removed for development
- Map showing:
 - tree location and number
 - healthy tree stands

Gather possible investigative reports and other information from other design team members. (cont)

Instream Physical Inventory including:

- [This list was lifted word for word from the Salmon Safe Residential Standards. Click here for a live link to that pdf guidance document.](#)
- The position of the site within the watershed is documented and has been mapped.
- Research existing watershed-specific restoration or recovery plans and local salmonid recovery programs.
- Identify opportunities to incorporate objectives of these plans and programs into development planning decisions.
- Investigate physical and biotic watershed conditions noting physical and chemical impairments to water quality including 303(d) lists or designated total maximum daily loads (TMDLs).
- Note biological impairments such as non-native fish.
- Evaluate onsite stream crossings to determine priorities for fish and wildlife passage and flood conveyance.
- Identify onsite stream channel deficiencies:
- Characterize bank stability and channel incision.
- Map onsite 100-year floodplain and channel migration zones.

Instream Biological Inventory:

- [This list was lifted word for word from the Salmon Safe Residential Standards. Click here for a live link to that pdf guidance document.](#)
- Classify stream types in the system as either: (1) fish bearing, (2) potentially fish bearing, (3) nonfish bearing with a defined channel connected to a fish-bearing or potential fishbearing stream, or (4) none of the above.
- If no fish are currently present, estimate historic fish presence/absence in the system.
- Document presence or absence of fish on site either via fish surveys, use of available data or regulatory habitat designation, or based on expert interviews.
- For onsite streams and rivers classified as either (1) fish bearing, (2) potentially fish bearing, or (3) nonfish bearing with a defined channel connected to a fish-bearing or potentially fishbearing stream, identify and map

significant aquatic habitat features (riffles, pools, runs, large wood, etc).

Riparian/Wetland/Vegetation Protection and Restoration:

- [This list was lifted word for word from the Salmon Safe Residential Standards. Click here for a live link to that pdf guidance document.](#)
- Characterize local and watershed riparian habitat extent, quality and conditions
- Estimate percent cover in the tree canopy, shrub layer, and herbaceous layer, especially in areas adjacent to, immediately upstream, or immediately downstream of the site.
- Identify, map, and describe all onsite riparian areas by width of existing buffer and stream length of riparian vegetation free from intrusions from roads, utilities, and other clearings (i.e., riparian continuity).
- Identify and map damaged, exposed, or at-risk areas, as well as locations of invasive species .
- Characterize typical local terrestrial riparian species (vegetation, birds, mammals, reptiles, and amphibians).

Site survey including:

- Legal:
 - Right of ways on both sides of all street frontages
 - property and lot lines with bearings & lengths
 - all easements
 - legal description
 - taxlot info
 - street names
- Surveyor data:
 - Benchmarks
 - monuments
 - iron pipes
 - brass screws
 - basis of bearings & elevations
 - north arrow
 - Professional stamp and
 - contact info for surveyor
- Elevation data:
 - Contours in appropriate intervals (0.5' for flat areas, 1' for average areas, and 2' for steep areas)
 - Spot elevations on a 25-foot grid and at changes in grade such as at walls, curbs (indicate top of curb and gutter elevations or

Gather possible investigative reports and other information from other design team members. (cont)

curb height), flowlines, swales and ditches, centerline and/or crown or valley, etc.

□ Both contours and spots should extend at least 10' beyond the property line and/or across the street to the curb

□ Utilities:

□ Utility vaults such & above-grade fixtures such as gas valves, water valves, water meters, traffic boxes, fire backflow assembly, water backflow assembly, fire hydrants, etc.

□ Storm structures including catch basins, manholes, water quality facilities and devices, cleanouts, etc. Include all relevant elevation data including rim elevations and invert elevations; pipe size and direction if more than one pipe. In the public ROW, provide information for at least two storm manholes or more if necessary so that inverts all along pipes fronting the property can be found.

□ Power poles (indicate with a symbol where the guy wires extend), light poles, traffic poles, overhead lines.

□ Sewer manholes and cleanouts. In the public ROW, provide information for at least two sewer manholes or more if necessary so that inverts all along pipes fronting property can be found. Subsurface pipe and cable network marked out by a utility locate company for water lines, storms sewers, sanitary sewers, telephone, cable, gas, etc. that serve the site

□ Land Cover:

□ Extent of buildings with dimensions of buildings and dimensions to property lines

□ The boundaries of all land cover types such as asphalt, gravel, concrete, bus shelters, etc.

□ For street frontages, survey should extend across the street to include curb line, pedestrian ramps, and sidewalks.

□ Water features such as wetlands, streams, ditches, ponds, etc.

□ Walls (show length & width)

□ Site furniture such as bollards, benches, fences, etc.

□ Trees with greater than 3" diameter, tree wells, major vegetation such as hedges. Include type of tree and draw spread of branches to scale and outline of massed trees.