

Appendix A - Submittal Checklists

1. **Conceptual Review Submittal Checklist**
2. **Building Permit Application Checklist**
3. **Building Permit Application Instructions**
4. **Sufficiency Review Checklist**
5. **City of Aspen Survey Checklist**
6. **Grading and Drainage Report and Plan Review Checklist**
 - a. **For Minor Projects**
 - b. **For Major Projects**
7. **Soils Report Checklist**
8. **Excavation Stabilization Checklist**
9. **Public Improvements Checklist**
10. **Construction Management Plan Checklist**
11. **Construction Management Plan Requirements Manual**
12. **Grading and Drainage Certificate Checklist**
13. **Maintenance Agreement**



DRAINAGE REPORT SHALL INCLUDE:

General

- Description of the existing site, including common location, topography, land use, ground cover, soil type, drainage pattern, and receiving system.
- Description of the proposed project, including changes to land use, topography, ground cover, soil type, drainage pattern and receiving system.
- Discussion of any previous drainage studies (i.e., project master plans) for the site that influence or are influenced by the drainage design and the mitigation plan for any negative impacts.
- Discussion of the drainage impact of site constraints such as streets, utilities, existing structures, and development or site plan.
- Identification of all irrigation facilities and waterways within the watershed that will influence or be influenced by the site drainage.
- Discussion of easements and tracts for drainage purposes, including the conditions and limitations for use.
- Reference plan drawings as needed.

Drainage Basins and Sub-basins

- Describe existing and proposed sub-basins, including ground cover, acreage, soil type, and location and method of discharge.
- Delineate and reference sub-basins on a map with contours. Each drainage basin should be labeled with its area (in acres), runoff coefficient (C), and Q (cfs).
- Discuss offsite drainage patterns and impact on site under existing basin conditions and fully-developed basin conditions.
- Discuss pre-developed (historic) and post-developed drainage flow rates at specified point locations (should match labeled locations on plan).

Low Impact Site Design

- Describe what efforts have been made to reduce runoff and increase infiltration (e.g. reduce impervious area, disconnect impervious area, route runoff via landscape rather than hard infrastructure).

Hydrologic Criteria

- Identify runoff calculation method. Discussion and justification of other criteria or calculation methods used that are not presented in or referenced by the criteria.
- Identify the area, storm frequency, rainfall intensity, time of concentration, runoff coefficients, and adjustments for each sub-basin.
- Calculate runoff prior to any development.
- Calculate the post development runoff flows for each sub-basin and compare these flows to pre-development flows. Post development flows must not exceed pre-development flows. Credit **can** be taken for impervious areas in calculating pre-development flows of the major event. Credit **cannot** be taken for impervious areas in

calculating predevelopment flows of the minor event. Determine post development flow prior to inclusion of detention. Flow should be calculated for each location that runoff leaves the site. A map showing all drainage basins should be labeled with basin area (in acres), runoff coefficient (C), and Q (cfs).

- Provide calculations of the WQCV, minor event (5-yr for drywell, 5- or 10-year for storm system and detention) and major storm runoff (100yr) at specific design points.
- Identify detention discharge and storage calculation method.
- Provide hydrographs at critical design points.

Hydraulic Criteria

- Identify the hydraulic design point for closed systems tied to the City's existing collection system.
- Identify flow capacity of drainage facilities.
- Calculate culvert sizes with capacities and area of contribution.
- Calculate storm sewer capacity including capacity of next two downstream drainage structures.
- Calculate gutter capacity.
- Calculate storm inlet capacity.
- Provide open channel design and calculations.
- Provide volumes and release rates for detention storage facilities and information on outlet works.
- Identify the downstream/outfall system capacity to the major drainage way system.

Proposed Facilities

- Describe proposed better site design practices (BMPs) used to treat the water quality capture volume, detention methods and outlet design with protection techniques.
- Provide sizing calculations and approximate locations, with drainage basins, of BMPs used to treat the water quality capture volume.

GRADING AND DRAINAGE PLANS SHALL INCLUDE

- Vicinity map with north arrow and scale.
- Drawings must be 24" x 36" in size.
- Scale of 1"=10' to 1"=40' or plan must be provided in sufficient detail and clarity to identify drainage flows entering and leaving the development and general drainage patterns.
- Benchmark and tie to the City of Aspen Survey.
- Name of the subdivision or project.
- Property map and parcel number.
- Date of preparation, scale, and symbol designating true north.
- Legend to define map symbols.
- Existing and proposed contours at 1-foot maximum intervals. In terrain where the slope exceeds 15%, the maximum interval is 10 feet. The contours shall extend a minimum of 100 feet beyond the property lines. **Additional topography can be obtained from the City of Aspen GIS Department. The two foot contours are acceptable.**

- Overall drainage area boundary and drainage sub-area boundaries for all basins on and off site.
- Location, elevation, and FIRM rate code for all existing floodplains within 100' of property.
- All major drainage ways for which the 100-year floodplain and floodway have been defined shall have the 100-year floodplain and floodway delineated on the plans. This also applies to detention basins.
- Indicate the top of slope and delineate the 15' no-touch setback.
- Property lines and easements with purposes noted.
- Existing and proposed drainage facilities and structures, including irrigation ditches, roadside ditches, drainage ways, gutter flow directions, and culverts. All pertinent information such as material, size, shape, slope, and location shall also be included.
- Existing and proposed building footprints, streets, indicating ROW width, flow line width, curb type, sidewalk, and approximate slopes.
- Proposed landscaping (berms, planters, shrub beds, trees, etc.).
- Proposed type of street flow (i.e., vertical or combination curb and gutter), roadside ditch, gutter, slope and flow directions, and cross pans.
- Proposed storm sewers and open drainage ways, including inlets, manholes, culverts, and other appurtenances, (i.e. riprap protection). (allowable manhole spacing = 400 feet)
- Proposed outfall point for runoff from the developed area and facilities to convey flows to the final outfall point without damage to downstream properties.
- Flow path leaving the development through the downstream properties ending at a major drainage way.
- Routing and accumulation of flows at various critical points for the initial storm runoff listed on the drawing.
- Location and (if known) elevations of all existing and proposed utilities affected by or affecting the drainage design.
- Routing of offsite drainage flow through the development.
- Summary Runoff Table.
- Discussion of easements and tracts for drainage purposes, including the conditions and limitations for use.
- Drywell locations (if any) - Minimum 10 feet deep, and 10 feet from property line, and 10 feet from foundation
- Civil details of dry wells, outlet structures, foundation drain sumps, custom design etc.



ASPEN BUILDING PERMIT APPLICATION CHECKLIST

For Building and Permit Information, please refer to our website at:

<http://www.aspenpitkin.com>

THE CITY OF ASPEN

NOTE: This is a general list of **required information**. More information may be required as each project is individually evaluated. If the proposed structure requires City Land Use Review, **all final approvals must be obtained PRIOR** to the submission of a building permit application. Contact a City Planner at (970) 920-5090 to determine if a Land Use Review is needed.

JOB ADDRESS _____ PARCEL I.D. NUMBER _____

OWNER _____ DATE _____

- One (1) copy of all City approvals** pertaining to the parcel, including but not limited to: Deed Restrictions; Resolutions; Development Orders; Final Plats; Administrative Approvals; Residential Design Standards Approval; HPC Approvals, P&Z and or BOA. Verification that all conditions of approval are being met should be called out in the development plans. It is requested that reduced copies of all approvals be placed on the cover sheet of the submitted drawing plans.
- Permit Application** form completely filled out and accompanying **Contact Sheet**
- Letter of Approval** for work from the Home Owner's Association, or owner of the property.
- Two (2) copies of an Improvement Survey** per minimum American Land Title Association (ALTA) standards, ***dated less than 1 year prior***, with the original wet stamp and original signature of the surveyor. The surveyor must include:
 - Topography at 1' contour intervals
 - All easements and rights-of-way
 - All existing structures and improvements within 5 feet outside of property line. Survey must include pavement and utilities.
 - Surveyed tree locations with accurate species, trunk diameters and drip line dimensions - Drip line is defined as "having a radius equal to the length of the lobgest branch" measured from the center of the trunk. Call the City Forester with questions (970) 429-2026.
 - **Elevation Bench Mark** - tied to a Gov't Maintained Monument
 - Site vicinity map
- One (1) Engineering Checklist, and related documentation** for any work done to the exterior, or if adding impervious areas. Please refer to <http://www.aspenpitkin.com> or call Aspen Engineering Department at (970) 920-5080
- One (1) Zoning Checklist completed.** Refer to <http://www.aspenpitkin.com> or call Aspen Planning & Zoning at (970) 429-2747
- Two (2) Site Plans**, showing all existing and proposed structures, improvements, and property lines and set-backs
- Two (2) Sets of architectural drawings, stamped by Architect**, on standard industry-size sheets, 24"x36" only, with dimensional scale of 1/4"=1" preferred, but not less than 3/16". Alternate scales ***must*** have pre-approval by Building Dept.
 - **Coversheet**, including all pertinent approvals pertaining to requested work
 - **Existing** floor plans and room uses
 - **Proposed** floor plans and room uses; identify any changes in use
 - **Window and door schedule**, including required egress and total square feet of glazing
 - **Exterior building elevations** which clearly indicate natural existing and finished grades which correspond to the topographical survey.
Note: Addition/removal of existing windows/doors will require exterior elevations
 - **Radon mitigation plan** for SFR, duplex and town homes
 - **If IBC building**, all mechanical, electrical and plumbing plans
- Two (2) Structural drawings**, stamped by the Engineer: typical sections showing materials and framing and wall sections (preferred scale 1/4"=1"; alternate scales must have pre-approval from the Building Dept.)
- One (1) set of plans reduced to 11"x17"**. Include **ONLY** any of the following submitted: coversheet, survey, site plan, FAR calculations, floor plans, elevations, civils (and if commercial building, copies of mechanical, electrical and plumbing drawings)
- Two (2) Energy Compliance documents** - COMCheck document or RESCheck document as required
- One (1) Asbestos Checklist**, if needed for any planned demolition or renovation needing material removal. No Building Permit will be issued prior to Abatement/Mitigation of any found asbestos.
- Two (2) Construction Management Plans**. Needed if 400 square feet of demo, renovation or improvement, and/or 1,000 square feet of soil disturbance

For multiple occupancy buildings:

- 1) Provide an elevation or section showing the relationship of the unit being remodeled to the remainder of the building
- 2) If walls are being added / deleted, provide structural verification in the form of existing structural plans or two copies of a letter from the architect / engineer with original stamp and signature as required by Colorado Revised Statute 12-4-112.

REFERRALS: The following checklist may not pertain to all projects as all projects are unique in their size, scope and process. However, if the conditions detailed below apply to your project, the proper information shall be provided to the City of Aspen's Building Department in accordance with the submittal of your project.

Note: "Yes" to any of the following questions may require additional information

Historical Preservation: Contact Amy Guthrie - (970) 429-2758 or Sara Adams - (970) 429-2778

- Is the site listed on the Inventory of Historical Sites and Structures? **Yes / No**
 - Is the site located within the Main Street or Commercial Core Historic Zoning District? **Yes / No**
- NOT SURE** - Contact Amy Guthrie, Historic Preservation Officer, (970) 429-2758

Zoning: Contact Planning & Zoning - (970) 429-2747

- Have you reviewed and complied with the Aspen Design Review Standards? **Yes / No**
- Are you adding exterior structure of landscape lighting? **Yes / No**
- Are you changing uses of occupancy on the property? **Yes / No**
- Are you adding onto you unit or building? **Yes / No**

City Engineering: Contact Front Desk - (970) 920-5080

- Have you reviewed the Engineering Checklist for required documentation? **Yes / No**
- Have you reviewed the Construction Management Plan (CMP) requirements? **Yes / No**
- Is the project larger than 200 square feet of additional floor or impervious areas? **Yes / No**
- Will you be using any loud construction machinery, such as jackhammers? **Yes / No**

Building Department Requirements: Contact Dan Brabec - (970) 429-2748

- Is an elevator or dumbwaiter being installed? **Yes / No**
- Are nay fireplaces being replaced or installed? **Yes / No**
- Aspen Conservation Code compliance documents--2 copies (REMP Option)
- Are there any un-vented roof assemblies? **Yes / No**
- Verified STC (Sound Transmission Class not less than 50) and IIC (Impact Insulation Class rating of not less that 50) documents? **Yes / No**
- Is there structural welding, high strength bolting, or spraying of fire insulation? **Yes / No**

Residential Only: Contact Dan Brabec - (970) 429-2748

- Is there a Radon gas mitigation system? **Yes / No**
- Is the building 5,000 square feet or more, with an exterior spa, pool, and/or snowmelt? **Yes / No**

Environmental Health: Contact CJ Oliver - (970) 920-5008 or Jannette Whitcomb - (970) 920-5069

- Are you remodeling more than (residential) 32 square feet of material or (commercial) 160 square feet of material other than concrete, wood, brick or steel? **Yes / No**
- Are you planning to have some type of fireplace addition or fixture replacement? **Yes / No**
- Are you planning on installing a commercial kitchen or commercial kitchen appliance? **Yes / No**

Aspen Fire Protection District: Contact Ed VanWalraven - (970) 925-5532

- Does the building currently have a fire protection system? **Yes / No**
- Is the building a residence greater or equal to 5,000 square feet of floor area? **Yes / No**
- Is the building a commercial use? **Yes / No**
- If for commercial use, is the structure 2 or more stories or contain 4 or more units? **Yes / No**
- Will you be working through the winter months? **Yes / No**

Parks: Contact Brian Flynn - (970) 429-2035

- Will you be removing any trees with a trunk diameter greater than 4 inches? **Yes / No**
- Is your building new construction or involve the building envelope? **Yes / No**

Water: Contact Sam Irmen - (970) 429-1974

- Are you removing the water meter or remote-sender? **Yes / No**
- Are you replacing any fixtures? **Yes / No**
- Are you adding or removing any fixtures? **Yes / No**

Aspen Consolidated Sanitation District (ACSD): Contact Peg Mohr - (970) 925-3601

- Are you replacing any fixtures? **Yes / No**
- Are you adding or removing any fixtures? **Yes / No**
- Are you disconnecting from the sewer for demolition? **Yes / No**

OFFICE USE ONLY

Referral - H.P.C.

- Approval determination
-

Referral - Zoning

- Zoning Checklist - Page
- DRS Checklist - Page
- FAR Review
- Lighting Plan
- Occupancy Rating

Referral - Engineering

- Engineering Checklist
- CMP (2)
- Right of Way (ROW) Permit
- Line Grade Verification (2)

Referral - Building

- COMCheck/RESCheck figures
- Special Inspection Agreement
- Elevator checklist/permit
- Fireplace checklist/permit

- Radon Mitigation Plan

- REMB Payment Option

Referral - Envir. Health

- Asbestos Checklist & Test
- Fireplace / Woodstove / Gas Log Registration
- Kitchen Plan (commercial only)

Referral - Fire District

- Sprinkler Plan
- Fire Dept. Inspection
- Temporary Heat Plan

Referral - Parks

- Tree Removal Permit
- Landscape Plan

Referral - Water

- Discuss metered billing options with Utilities Dept.
- Fixture Specification Plan

Referral - Sanitation

- Sanitation District Inspection



INFORMATION GUIDE FOR:

Building Permit Instructions

The Building Permit Form is used for several types of permits: Building, Demolition, Change Orders, Foundation/Excavation, Access & Infrastructure, Fence, Manufactured Housing, Miscellaneous, Roof and Sign

- Job address is the location of the job site.
- Legal description and Parcel ID; call the Pitkin County Assessor 920-5160.
- Building or property owners name, permanent address, city, state, zip code and telephone number.
- Owners authorized agent if applicable. (Can be tenant, lessee, property manager, etc.)
- Contractor, address, city, state, zip code, telephone number and license number.
- Architect, engineer of record or designer if applicable.
- Class of work; choose between, new, addition, alteration, repair or fill in the blank for work other than described.
- Use of building; choose between, single family, multi-family, commercial/residential, commercial or other.
- Valuation of work. This is the total value of your building project including labor, materials and electrical, mechanical, plumbing equipment and permanent systems such as elevators, fire suppression/alarm and security.
- Existing square footage means the square footage of the existing structure. And in the next space, square footage of the proposed additional square footage of your project.
- Food service in the building; is there a commercial kitchen in the building?
- LPG; is there liquid petroleum gas used on site?
- Description of work; include a description of the work you intend to complete such as “new construction” or remodel kitchen and baths” or “replace windows and exterior doors” or “remove walls at study and enlarge master closet” or “650 square foot addition to existing house”

If you are the contractor for the permit, read the Notice section, sign, print and date.

Payment of City of Aspen and Pitkin County Use Tax will be collected in the form of a deposit at the issuance of your building permit if your project’s valuation is greater than \$100,000.00. The deposit amount will be calculated using the following formula:

$$[(\text{Project Valuation} - \$100,000.00) \times 50\%] \times 2.1\%$$

If you have any questions please call Amy Smith, Construction Use Tax Administrator, in the Community Development Department at (970) 429-2752, or Kathy Yang, Tax Auditor, in the Finance Department at (970) 920-5006.



THE CITY OF ASPEN

CITY OF ASPEN ENGINEERING DEPARTMENT
SUFFICIENCY REVIEW REQUIREMENTS

If the project will increase impervious area (this includes changing a gravel driveway to hard surface, adding hard surface patios, increasing the footprint of the house, etc.), disturb >200SF of land (this includes grading, even if a structure or hard surface is not added, as well as impervious area that is “scraped and replaced”), or add or repair snowmelt then an engineering review will be required as part of the Building Permit Application review process. All permit applications that must receive an engineering review are required to schedule and participate in a Pre-Application Meeting with the Development Engineer. The sufficiency checklist below and any necessary supporting documents should be completed prior to this meeting, as they will be reviewed during the meeting. **The Development Engineer’s signature on this checklist is required in order to submit a Building Permit Application.**

Project Address: _____

Project Location: _____

Parcel ID Number: _____

Owner and Phone Number: _____

Contact and Phone Number and e-mail address: _____

The following information is required for the engineer’s review. Please indicate if these documents have been completed and are attached. If any of these documents are not applicable, please provide an explanation in the space provided.

1. How much land will be disturbed? _____ acres = _____ sq.ft.

If one acre or more is disturbed, a CDPHE Construction General Permit is required.

Yes, Notice of Coverage has been included in the CMP. _____

No, A statement that Notice of Coverage is not required is included in the CMP. _____

2. How much impervious area will be disturbed? _____ sq.ft. **Added?** _____ sq.ft.

If 500 sq.ft. or more of impervious is disturbed or added, the system development fee applies.

3. What is the estimated total impervious area of the site (not just the addition)? _____ sq.ft.

The system development fee is applied to the entire site’s impervious area. System development fee is \$2.88 per square foot of imperviousness. **System Development Fee Estimate?** \$ _____

4. What type of project is this – Minor or Major? _____

The project is considered “Minor” if 200 – 1000 sq.ft. of soil or impervious area is added or disturbed and “Major” if > 1000 sq.ft. of soil or impervious area is added or disturbed.

5. Is the project located within a stream margin, floodplain, mudflow hazard area, or 8040 Greenline review area? (state area(s)) _____

Minor projects located in the stream margin review area, 8040 Greenline review area, mudflow analysis area, or in jurisdictional or non-jurisdictional floodplains may be required to do a more detailed drainage analysis and design.

	Included	N/A
6. Minor Grading and Drainage Report and Plan	<input type="checkbox"/>	<input type="checkbox"/>
7. Major Grading and Drainage Report and Plan	<input type="checkbox"/>	<input type="checkbox"/>
8. Compliant City of Aspen Survey	<input type="checkbox"/>	<input type="checkbox"/>
9. Soils Report	<input type="checkbox"/>	<input type="checkbox"/>
10. Excavation Stabilization Plan	<input type="checkbox"/>	<input type="checkbox"/>
11. Construction Management Plan (CMP)	<input type="checkbox"/>	<input type="checkbox"/>
12. Public Improvement Requirements	<input type="checkbox"/>	<input type="checkbox"/>
13. Floodplain Development Requirements	<input type="checkbox"/>	<input type="checkbox"/>
14. Mudflow Analysis	<input type="checkbox"/>	<input type="checkbox"/>

I hereby declare the engineering information submitted in this sufficiency review for this project is sufficient for City of Aspen Building Permit Application submittal.

Applicant's Signature

Date

City of Aspen Development Engineer's Signature

Date



CITY OF ASPEN ENGINEERING DEPARTMENT
CITY OF ASPEN SURVEY CHECKLIST

All projects disturbing >1000 sq.ft. of land within the City of Aspen require a compliant City of Aspen Survey. The following are the minimum requirements for a compliant City of Aspen Survey:

- Survey performed or verified within the last 12 months.
- Surveyor’s certificate stating that the error of closure is less than 1/10,000.**
- Vicinity map showing the property surveyed in reference to nearby highway(s) or major street intersections (shown at a legible scale).
- Monuments placed (or a reference monument or witness to the corner) at all corners of the boundary of the property, unless already marked or referenced by an existing monument or witness to the corner.
- Legend of symbols, scale, and north arrow.
- Survey tied to USGS, NGS or local government monument system. List datum used.
- Overlaps and gores along the exterior of the boundaries.
- Legal description of property.
- Existing building(s) locations and dimensions with ties.
- All improvements within five feet extending beyond the property boundaries, including parking areas.
- Gross land area to the nearest thousandth of an acre.
- One foot contours and the datum of the elevations.
- Basis of bearing and point of beginning graphically
- Roads (edge of pavement as applicable), Rights-of-Way and distance to the nearest intersecting street if within 200’ of property.
- Label easements and encroachments add reference numbers as applicable.
- Indication of access to a public rights-of-way on land such as curb cuts and driveways, and to and from waters adjoining the surveyed tract.
- List setbacks and building envelopes
- Names of adjoining owners of platted lands or subdivision names.
- Location, species, trunk diameter of trees at 4 ½’ from the ground, and extents of drip line.
- Natural hazards: Identify the areas that constitute natural hazard areas including but not limited to snow slide, avalanche, mudslide, and rockslide, as identified by the City on the 2001 Surface Drainage Master Plan and the 2009 Percent Slope Map. Differentiate areas with slopes from 30% to 40% and areas with slopes greater than 40%. Areas with slopes from 30% to 40% and areas with slopes greater than 40% will require a slope stability study performed by the Colorado Geological Survey (800-945-0451).
- Flood zone designation (with proper annotation based on federal Flood Insurance Rate Maps or the state or local equivalent, by scaled map location and graphic plotting only.)
- Location of all utilities existing on or serving the surveyed property as determined by observed evidence and observed evidence together with evidence from plans obtained from utility companies or provided by client, and markings by utility companies and other appropriate sources (with reference as to the source of information).
- List all documents used in the survey with recording information.



THE CITY OF ASPEN

CITY OF ASPEN ENGINEERING DEPARTMENT
GRADING AND DRAINAGE REQUIREMENTS
FOR MINOR DESIGN

If the project will increase impervious area (this includes changing a gravel driveway to hard surface, adding hard surface patios, increasing the footprint of the house, etc.), disturb >200SF of land (this includes grading, even if a structure or hard surface is not added, as well as “scrape and replace”), or add or repair snowmelt then an analysis of stormwater runoff via a Grading and Drainage Plan and Report are required, unless determined by the Development Engineer to be unnecessary. “Minor” projects include those that add or disturb 200 – 1000 sq.ft. of soil or impervious area. One copy of the Report and one copy of the Plans is required for Sufficiency Review. Three copies of each will be required for Building Permit Application.

NOTE: A Professional Engineer is not required for preparation or submittal of a plan and report for a minor project.

REFERENCE: Use the Introduction and Chapter 8 of the Urban Runoff Management Plan to design for a minor project.

DRAINAGE REPORT (Narrative) SHALL INCLUDE:

- The following should be included in a bound, narrative report.
- Description of the existing site, including common location, topography, land use, ground cover, soil type (if known), drainage pattern, and receiving system.
- Description of the proposed project, including changes to land use, topography, ground cover, soil type, drainage pattern and receiving system.
- Discussion of any drainage issues.
- Discussion of drainage basins and drainage alterations, including increases in flow, changes in direction, outfalls, etc. Note: Snowmelt cannot drain to the right-of-way.
- Description of downstream stormwater conveyance system – hard infrastructure (Minor (hard)) or “green” infrastructure (Minor (green)).
- Minor (green) – Description of water quality improvements. Improvements must be made for at least the project area. Describe what efforts have been made to reduce runoff and increase infiltration (e.g. reduce impervious area, disconnect impervious area, route runoff via landscape rather than hard infrastructure).
- Minor (hard) – Calculations to determine the WQCV and design a BMP that can treat that volume.

GRADING AND DRAINAGE PLAN (Sketch Plan) SHALL INCLUDE:

- The following should be provided on at least 8.5”x11” paper (24”x36” preferred).
- Name of the subdivision or project, property map and parcel number.
- Date of preparation, scale, and symbol designating true north.
- Property lines, streets, and waterways (swales, irrigation ditches, streams, etc.).

- Boundary lines of project area including disturbance area, construction access, materials storage, etc.
- Sketch of proposed work (on topographic map if possible), including calculation of disturbed area.
- Drainage direction (with arrows), drainage facilities on site, existing and proposed.
- Location and size of BMP to treat WQCV (for Minor (hard) projects only).
- Erosion and sediment control measures and revegetation plan. Erosion must be controlled, sediment cannot be allowed to leave the site, and disturbed areas must be stabilized prior to completion.
- Start and finish dates.



CITY OF ASPEN ENGINEERING DEPARTMENT
GRADING AND DRAINAGE REQUIREMENTS
FOR MAJOR DESIGN

If the project will increase impervious area by more than 1000 SF or 50% of the existing site imperviousness (this includes changing a gravel driveway to hard surface, adding hard surface patios, increasing the footprint of the house, etc.), disturb >1000 SF of land (this includes grading, even if a structure or hard surface is not added, as well as “scrape and replace”), or add or repair snowmelt then an analysis of stormwater runoff via a Grading and Drainage Plan and Report are required, unless determined by the Development Engineer to be unnecessary. The Plan and Report must be signed and stamped by a Colorado Professional Engineer. One copy of the Report and one copy of the Plans set is required for Sufficiency Review. Three copies of each will be required for Building Permit Application.

DRAINAGE REPORT SHALL INCLUDE:

General

- Signature, date, and stamp of a Colorado Professional Engineer.
- Description of the existing site, including common location, topography, land use, ground cover, soil type, drainage pattern, and receiving system.
- Description of the proposed project, including changes to land use, topography, ground cover, soil type, drainage pattern and receiving system.
- Discussion of any previous drainage studies (i.e., project master plans) for the site that influence or are influenced by the drainage design and the mitigation plan for any negative impacts.
- Discussion of the effects of adjacent drainage issues.
- Reference to major drainage way planning studies such as flood hazard delineation reports, master plans, and flood insurance rate maps.
- Discussion of the drainage impact of site constraints such as streets, utilities, existing structures, and development or site plan.
- Identification of all irrigation facilities and waterways within the watershed that will influence or be influenced by the site drainage.
- Discussion of easements and tracts for drainage purposes, including the conditions and limitations for use.
- Report must include printed copies of the input and output files for all computer models used for the analysis and design.
- Reference plan drawings as needed.

Drainage Basins and Sub-basins

- Describe existing and proposed sub-basins, including ground cover, acreage, soil type, and location and method of discharge.
- Delineate and reference sub-basins on a map with contours. Each drainage basin should be labeled with its area (in acres), runoff coefficient (C), and Q (cfs).
- Discuss offsite drainage patterns and impact on site under existing basin conditions and fully-developed basin conditions.
- Discuss pre-developed/historic and post-developed drainage flow rates at specified point locations (should match labeled locations on plan).

Low Impact Site Design

- Describe what efforts have been made to reduce runoff and increase infiltration (e.g. reduce impervious area, disconnect impervious area, route runoff via landscape rather than hard infrastructure).

Hydrologic Criteria

- Identify design storm recurrence intervals.
- Identify design rainfall.
- Identify runoff calculation method.
- Identify detention discharge and storage calculation method.
- Discussion and justification of other criteria or calculation methods used that are not presented in or referenced by the criteria.
- Identify the area, storm frequency, rainfall intensity, time of concentration, runoff coefficients, and adjustments for each sub-basin.
- Calculate existing runoff or historic runoff as appropriate. Refer to Section 5.2 of the URMP.
- Calculate the post development runoff flows for each sub-basin and compare these flows to pre-development flows. Post development flows must not exceed pre-development flows. Determine post development flow prior to inclusion of detention. Flow should be calculated for each location that runoff leaves the site. Each drainage basin should be labeled with its area (in acres), runoff coefficient (C), and Q (cfs).
- Provide calculations of the WQCV, minor event (5-yr for drywell, 5- or 10-year for storm system and detention) and major storm runoff (100yr) at specific design points.
- Hydrographs at critical design points.

Hydraulic Criteria

- Identify the hydraulic design point for closed systems tied to the City's existing collection system.
- Identify flow capacity of drainage facilities.
- Calculate culvert sizes with capacities and area of contribution.
- Calculate storm sewer capacity including capacity of next two downstream drainage structures (max velocity 20 ft/sec, HGL 12 inches below ground, EGL below ground, minimum velocity of 5 ft/sec at half full conduit flow).
- Calculate gutter capacity (max velocity 10 ft/sec, allowable spread = 4 feet minor storm, 12-inch depth at flow line for major storm, $n=.016$ for street, $n=.025$ for grass)
- Calculate storm inlet capacity (clogging factor = 50%).
- Provide open channel design and calculations.
- Check and/or channel drop design.
- Calculate the downstream/outfall system capacity to the major drainage way system.

Proposed Facilities

- Describe proposed better site design practices (BMPs) used to treat the water quality capture volume, detention methods and outlet design with protection techniques.
- Provide sizing calculations and approximate locations, with drainage basins, of BMPs used to treat the water quality capture volume.
- Provide volumes and release rates for detention storage facilities and information on outlet works.

- Discussion of easements and tracts for drainage purposes, including the conditions and limitations for use.
- Discussion of the off-site drainage facilities needed for the conveyance of minor and major flows to the major drainage way.
- Provide a separate section of the report that includes a narrative of the **Operation and Maintenance** requirements of the proposed on site drainage improvements. Include a description of access for maintenance operations, maintenance schedule, and contact information for party responsible for maintenance.

GRADING AND DRAINAGE PLANS SHALL INCLUDE:

- Signature, date, and stamp of Colorado Professional Engineer on each plan sheet.
- Vicinity map with north arrow and scale.
- Drawings must be 24" x 36" in size.
- Scale of 1"=10' to 1"=40' or plan must be provided in sufficient detail and clarity to identify drainage flows entering and leaving the development and general drainage patterns.
- Benchmark and tie to the City of Aspen Survey.
- Name of the subdivision or project, property map and parcel number.
- Date of preparation, scale, and symbol designating true north.
- Legend to define map symbols.
- Property lines and easements with purposes noted.
- Existing and proposed contours at 1-foot maximum intervals. In terrain where the slope exceeds 15%, the maximum interval is 10 feet. The contours shall extend a minimum of 100 feet beyond the property lines. **Additional topography can be obtained from the City of Aspen GIS Department.**
- Overall drainage area boundary and drainage sub-area boundaries for all basins on and off site.
- Location, elevation, and FIRM rate code for all existing floodplains within 100' of property.
- All major drainage ways for which the 100-year floodplain and floodway have been defined shall have the 100-year floodplain and floodway delineated on the plans. This also applies to detention basins.
- Indicate the top of slope of the Roaring Fork River and its tributaries (Hunter Creek, Castle Creek, and Maroon Creek) and delineate the 15' no-touch setback.
- Existing building footprints, streets, utility locations and elevations, ROW width, flow line width, curb type, sidewalk, approximate slopes, drainage facilities and structures, irrigation ditches, roadside ditches, drainage ways, gutter flow directions, and culverts. All pertinent information such as material, size, shape, slope, and location shall also be included.
- Proposed building footprints, streets, utility locations and elevations, ROW width, flow line width, curb type, sidewalk, approximate slopes, drainage facilities and structures, irrigation ditches, roadside ditches, drainage ways, gutter flow directions, and culverts. All pertinent information such as material, size, shape, slope, and location shall also be included.
- Proposed type of street flow (i.e., vertical or combination curb and gutter), roadside ditch, gutter, slope and flow directions, and cross pans.
- Proposed storm sewers and open drainage ways, including inlets, manholes, culverts, and other appurtenances, (i.e. riprap protection, allowable manhole spacing = 400 ft).

- **Proposed landscaping (berms, planters, shrub beds, trees, etc.). Overlay the actual landscape plan onto the proposed grading and drainage plan.**
- Profile views for all subsurface drainage facilities showing their size, slope, lengths, design storm hydraulic grade lines (major and minor), energy grade lines, cover, details of structures and/or City Standard details, and relationship with existing utilities. (18 vertical clearance for storm from water lines, 5 foot horizontal from any utility, 7 feet below ground surface, 2 % slope minimum, 18 inch min for main, 15 inch min for lateral).
- Cross-sectional views of all open channels, including irrigation ditches, trickle channels, spillway structures, etc., as necessary. These views shall include applicable easement/property line/ROW boundaries and water surface elevations such as the 100-year storm depth, 2-year storm depth, major storm (100-year) freeboard, and irrigation operating level.
- Finished floor and grade at foundation elevations of all buildings. In residential developments also provide lot corner elevations and any grade break elevations critical to the grading concept. Show positive drainage away from structures as required by Building Code (IRC – R401.3 and IBC – 1805.3.4).
- Spot elevations critical to describe drainage features and their functions (e.g. inlets, cross pans, spillways, inlets/outlets of manholes, culverts, and storm sewers).
- Proposed outfall point for runoff from the developed area and facilities to convey flows to the final outfall point without damage to downstream properties.
- Routing and accumulation of flows at various critical points for the initial and major storm runoffs listed on the drawing.
- Routing of offsite drainage flow through the development.
- Flow path leaving the development through the downstream properties ending at a major drainage way.
- Summary Runoff Table.
- Natural hazards: The designation of all areas that constitute natural hazard areas including but not limited to snow slide, avalanche, mudslide, and rockslide. Show areas with slopes from 30% to 40% and areas with slopes greater than 40%. Areas with slopes from 30% to 40% and areas with slopes greater than 40% will require a slope stability study performed by the Colorado Geological Survey (800-945-0451).
- Civil details of dry wells, outlet structures, foundation drain sumps, custom design, etc.
- Erosion prevention and sediment control measures for all phases of construction, including areas of revegetation.
- Profile views for all subsurface drainage facilities showing their size, slope, lengths, design storm hydraulic grade lines (major and minor), cover, details of structures and/or City Standard details, and relationship with existing utilities. (18 vertical clearance for storm from water lines, 5 foot horizontal from any utility, 7 feet below ground surface, 2 % slope minimum, 18 inch min for main, 15 inch min for lateral).
- Cross-sectional views of all open channels, including irrigation ditches, trickle channels, spillway structures, etc., as necessary. These views shall include applicable easement/property line/ROW boundaries and water surface elevations such as the 5 or 10-year storm depth, major storm 100-year, and irrigation operating level.



THE CITY OF ASPEN

CITY OF ASPEN ENGINEERING DEPARTMENT
SOILS REPORT REQUIREMENTS

If a project disturbs more than 1000 square feet of land, a Soils Report must be submitted to the Engineering Department. The following are minimum requirements for all Soils Reports:

SOILS REPORT SHALL INCLUDE:

- Signature, date, and stamp of Colorado Professional Geotechnical Engineer.
- Description of the existing site, including common location, land use, and soil type.
- Description of the proposed project, including changes to land use, grade, ground cover, drainage pattern and receiving system.
- Discussion of any previous soil studies for the site.
- Soil type, determined by analyses of borings performed on project site.
- Percolation rates, determined by a percolation test or observation of soil type performed on project site.



THE CITY OF ASPEN

**CITY OF ASPEN ENGINEERING DEPARTMENT
EXCAVATION STABILIZATION REQUIREMENTS**

An Excavation Stabilization Plan is needed if either of these is true:

- Nearby Structures and Travel Ways: both (1) the depth of excavation will be deeper than five feet AND (2) the proposed foundation walls (including light wells) are within a horizontal distance less than the vertical depth of the excavation of any existing travel way, structure or property line. (For this purpose, a travel way is defined as any sidewalk, walkway, driveway, parking area, or street.)
- Nearby Trees: An Excavation Stabilization Plan is needed if excavation will occur within the drip line of a tree that is deemed significant by the City Parks Department. (To determine if a tree is considered ‘significant’, contact Brian Flynn of the City Parks Department at 429-2035.)

All drawings must be 24" x 36" in size. All Excavation Stabilization plans must be included in the permit sets.

As an alternative to the use of stabilization elements (i.e. soil nails, etc.), stabilization may be achieved using techniques outlined in **OSHA Regulations (Standards – 29 CFR), Sloping and Benching – 1926 Subpart P, App. B** (a link for this is provided at the City Engineering Department’s webpage).

The permit application needs to include an Excavation Stabilization Plan, prepared and stamped by a Colorado Professional Engineer. Refer to OSHA Department of Labor Sloping and Benching Requirements 1926 Subpart P Appendix B for guidance Below is a general list of **required information**. More information may be required as each project is individually evaluated. The plans objective is to reduce the likelihood that building excavations may damage adjacent properties or trees or cause road closures.

Extent of the excavation, cross section(s) of the excavation cut, spot elevations of the top and bottom of cuts, location of construction fences, site-specific construction drawings of excavation stabilization measures, necessary erosion control measures.

Neighbor Notification: The Contractor must comply with neighbor notification requirements stated in Section 3307 of the 2003 International Building Code.

Stabilization elements (i.e. soil nails, etc.) are allowed in setbacks; but, they must be covered.

Stabilization elements are allowed in the ROW and are subject to Sec. 2.12.051 of the Aspen Municipal Code.

CITY OF ASPEN ENGINEERING DEPARTMENT
PUBLIC IMPROVEMENT REQUIREMENTS

In accordance with the City's Sidewalk, Curb and Gutter Master Plan, property owners are required to install and maintain sidewalk, curb and gutter along the street frontage adjacent to their properties. Properties within certain areas of the City are not required to install sidewalk, curb and gutter. These locations are shown on the "Sidewalk Free Zones" and the "No Curb and Gutter Zones" maps dated February 22, 2002. These maps are kept in the City Engineering Department. Call the Engineering Department at 920-5080 to find out if sidewalk or curb and gutter are required for a property.

Sidewalk, curb and gutter does not need to be installed as part of the project if (i) the property is outside of the City's sidewalk, curb and gutter zones, and (ii) the cost of installing sidewalk, curb, and gutter exceeds 50% of the project cost excluding the cost of the sidewalk curb and gutter. [For example, the project would not need to install sidewalk, curb and gutter if the project cost is \$20,000 and the cost to install sidewalk curb and gutter is more than \$10,000.]

General

- Provide a drainage study that delineates the drainage sub-basin, runoff flows, and the flow capacity of the curb and gutter.
- Landscaping in the landscape island (between the curb and sidewalk) needs to be coordinated with the City Parks Department. (phone: 920-5120 or 429-2035)
- Public improvements including pavement, sidewalk, curb and gutter plans must be stamped by a Colorado licensed professional engineer.
- If no curb and gutter exists on the adjacent properties, the curb and gutter needs to be designed for the adjacent property. (This is necessary in order to ensure that the location and elevation of the new curb and gutter is coordinated with the future curb and gutter on adjacent properties.)

Site Plan

- Existing utilities and structure with appropriate stationing including: Waterline, valves, hydrants, sanitary sewer line, manholes, storm drainage facilities, telephone line including junction and control box, gas, electric, cable, fiber optic, floodways and plains, driveway locations, street lights, curb and gutter, traffic signal poles and controllers, pavement edges, trees
- Show the location of the sidewalk, curb and gutter on the site plan and grading plan, spot elevations in the gutter flow line every 10 feet, and the extent of new pavement.
- Station and elevation of all curb returns, horizontal PCs, PTs etc existing and proposed. Also at high or low point for all curbs , at inlets (including invert and 100 foot maximum intervals along the streets.
- Curb return radius, existing and proposed.
- Pedestrian access ramp locations
- Complete horizontal curve data (radius angle, length and tangent)
- All crown lines were departing from the normal cross sections (transitions to existing roadways) with appropriate transition stating elevation.

Profile

- All design elevations, at centerline, flow line, pipe inverts. Including water lines larger than 4 inch diameter, all distribution or collection lines under pressure and gravity lines with 6 inch or larger diameter.
- Existing and proposed grade, drawn and labeled
- Centerline stations continuous for the entire length of the street or project, with centerline stationing of all intersection streets.
- Existing utilities particularly where crossed, with grades and elevations
- Station and elevation of grade breaks, existing and proposed.
- Proposed vertical curves with VPI, VPC, VPT, high point or low point (not the middle ordinate) stations and elevations
- Proposed slope and distance for all tangent lines
- Proposed Curb return profiles
- Proposed Size, type and structural class of pipe
- Proposed Pipe bedding
- Station and elevation on all drainage and other proposed utilities
- Provide a profile of curb flow line showing both the existing and proposed grade.
- Provide cross sections across the sidewalk and/or curb and gutter every 50 feet including cross sections at both ends of the proposed sidewalk, curb and gutter.
- Typical Cross section(s), shown for all streets, including profile street width, ROW and cross slope.

Details

- The construction plans shall include adequate technical information in text format, complete design details and design calculations for special structures.

Signing and Pavement Marking

- A complete signing and marking plan must be submitted as apart of the design documents for review by the Engineering Department All signing and marking design must conform to MUTCD

Design Parameters

- Standard City details for sidewalk, curb and gutter, drive ramps, and handicap ramps are available from the City. Minimum width of sidewalk is five feet for residential, 6 feet for high density and multi-family and 8 feet for commercial. Sidewalk cross slope: 2%.
- Gutter should be designed to drain with a slope of 0.75% or greater.
- If possible, elevation of sidewalk should match the elevation of top of curb. And be placed next to the property lines.
- The curb radius at intersections is established in the City's Engineering Standards.

Snow Melt Systems

- Snowmelt systems installed within the Rights-of-Way must be maintained by the adjacent property owner. A permanent encroachment permit must be completed.



THE CITY OF ASPEN

CONSTRUCTION MANAGEMENT PLAN REQUIREMENTS MANUAL

Construction projects that exceed **1000 SF** of soil disturbance and/or **400 SF** of building demolition, improvement, or renovation (interior and/or exterior) must submit a construction management plan in accordance with this manual.

Prepared by:
Engineering Asset Management Department
130 S. Galena St.
Aspen CO 81611
970.920.5080

May 2009

Please provide:
2 Paper Documents – Engineering Department
1 Electronic Document – EngineerCity@ci.aspen.co.us
Specifics: 8.5 x 11 or 11x17 sheets only & 2-hole punch

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1.0 GENERAL

1.1 PURPOSE

The purpose of this Construction Management Plan Manual is to provide a consistent policy under which certain physical aspects of construction management will be implemented. The elements contained in this document are related to the development process. It is intended that they apply to both public and private work designated herein.

These standards cannot anticipate all situations. They are intended to assist, but not to substitute for competent work by design and construction professionals. The City of Aspen does not intend to limit any innovative or creative efforts that could result in better quality, greater cost savings, or both. Any proposed departure from the manual will be judged on the likelihood that such variance will produce a comparable result, adequate for the user and City resident over the duration of the improvement/project.

If the project changes ownership or contracting services change, the City Engineering Department must be notified, and must agree to comply with an approved CMP in writing. Any departure from the approved CMP must be submitted in writing and approved by the City Engineer. The approved construction management plan must be kept onsite.

1.2 APPLICABILITY

This manual shall govern the construction and development of all public and private construction projects in the City of Aspen. These regulations shall apply to all commercial, industrial, residential, and mixed use developments which disturb 1000 SF or greater or require demolition, improvement, or renovation (interior and/or exterior) of 400 SF or greater within any twelve-month period.

1.3 DEFINITIONS AND TERMS

Construction Management Plan – A Construction Management Plan is a combination of diagrams, documents, drawings, and specifications that clearly define the steps that will be taken to demonstrate how the impacts to the community will be minimized. How the impacts associated with any construction project will be managed. Herein described as “Plan” throughout the remainder of this policy.

Construction Mitigation Officer – An appointed employee of the City of Aspen whose charge is to ensure that all aspects of a Construction Management Plan are followed, and to further ensure that the impacts associated with construction activities within the City of Aspen are effectively managed and impacts associated with those projects are the least necessary to accomplish the project.

Disturbance Area – A portion of land where topsoil or native soils have been removed for purposes of construction (development).

Best Management Practices (BMP's) – Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMP's also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, waste disposal, or drainage from material storage.

Tree Dripline and Protection Zone - Use the longest branch of the tree as a radius from the center of the tree and make a circle. The circle is then defined as the dripline and thus is the tree protection zone.

Final Stabilization – Uniform vegetative cover has been established with a density of at least 70 percent of pre-disturbed levels.

1.4 REFERENCES

- A. City of Aspen Policy 205-A Right-Of-Way Permit Requirements
- B. City of Aspen Policy 204-A Revocable Encroachment License Application
- C. City of Aspen Construction and Mitigation Standards for Work in the Public Rights-of-Way
- D. City of Aspen Municipal Code Titles 13, 21, and 26
- E. City of Aspen Ordinance 35
- F. Manual on Uniform Traffic Control Devices for Streets and Highways – 2003 Edition
- G. Colorado Department of Public Safety General Permit Part IB
- H. Colorado Department of Transportation M&S construction standards
- I. Colorado Department of Public Health and Environment – Air Pollution Control Division

2.0 PROJECT LOCATION

2.1 DISTURBANCE AREA

The Plan shall describe and compute the total project disturbance area. Soil disturbance shall be kept to a minimum. Construction staging and phasing shall occur, where applicable, to minimize soil disturbance time.

2.2 LOCATION

A project vicinity map shall be included in the Plan. The map should accurately depict general project location within the City of Aspen and also delineate project extents. The map shall be a scaled drawing that includes a directional arrow and adjacent street descriptions.

2.3 DESCRIPTION

The Plan shall include an overview of the construction project including background information, proposed development type and general information. The proposed effect on public utilities such as storm sewer, sanitary sewer, water main, etc. should also be described.

3.0 PROJECT DOCUMENTATION

3.1 PERMITS / OTHER DOCUMENTS

The contractor shall maintain all applicable local, state and federal licenses and permits that apply to the construction project. Applicable permits shall be listed, described and copies of the documents shall be attached in Plan appendices. In addition to permits all PUD's, Subdivision Improvement Agreements, and Related City Ordinances must also be attached in the Plan appendices.

3.2 PUBLIC NOTIFICATION

A project update shall be provided to the public on a basis no less than monthly, via website, newspaper, on-site notices, or other accepted means of notification (per request of the City of Aspen). The first public notification shall occur no later than 10 days prior to construction. The update shall include a description of the current project phase, list any traffic and/or pedestrian concerns, and describe hauling/staging operations.

The above notification shall specifically be distributed to neighbors located within 300 feet of the project property.

The Plan shall designate a project representative, date, and time for a required preconstruction meeting. The purpose of the meeting is to discuss the project and summarize the project specific Construction Management Plan. The contractor and subcontractors are required to attend the meeting. Utility personnel, applicable City departments, the Roaring Fork Transit Authority, neighboring property owners, and the Aspen School District shall also be notified.

3.3 PROJECT SIGN

A project sign shall be constructed and posted that includes the items shown in Appendix A: Required Construction Sign.

The sign shall be posted in a location where it is readable from the street or driveway and shall meet criteria in City Municipal Code 26.510.030B4.

3.4 CONTACT DESIGNATION

The Plan shall have a contact list with associated phone numbers located at the front of the document. The list will include: the owner, contractor appointed overall site

supervisor, a state certified safety officer, a state certified traffic control officer, and a state certified erosion control representative. Other information shall include city and county phone numbers, fire department, police department, Roaring Fork Transit Authority (RFTA), school district, and all applicable utility company contact information. The contact list should include hospital contact information and the Emergency 911 reminder.

4.0 PROJECT IMPLEMENTATION

4.1 DATES OF CONSTRUCTION

Dates of construction shall be specified in the Plan. Any work being performed within City ROW shall be completed as per the City of Aspen Right of Way permit requirements.

4.2 HOURS OF CONSTRUCTION

Construction hours shall be limited to 7am – 5pm Monday through Friday and 9am – 5pm on Saturday. No construction is permitted on Sundays, during Food & Wine Festival in June (Friday thru Sunday), 4th of July day and/or weekend if it falls on a Friday or Monday, Memorial Day and Labor Day weekends, Thanksgiving Day and during the Christmas week (12/25-1/1).

All activity that generates noise in excess of 80 decibels requires a noise suppression plan and is restricted to operating between the hours of 9am and 5pm Monday through Friday.

4.3 SEQUENCE (PHASING) OF CONSTRUCTION

A construction schedule including all project phasing, with item details, and specific item completion dates or duration of phasing is required.

The schedule shall be developed using Microsoft Project or a program of greater capabilities as approved by the Engineering Department.

4.4 ADJOINING PROPERTIES

No person shall excavate on land close enough to a property line to endanger any adjacent public street, sidewalk, and alley, other public or private property, or easement, without supporting and protecting the property from any damage that might result from construction operations.

4.5 PROJECT FENCING

All construction areas shall have a non-removable construction fence or other approved device securely placed around the areas to be protected. The fence shall be six feet (6') in height and constructed out of chain-link fence with mesh windscreens (visual

barriers). Decorative construction fences may be allowed at the discretion of the City Engineer. Please see Section 11 for fencing noise suppression techniques.

4.6 PUBLIC HEALTH AND WELFARE

All construction projects located within the City of Aspen shall uphold utmost respect to public health and welfare and be reflected in prepared Plan.

4.7 NATURAL ENVIRONMENT

Project construction shall be oriented to minimize harm to all aspects of the City of Aspen's natural environment. All tree and natural resource protection measures must be identified in the Plan and in place prior to the commencement of any construction or demolition activities. Refer to section 13.20.020b of the Municipal Code for tree protection and removal requirements and process.

The Plan must contain a site map showing exact tree protection fence location and accurate tree driplines (refer to Section 1.3 for dripline definition).

Proposed projects should be consistent with the character of existing land use in the surrounding area.

5.0 PARKING MANAGEMENT

5.1 PARKING MANAGEMENT FORM

A Parking Plan must be requested, specified and submitted as part of the CMP.

5.2 EMERGENCY VEHICLE ACCESS AND ORDINANCE 35

The contractor shall maintain continuous emergency vehicle access, on and around site, including but not limited to police, fire, and ambulance services. This includes projects adjacent to roads and alleys.

All Plans shall include a copy and show compliance with Ordinance 35.

5.3 CONSTRUCTION PARKING DETAILS

Specific construction parking spaces/areas may be requested for use by craftsman, subcontractors, and contractors involved in the site construction process. The City allows minimal onsite parking with public transportation as the preferred method of transportation. Transportation options may include, but are not limited to carpool, vanpool, public transportation, paid shuttle for transporting workers to the site, etc.

No construction parking will be permitted within the free two-hour residential parking areas without a valid permit.

5.4 STAGING AREAS

The Plan shall specify construction staging area locations. Alleyways are preferred short term staging locations without blocking access to neighboring properties. The number of truckloads expected to and from the site should be estimated (including soil hauling and materials transport). The timing and duration of the transport vehicles should also be noted.

City of Aspen personnel can limit project staging locations, number of trucks, and duration of operations depending on project location and site surroundings.

Projects that require crane operations and have little or no setbacks are required to use a tower crane. The City prefers electric type cranes to reduce noise and fumes.

Right-of-Way encroachments are used as a last resort in all cases. In the case where a ROW encroachment occurs, a permit must be obtained from the City Engineering Department.

5.5 CONSTRUCTION TRAILER, MATERIALS STORAGE, AND WASTE MANAGEMENT

As specified in Section 5.1, construction trailer, job materials storage, portable restrooms, waste management and recycling container locations shall be clearly designated on the project site plan. Loose job material storage is not allowed in ROW under any circumstance.

The City of Aspen Engineering Asset Management Department strongly recommends job trailer, waste management containers, and portable restrooms be stored on private property and not within City ROW.

The City of Aspen requires recycling of construction materials. In instances where recycling containers cannot be accommodated onsite, the City Engineering Department will consider locating recycling containers within public ROW where feasible. The encroachment permit fee will be waived if it pertains to recycling containers. If at any time such a container is not being used for recycling operations, the property owner will be responsible to pay at least three months calculated land lease fee.

The City of Aspen requires recycling of materials, both conventional and construction related, according to this document and City of Aspen Municipal Code (26.575.060). Recycling requirements included in this section do not supersede project specific Efficient Building Program (EBP) requirements.

Project site conventional recycling of co-mingled materials (plastics #1-#7, tin, aluminum, and glass), and cardboard must have an assigned space/area and be

separated on-site during the project. These materials may not be disposed of in the trash.

During the demolition phase of a project, deconstruction related activities are required (recycling and/or salvaging). Concrete and scrap metals must be sorted and kept separate on-site and must have an assigned space/area.

Field inspections will occur throughout the permit process. If sorting of materials is not occurring onsite, other means of verification may be provided to City of Aspen as deemed appropriate.

Per municipal code, any dumpster or other trash receptacle that is used for food refuse must be constructed in such a manner as to render it bear proof. All containers shall be adequately covered at all times until transferred to the landfill. The City of Aspen municipal code states it shall be unlawful to permit accumulated debris, litter, or trash on any construction site to blow or scatter onto adjoining properties.

An onsite hazardous material spill cleanup kit is required, as specified by the City Engineer, that contains, at a minimum, a 25 pound bag of Floor-Dri (or equal), absorbent pads, and other spill kit materials.

6.0 TRAFFIC CONTROL

6.1 GENERAL

All traffic control operations shall be managed by the designated certified traffic control supervisor.

6.2 HAUL ROUTES

The City of Aspen has designated specific project haul roads throughout the City (Appendix C). The project must follow the designated routes and specify any additional routes necessary to complete hauling operations. Project haul routes shall be oriented to minimize traffic congestion and maximize pedestrian safety.

6.3 ONSITE VEHICLE LIMITATIONS

All construction related vehicle activities shall be defined. Maximum vehicle weights and sizes shall be specified.

6.4 DELIVERY REQUIREMENTS

Traffic control required for deliveries must be fully coordinated with the City of Aspen Engineering Department. Roads will not be closed under any circumstances, unless granted permission from the City of Aspen Engineering Department.

The maximum number of delivery vehicles onsite must be specified, along with the hours the deliveries will occur, and any exceptions to the delivery schedule.

Delivery and Heavy Duty Vehicles must have a visible sign on the vehicle that specifies the project contractors name and phone number.

Delivery vehicles and all other onsite vehicles are not allowed to idle for more than five (5) minutes, with the exception of generators or PTO type operations. The general contractor must include an idling policy in the Plan that meets City requirements.

6.5 TRAFFIC CONTROL PLAN

A preliminary Traffic Control Plan (TCP) shall be submitted as part of the Construction Management Plan if necessary to be determined by City Engineer. The TCP shall be completed by a State Certified Traffic Control Supervisor and must conform to the most current edition of the Manual of Uniform Traffic Control Devices for Streets and Highways (MUTCD). The TCP shall contain all information specified in Section 6C.01 of the MUTCD.

A School Traffic Control Plan should be submitted in addition to the TCP in school areas according to Chapter 7A of the MUTCD. If the project is not located in a school area, but abuts a school bus stop or school walk route, extra traffic control personnel and devices shall be implemented to ensure school pedestrian safety.

7.0 PEDISTRIAN PROTECTION

7.1 GENERAL

The Plan shall comply with pedestrian safety per City code 21.04.060, MUTCD Chapter 6D, the Americans with Disability Act, and IBC Chapter 33.

8.0 SEDIMENT AND EROSION CONTROL

8.1 REQUIREMENTS

A Storm Water Pollution Prevention Plan shall be completed along with the CMP, according to Colorado Department of Public Health and Environment Water Quality Control Division General Permit Part IB.

The main objective of the storm water management plan shall be to identify Best Management Practices, which will minimize erosion and sediment transport.

In addition to the Colorado Discharge Service Permit (the program) requirements, the following apply:

1. Stock piles must be protected with erosion control devices.
2. Mud tracking ramps (rock construction entrances) are required and implemented per the most current version of the Colorado Department of Transportation M&S construction standards.

3. Onsite concrete and tire washout stations are required. Location and operation procedures shall be described in Plan.
4. City inlets, gutters, swales and irrigation ditches shall be protected with erosion control devices and such protection maintained for the duration of the project.
5. A description of procedures used to protect and maintain in good and effective operating condition the erosion/sediment control measures until final stabilization is required.

Onsite sediment and erosion control operations shall be managed by a state certified erosion control supervisor.

9.0 FUGITIVE DUST CONTROL

9.1 FUGITIVE DUST CONTROL PLAN

All projects that result in fugitive dust emissions must submit a fugitive dust control plan and file an application for a construction permit with the Colorado Department of Public Health and Environment.

The approval of a Dust Prevention and Control Plan does not relieve the owner or contractors of the responsibility to implement whatever additional measures may be required by the City Engineer to properly prevent and control dust.

9.2 REQUIREMENTS

The plan shall demonstrate that the discharge of dust from the construction site will not occur, or can be controlled to an acceptable level depending on the particular site conditions and circumstances.

1. The plan shall address site conditions during construction operations, after normal working hours, and during various phases of construction.
2. The plan shall include the name and the 24 hour phone number of a responsible party.
3. If the importing or exporting of dirt is necessary, the plan shall also include the procedures necessary to keep the public streets and private properties along the haul route free of dirt, dust, and other debris.
4. When an entire project is to be graded and the subsequent construction on the site is to be completed in phases, the portion of the site not under construction shall be treated with dust preventive substance or plant materials and an irrigation system.
5. All phased projects shall submit a plan demonstrating that dust will not be generated from future phase areas.

For all construction within the site, the contractor shall have a water truck available for dust control. Wetting shall be completed once three times a day under dry conditions or as directed by the City Construction Mitigation Officer.

Vehicle speeds should not exceed 15 mph on construction access roads and construction site.

10.0 EMISSIONS

10.1 GENERAL

All vehicles and equipment used on site will be properly maintained such that the engines will function within manufacture's standards or parameters.

10.2 EMISSIONS FROM DIESEL POWERED ENGINES

Emissions from diesel engines operated within the City of Aspen shall be of a shade or density no darker than 40% opacity, except for starting motion no longer than 10 seconds or for stationary operation not exceeding 10 seconds.

11.0 NOISE SUPPRESSION

11.1 GENERAL

The noise limit for construction is 80 decibels measured at the property line of the construction site. All construction equipment shall be adequately muffled and maintained to minimize project noise. The installation of noise barriers is the minimum technique to suppress noise, especially when jack hammering of concrete occurs.

11.2 NOISE SUPPRESSION PLAN

All activity that generates noise in excess of 80 decibels at the property line requires a noise suppression plan and is restricted to operating between the hours of 9am and 5pm Monday through Friday. See Appendix D for plan document which includes information on noise blocking methods, techniques, and common equipment and activities that require noise suppression.

12.0 ENFORCEMENT

12.1 CITY CONSTRUCTION MITIGATION OFFICER

A City Construction Mitigation Officer shall be assigned to each construction project.

The City Construction Mitigation Officer will complete random site visits to determine if the project is following approved Plan and City requirements. The officer is not intended to take the place of a City of Aspen building inspector.

12.2 CORRECTIVE ACTION

The City of Aspen will enforce construction mitigation corrections as follows:

1. The first corrective action is a verbal warning and explanation of the violation with a timeframe for completion.
2. The second corrective action is a written warning or correction notice with timeframe for compliance.
3. Third and final notice is a “Stop Work Order” (red tag). If a stop work order is issued, no more work can be completed until the violation is corrected.

Failure to correct violations and/or any threat to public safety could subject the owner, contractor or both to a fine of \$1000 a day as determined by the municipal court.

12.3 INSPECTION REPORTS

The Construction Mitigation Officer will complete construction inspection reports. All reports are public and will be kept in the City Engineering Asset Management Department.



THE CITY OF ASPEN

CITY OF ASPEN ENGINEERING DEPARTMENT
GRADING AND DRAINAGE CERTIFICATE

All major projects within the City of Aspen require a Grading and Drainage Certificate following final grade, landscaping, and installation of all stormwater quality and quantity control measures for the site. Certificate of Occupancy will not be issued until Grading and Drainage Certificate has been submitted and approved by the Development Engineer. The following are the minimum requirements for a Grading and Drainage Certificate:

GRADING AND DRAINAGE CERTIFICATE SHALL INCLUDE:

- As-built survey
- A video of the subsurface drainage systems may be necessary. A video of the subsurface drainage system is required if the site drains into the City of Aspen’s stormsewer infrastructure and/or if the site discharged pollutants, such as concrete, sediment, or construction debris, during construction.
- Maintenance Agreement for stormwater facilities such as detention systems and structural best management practices designed to treat the WQCV.
- Elevation Certificate if the site is in the FEMA 100-yr floodplain.
- Signature, date, and stamp of Colorado Professional Engineer on each plan sheet.

“I, the undersigned Registered Professional Engineer, certify that I have inspected the as-built survey data for project site: _____ and have concluded that the property will drain adequately in conformance with the drainage plan submitted and approved by the City on date: _____.”

By: _____
PE License No. _____

Date: _____

As-Built Survey

- Signature, date, and stamp of Colorado Professional Land Surveyor on each plan sheet.
- Vicinity map with north arrow and scale.
- Drawings must be 24" x 36" in size.
- Scale of 1"=10’ to 1"=40’ or plan must be provided in sufficient detail and clarity to identify drainage flows entering and leaving the development and general drainage patterns.
- Benchmark and tie to the City of Aspen Survey.
- Name of the subdivision or project.
- Property map and parcel number.
- Date of preparation, scale, and symbol designating true north.
- Legend to define map symbols.
- Property lines and easements with purposes noted.

- Contours at 1-foot maximum intervals. In terrain where the slope exceeds 15%, the maximum interval is 10 feet.
- Drainage facilities and structures, including irrigation ditches, roadside ditches, drainage ways, gutter flow directions, and culverts. All pertinent information such as material, size, shape, slope, and location shall also be included.
- Building footprints, streets, utility locations, ROW width, flow line width, curb type, and sidewalks.
- Storm sewers and open drainage ways, including inlets, manholes, culverts, and other appurtenances. All pertinent information such as material, size, shape, slope, and location shall also be included.
- Cross-sectional views of all open channels, including irrigation ditches, trickle channels, spillway structures, etc., as necessary. These views shall include applicable easement/property line/ROW boundaries.
- Finished floor and grade at foundation elevations of all buildings. In residential developments also provide lot corner elevations and any grade break elevations critical to the grading concept. Show positive drainage away from structures as required by Building Code (IRC – R401.3 and IBC – 1805.3.4).
- Spot elevations critical to describe drainage features and their functions (e.g. inlets, cross pans, spillways, inlets/outlets of manholes, culverts, and storm sewers).
- Location and (if known) elevations of all utilities.
- As-Built Survey Certification Statement:

“I, the undersigned Registered Land Surveyor, hereby certify that the elevations, grading and drainage features shown of the property described as: _____
 _____ were developed from surveying the
 property on the date of: _____ and accurately depict the elevations
 existing during the survey. The elevations may change subsequent to the survey due
 to subsidence, upheaval, erosion, acts of man or other factors. Therefore, this
 certificate may not accurately depict elevations, grading and drainage pattern after the
 date of the survey. Easements are shown per the plat unless noted otherwise. No part
 of this lot lies within the 100- year floodplain as defined by FEMA, except as noted.”

By:

Date:

 For and behalf of _____

 PLS seal

STORMWATER BEST MANAGEMENT PRACTICES OPERATIONS AND MAINTENANCE AGREEMENT

City of Aspen, Colorado

THIS AGREEMENT, made and entered into this ___ day of _____, 20___, by and between (Insert Full Name of Owner) _____ hereinafter called the "**Landowner**", and the City of Aspen, Colorado, hereinafter called the "**City**".

WITNESSETH

WHEREAS, the Landowner is the owner of certain real property described as (Pitkin County tax Map/Parcel Identification Number) _____ located at _____ and as more fully as follows, to wit:

also known as, _____, hereinafter called the "**Property**"; and

WHEREAS, the Landowner is proceeding to build on and develop the property; and

WHEREAS, the stormwater management BMP Operations and Maintenance Plan for the property identified herein has been approved by the City, herein after called the "**Plan**", which is attached hereto as Appendix A and made part hereof, as approved by the City, provides for management of stormwater within the confines of the Property through the use of stormwater management or Best Management Practices (**BMPs**) facilities; and

WHEREAS, the City and the Landowner, its successors and assigns, agree that the health, safety, and welfare of the residents of City of Aspen, Colorado and the maintenance of water quality require that on-site stormwater management/BMP facilities be constructed and maintained on the Property; and

WHEREAS, the City requires, through implementation of the Plan, that on-site stormwater management/BMPs as shown on the Plan be adequately constructed, operated, and maintained by the Landowner, its successors and assigns.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. Construction of BMP facility by Landowner. The on-site stormwater management/BMP facilities shall be constructed by the Landowner, its successors and assigns, in accordance with the plans and specifications identified in the Plan.

2. Duty of Operation and Maintenance of Facility. The Landowner, its successors and assigns, including any homeowners association, shall adequately operate, inspect, and maintain the stormwater management/BMP facilities as acceptable to the City and in accordance with the specific operation,

inspection, and maintenance requirements noted in the Plan. Adequate operation and maintenance is herein defined as good working condition so that these facilities are performing their design functions.

3. Duty of Documentation. The Landowner, its successors and assigns, shall document inspections, maintenance, and repairs performed and provide said documentation to the City or its representatives upon request.

4. Right of Entry on Property. The Landowner, its successors and assigns, hereby grant permission to the City, its authorized agents and employees, to enter upon the Property at reasonable times and upon presentation of proper identification, and to inspect the stormwater management/BMP facilities whenever the City deems necessary. The purpose of inspection is to follow-up on suspected or reported deficiencies, to respond to citizen complaints, and/or to assure safe and proper functioning of the facilities. The City shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive with timeline to commence with the repairs if necessary.

5. Failure to Maintain. In the event the Landowner, its successors and assigns, fails to operate and maintain the stormwater management/BMP facilities in good working condition acceptable to the City, the City, its authorized agents and employees, may enter upon the Property and take whatever action(s) deemed necessary to correct deficiencies identified in the inspection report and to charge the costs of such repairs to the Landowner. This provision shall not be construed to allow the City to erect any structure of permanent nature on the land of the Landowner. It is expressly understood and agreed that the City is under no obligation to routinely maintain or repair said stormwater management/BMP facilities, and in no event shall this Agreement be construed to impose any such obligation on the City.

6. Reimbursement by Landowner. In the event the City pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner, its successors or assigns, shall reimburse the City upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the City hereunder.

7. Duty to Inspect by City. The City, its employees or representatives, shall inspect the stormwater management/BMP facilities at a minimum of once every three years to ensure their continued and adequate functioning.

8. Release of City. The Landowner, its executors, administrators, assigns, and other successors in interests, shall release the City, its employees and designated representatives from all damages, accidents, casualties, occurrences, or claims which might arise or be asserted against said City, employees, and representatives from the construction, presence, existence, operative or maintenance of the stormwater management/BMP facilities by the Landowner or City. In the event that a claim is asserted against the City, its elected officials, City Officers or employees, the City shall promptly notify the Landowner and the Landowner shall defend, at its own expense, any suit based on the claim. If any judgment or claims against the City's employees or designated representatives shall be allowed, the Landowner shall pay all costs and expenses regarding said judgment or claim.

9. Recording of Agreement running with the Property. This Agreement shall be recorded in the real property records of Pitkin County, Colorado, and shall constitute a covenant running with the Property or land, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and any other successors in interests, in perpetuity.

IN WITNESS WHEREOF the undersigned have hereunto affixed their signatures as of the date first above written.

LANDOWNER:

THE CITY OF ASPEN:

By: _____

State of Colorado)
 :ss
County of Pitkin)

The foregoing Agreement was acknowledged before me this __ day of _____, 201_, by
_____.

Notary Public

My Commission Expires: _____

State of Colorado)
 :ss
County of Pitkin)

The foregoing Agreement was acknowledged before me this __ day of _____, 201_, by
_____(Name), _____ (Title), City of Aspen.

Notary Public

My Commission Expires: _____