

DEVELOPMENT PERMIT APPLICATION AND REQUIREMENTS

CITY OF AUBURN, GEORGIA

Effective January 1, 2019

Note: A separate land disturbance permit application is also typically required.

Except as noted below, submit all required materials to the City of Auburn Community Development Department, 1369 Fourth Avenue, Auburn, GA, 30011 (City Hall). Hours: Monday-Friday 8:30 a.m. to 4:30 p.m.

- If the development is served by sewer from the Barrow County Wastewater Department, also make application directly to that agency following that agency's procedures.
- If the development is to be served by on-site sewage disposal system, also make application directly to the Barrow County Health Department (Environmental Health Services) following that agency's procedures.
- If the development is on a state highway, also make application directly to the Georgia Department of Transportation following that agency's procedures for driveways and encroachments.
- If the development is on a county-maintained road or county road, also make application directly to the Barrow County Public Works Department following that agency's procedures for driveways and encroachments on county roads.

Development Permit Submission Requirements:

- City development permit application (attached);
- Development review fee sheet (see attached) and submission of fees (check payable to City of Auburn);
- Receipt for water and sewer and related development plan review fees.
- Six (6) complete sets of plans and one (1) digital copy must be submitted (including site plan, utility plan, grading plan, stormwater management plan and associated submissions, landscape plan, standard details, etc.); Note: if submitting for a land disturbance permit, soil erosion and sedimentation control plans are also included)
- 1 printed copy and 1 digital copy of hydrology report (unless submitted with land disturbance permit application);
- 1 completed copy of the stormwater management review checklist (7 pp.) (attached)
- 1 completed copy of the water system construction plan checklist (5 pp.) (City of Auburn water only) (attached);
- 1 completed copy of drinking water project submittal form (1 pp.) (City of Auburn water only) (attached);

Note on routing of plans: When a complete application is made for a development permit and land disturbance permit, the department submits for review to internal/city agencies and the Oconee River Soil and Water Conservation District. The plans are distributed by the department to the following (9 sets of plans):

Oconee River SWCD (2 copies)	Stormwater consulting engineer (1 copy)
City Planner (2 copies)	Public Works (1 copy)
Fire Marshal (1 copy)	

Up to three (3) weeks is required to complete all reviews. The city planner either assembles the reviews from city agencies and submits to the civil engineer or in some cases may submit comments individually as they are completed.

Development Permit Re-Submission Requirements:

- A fee of \$100.00, after first resubmission (i.e., for any second or subsequent resubmission);
- Six (6) complete sets and one (1) digital set of revised plans must be submitted (must show date of revision);
- 1 printed copy and 1 digital copy of revised hydrology report (unless submitted with land disturbance permit application); and
- Memorandum or revised checklists or other information summarizing changes made.

DEVELOPMENT PERMIT APPLICATION

City of Auburn
Community Development Department
770-963-4002

*****(note: separate land disturbance permit application is required, if applicable)*****

****MUST BE FILLED OUT COMPLETELY AND ALL REQUIRED SUBMITTALS ATTACHED IN ORDER TO BE PROCESSED****

Property/Site Address: _____ City: _____

Subdivision and Lot: _____

Tax Map / Parcel: _____ Zoning: _____ Proposed Use: _____

Total Project Acreage: _____ Total Disturbed Acreage: _____

Sewer / __ County Septic (provide copy of permit) __ Water / City __ County __

Property Owner Name: _____ Phone: _____ Fax: _____

Owner Address: _____ City: _____ Zip: _____

Email: _____

Developer Name: _____ Phone: _____ Fax: _____

Developer Address: _____ City: _____ Zip: _____

Developer Contact Name: _____ Contact Number: _____

Email: _____

Project Engineer Business Name: _____ Phone: _____ Fax: _____

Project Engineer Address: _____ City: _____ Zip: _____

Project Engineer Contact Name: _____ Contact Number: _____

Email: _____

- Check here if a separate application for land disturbance permit has been filed or is being filed simultaneously
- Check here if a building permit application is being filed concurrent with this application

I hereby make application for a development permit to perform work as described above, and if the permit is granted I agree to comply with all applicable and pertinent governing regulations and ordinances, pertaining to and in accordance with any plans submitted. I understand failure to comply with these regulations could be grounds for revocation of the permit. I also agree to pay fees invoiced by the City of Auburn for consulting engineer review if the amount is greater than the initial fees collected.

Applicant Signature: _____ Date: _____

COMMUNITY DEVELOPMENT

CITY OF AUBURN DEVELOPMENT PERMIT FEES

- The fees below do NOT include erosion and sedimentation control fees (paid with land disturbance application) and NPDES fees required to be paid to the locality and the state
- The fees below do NOT include sewer plan review, sewer pretreatment plan review, wastewater lift station review, or oil and grease separator or grease trap plan review (Barrow County).
- The fees below do NOT include water (City of Auburn) and sewer connection/related fees (Barrow County).
- The fees below do NOT include building permit fees (paid with building permit application)
- The fees below do NOT include sign application review fees (paid with sign permit application)
- All fees are to be paid at the time of submittal.

Project Name: _____

Date Submitted: _____

	FEE
Development Permit Planning Review Cost = \$500.00 or \$10.00 per lot (residential) or \$20 per acre (nonres.), whichever is greater	\$
Development Permit Tree Plan Review Cost = \$500.00	\$
TOTAL INITIAL DEVELOPMENT PLAN REVIEW FEES	\$
Resubmission fee (no charge for first resubmission) (each resubmission) Cost = \$100	\$

*** The total costs for projects which require review by the Consulting Stormwater Engineer are on a cost recovery basis; additional fees beyond this initial amount may be required to be paid by the applicant.**

**CITY OF AUBURN
STORMWATER MANAGEMENT
DEVELOPMENT PLANS/STORMWATER MANAGEMENT REPORT REVIEW CHECKLIST**

Project Name: _____

Phase: _____ Unit: _____ # Lots: _____

Development Type: _____
(Residential, commercial, industrial, etc.)

NOTE: This checklist serves the designer and plan reviewer as a minimum guideline only. This document in no way represents all requirements of the City of Auburn, Georgia Stormwater Management Manual, and Georgia Soil & Erosion Control requirements or sound design practices.

NOTE: It is the Owner's/Developer's responsibility to be in compliance with applicable National Pollution Discharge Elimination System (NPDES) Permit and Clean Water Act requirements and State EPD requirements.

DEVELOPMENT PLANS

1. APPLICANT INFORMATION

- Name, legal address, and telephone number

2. COMMON ADDRESS AND LEGAL DESCRIPTION OF SITE

- Site address and legal description of site

3. VICINITY MAP

- Site address and legal description of site

4. SIGNATURE AND STAMP OF REGISTERED ENGINEER/LANDSCAPE ARCHITECT LICENSED IN THE STATE OF GEORGIA AND DESIGNER/OWNER CERTIFICATION

- Signature, stamp, and date on all sheets

5. SITE/GRADING PLAN

- Existing and proposed mapping and plans recommended scale of 1 inch = 60 feet or greater detail Existing and proposed topography at a 2-foot contour interval or less
- Include source of topography and reference datum
- Provide graphic scale and north point or arrow indicating magnetic north Boundaries of existing predominant vegetation
- Proposed limits of disturbance
- Maximum slope for cut or fill is 2H:1V except earthen dam embankments and pond side slopes shall be maximum 3H:1V Location and grading of existing and proposed structural stormwater controls, roads, buildings, parking lots, and other impervious areas
- Location and boundaries of natural feature protection and conservation areas such as wetlands, lakes, ponds, and other setbacks (e.g. stream buffers, drinking water well setbacks, septic setbacks, etc.)
- Location of perennial and intermittent streams
- Buffers for perennial and intermittent streams and rivers: 25', 50', and 75'.
- Perennial Stream – Within 7 miles of water supply intake: 100 ft. each side and no impervious surface or septic tank 150 ft. each side; Outside 7 miles: 50 ft. each side and no impervious surface or septic tank 75 ft. each side
- Intermittent Stream – 25 ft. each side
- Mapping of predominant soils from USDA soil surveys as well as the location of any site-specific borehole investigations that may have been performed.

- Location of existing and proposed utilities such as water, sewer, gas, underground cables, utility poles, guy wires, and easements
- Number all pipes and structures on plan
- Show grading of and number all open channels on plan. Provide 100-year ponding elevation of all inlets on plan*
- Use reinforced concrete for stormwater structures under roadway*
- Outfall pipe in residential subdivisions shall extend a minimum from the street to 30 feet behind the front building setback or 100-year floodplain whichever is less*
- Discharge pipe must be no closer to the site's property line than the greater of the distance necessary to construct any velocity protection or a distance equal to six (6) pipe diameters*
- Provide a drainage easement located a minimum of 20 feet outside the 100-year ponding limits of the stormwater or detention pond*
- Label the 100-year ponding elevation of the stormwater/detention pond and show the corresponding contour on the grading and drainage plan*
- No stormwater/detention basin shall be constructed in a perennial stream or creek*
- Provide an access easement for maintenance to the pond from a public or private road. Maintenance access should be at least 12 feet wide, have a maximum slope of 15%, be appropriately stabilized to withstand maintenance equipment and vehicles, and must extend to the forebay and outlet as per Section 3.2.1.5.G of the Georgia Stormwater Management Manual. Show grading on plans. The access easement shall be grassed or paved
- Provide a forebay at each inlet into pond
- Provide 5 ft. high fence around stormwater/detention pond with 12 ft. wide gate, and warning signs. Chain link fence material shall be vinyl coated*
- Provide steps to access inside of the outlet control structure as per Section 3.2.1.5.G of the Georgia Stormwater Management Manual
- A stormwater pond with a micro-pool or permanent pool must have a bottom drain pipe with an adjustable valve that can completely or partially drain the pond within 24 hours as per Section 3.2.1.5.E of the Georgia Stormwater Management Manual
- Label all structural stormwater controls on plans. Ensure that this labeling on both the plans and in the stormwater management report is consistent with the Georgia Stormwater Management Manual labeling
- Minimum top width of all detention structural stormwater controls (i.e. pond) with an earthen dam shall be 10 ft. Minimum freeboard above 100-year ponding elevation is 1 ft. for all detention structural stormwater controls and stormwater ponds.
- Provide the location of each retaining wall and each stormwater/detention pond wall (dam) and specify top and bottom elevations of each wall on the grading plan*
- Show curb and gutter – curb 6 inches high, gutter 2 ft. face to back of curb
- Show drainage easement around pipes consistent with table below: *

EASEMENTS FOR STORM DRAIN PIPES

PIPE SIZE (IN)	MAXIMUM PIPE INVERT DEPTH (FT) MINIMUM EASEMENT WIDTH (FT)												
	4	5	6	7	8	9	10	11	12	13	14	15	16
18	20	20	20	20	20	25	25	30	30	30	35	35	40
24	20	20	20	20	20	25	25	30	30	30	35	35	40
30	20	20	20	20	25	25	25	30	30	35	35	35	40
36	20	20	20	20	25	25	25	30	30	35	35	35	40
42	NA	20	20	20	25	25	30	30	30	35	35	40	40
48	NA	20	20	20	25	25	30	30	30	35	35	40	40
54	NA	NA	20	25	25	25	30	30	35	35	35	40	40
60	NA	NA	20	25	25	25	30	30	35	35	35	40	40
66	NA	NA	NA	25	25	30	30	30	35	35	40	40	40
72	NA	NA	NA	25	25	30	30	30	35	35	40	40	40

- Show regulatory and 100-year floodplain contour, elevation, and flood limits and indicate information source
- Indicate on plan the regulatory and the 100-year water surface elevation of the lake.
- Provide stormwater note(s) indicated below in a notes section on grading and drainage plan

Select appropriate Floodplain Note(s). Either select note A or B and select notes C and D as applicable.

- A) There is no floodplain on this property from a water course with a drainage area exceeding 100 acres or floodplain per FIRM Panel _____ dated _____.
- B) Floodplain on this property from all water courses with a drainage area exceeding 100 acres is shown.
- C) Floodplain shown is from FIRM panel _____ dated _____.
- D) Floodplain shown is from Floodplain study titled _____ by _____ dated _____. Study was done as a part of project number _____.
- Select appropriate wetlands note(s). Select either A or B, if wetlands are being disturbed on the site select note C.
 - A) There are no wetlands being disturbed on this site.
 - B) All wetlands to be disturbed are delineated on this site.
 - C) The wetlands are being disturbed in accordance with permit _____.
- Select the appropriate stormwater note.
 - A) Stormwater Management for this project is provided on-site.
 - B) Stormwater Management for this site is provided off-site in project named _____ with project number _____.
- Select appropriate state waters note(s). Select either a or b and if a state waters buffer is being disturbed on the site select note c.
 - A) There are no stream buffers on this property.
 - B) A 50-foot undisturbed buffer and a 75-foot impervious setback shall be maintained adjacent to all streams.
 - C) Stream buffer variance number _____ was obtained to work in buffer as shown.
- Wetland certification: The design professional, whose seal appears hereon, certifies the following: 1) the National Wetland Inventory maps have been consulted; and, 2) the appropriate plan sheet [] does / [] does not (check appropriate box) indicate areas of united states army corps of engineers jurisdictional wetlands as shown on the maps; and, 3) if wetlands are indicated, the land owner or developer has been advised that land disturbance of protected wetlands shall not occur unless the appropriate federal wetlands alteration ("section 404") permit has been obtained.
- Select appropriate easement note.
 - Residential – City of Auburn assumes no responsibility for overflow or erosion of natural or artificial drains beyond the extent of the street right-of-way or for the extension of culverts beyond the point shown on the approved and recorded subdivision plat.
 - Commercial – City of Auburn assumes no responsibility for overflow or erosion of natural or artificial drains beyond the extent of the street right-of-way or for the extension of culverts beyond the point shown on the approved and recorded plan. City of Auburn does not assume the responsibility for the maintenance of pipes in drainage easements beyond the city right-of-way.
- Include note: Stormwater/Detention pond, outlet control structures, and temporary sediment basin features are to be constructed and fully operational prior to any other construction or grading not associated with these facilities.
- Include note: Developer is to clean out accumulated sediment in stormwater/detention pond at end of construction once disturbed areas have been stabilized.

6. CROSS-SECTION AND PROFILE DRAWINGS AND DETAILS OF STRUCTURAL STORMWATER CONTROLS AND CONVEYANCES

- Provide pipe profiles. Show existing and proposed ground elevations, pipe lengths, slopes, invert elevations, top of drainage structure elevations, and applicable (25 yr/100 yr) HGL on profiles.
- Provide details of structural control designs including outlet structures, earthen dams, spillways, grade control structures, conveyance channels, etc.
- Storm drain pipes shall not exceed 500 ft. in continuous length between drainage structures
- Maximum hydraulic gradient shall not produce a velocity that exceeds 15 ft/s as per Section 4.2.8.3 of the Georgia Stormwater Management Manual.

- Ensure storm drain pipes have a velocity of 2.5 ft/s when they are flowing full
- Minimum pipe slope shall be 0.50% as per Section 4.2.8.7 of the Georgia Stormwater Management Manual
- Design year water surface elevation shall be at least 1 foot below top of structure elevation or the gutter line, whichever is lower.
- Culverts carrying stream/ditch flow under a street shall be sized so headwater height does not exceed curb or edge of pavement elevation during 100-year storm event. Provide calculations.
- Ensure frequency factor per Section 2.1.4.3 of the Georgia Stormwater Management Manual is utilized when determining maximum rate of runoff for storm drain pipe.
- Specify which pipe material type (aluminized steel Type 2 pipe, corrugated aluminum alloy pipe, smooth lined corrugated polyethylene pipe, or reinforced concrete pipe) is to be used.
- Corrugated metal pipe shall not be used. Aluminized Steel Type 2 pipe or corrugated aluminum alloy pipe may be used in lieu of CMP.
- Specify gage and corrugation for corrugated aluminum/aluminized steel pipes. Reinforced concrete shall be used for all pipes under roadways.
- Show minimum ground cover of 1 foot for pipe(s) Minimum storm drain pipe diameter is 18 inches.
- Provide complete pipe chart indicating the following (including OCS discharge pipe):
 - Upstream/downstream structure type (DWCB, SWCB, DI, JB, etc.)
 - Pipe numbers/Pipe structures
 - Pipe size
 - Pipe length
 - Pipe slope
 - Contributing drainage area
 - Design discharge (Q25 for piped drainage not under roadway; Q100 for piped drainage under roadway) *
 - Design storm frequency (25 year for piped drainage not under roadway; 100 year for piped drainage under roadway) *
 - Velocity (V25 for piped drainage not under roadway; V100 for piped drainage under roadway)*
 - Runoff coefficient (per future land use plan and assuming no detention)
 - Rainfall intensity
 - Pipe material/coating
 - Manning roughness coefficient
- Include note: Grates with bars shall be perpendicular to road.
- Include note: The throat of the curb inlets shall not exceed 8 inches. If using HDPE pipe, add the following note to plans: HDPE pipe shall conform to the requirements of AASHTO M-294 and AASHTO MP7, Type S & D. Connections shall use a rubber gasket, which conforms to ASTM F-477. Installation shall be in accordance with ASTM Recommended Practice D-2321, AASHTO Section 30, or with Section 550 of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.
- If using Aluminum coated Type 2 steel pipe or aluminum alloy pipe, add the following note to plans: All aluminum coated Type 2 steel pipe or aluminum alloy pipe, which will carry a live stream, shall have paved inverts in accordance with AASHTO M-190, type C, except that the pipe need not be fully coated. Installation shall be in accordance with Section 550 of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.
- If using RCP pipe, add the following note to plans: All RCP pipe joints shall be bell & spigot types with a rubber gasket conforming to ASTM C-443. The pipe shall be manufactured in accordance with AASHTO M-170 and/or ASTM C-76. Class of pipe and wall thickness shall be in accordance with 1030-D, Georgia DOT specification, Table No. 1. Installation shall be in accordance with Section 550 of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.
- Provide transition channel profiles from inlet and outlet ends of all pipes to natural drainage swales
- Channel side slopes shall be designed in accordance with Section 4.4.3 of the Georgia Stormwater Management Manual.
- Channels shall be designed to route the 100-year flow rate without overtopping and lined appropriately based on the 25-year flow velocity in accordance with Section 4.4 of the Georgia Stormwater Management Manual.

- Provide a minimum of a 20 ft. drainage easement around channels. Ensure 100-year flow elevation of channel is within the drainage easement.
- Provide channel profiles. Show existing and proposed ground surface profiles, channel lengths, and 100-year normal flow elevation
- Provide channel cross-section detail. Show bottom width, side slopes, 100-year normal flow depth, and overall depth
- Include the following with the channel cross-section detail:
 - Open channel numbers
 - Contributing drainage area
 - Runoff coefficient (per future land use plan and assuming no detention)
 - Conveyance size
 - Lining material
 - Channel length
 - Channel slope
 - Velocity (V25 may not exceed non-erosive velocity – Maximum 4 ft/s for sod.)
 - Design storm frequency (100 year)
 - Design discharge (100 year)
 - Normal flow depth (100 year)
 - Manning roughness coefficient

7. EROSION AND SEDIMENT CONTROL PLAN

- Sediment storage maintenance indicators must be installed in sediment storage structures, indicating the 1/3 full volume.
- Approval of plans by Georgia Soil and Water Conservation Commission. Specifications shall follow the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia
- If using existing stormwater/detention pond as a sediment trap or basin, volume must be provided below the outlet control invert. Existing lakes that will not be modified under this permit may not be used as sediment trap or basin
- All permittees shall ensure and demonstrate that their Plan is in compliance with applicable State and local wastewater disposal, sanitary sewer, or septic system regulations.

8. CONSTRUCTION AND EROSION CONTROL DETAILS

- Provide details of stormwater/detention pond outlet control structure. Include external trash rack, perforated ½ round on a concrete splash pad, or similar design to prevent clogging of orifices and weirs
- Provide a forebay detail. Specify a stone berm for forebay.
- Provide details for all proposed drainage structures
- Provide a detail of subgrade and bedding used in pipe installation
- Provide a curb and gutter detail
- Provide fence, gate, and warning sign detail
- Show temporary construction exit pad detail and location. Specify pad size
- Provide all applicable erosion control detail(s)
- Provide energy dissipation details on plans and include a table similar to the following:

RIPRAP APRON SUMMARY

Headwall ID	Pipe diameter (D _o)	Riprap size (d ₅₀)	Apron Length (L _a)	Width of Apron (W=D _o +L _a)
A				
B				

- Provide structural construction details for each retaining wall and each stormwater/detention pond wall (dam) shown on the site grading plan that specify required materials, concrete design strength, 28 day design compressive strength of concrete, steel reinforcement (type, size, spacing, ASTM designation, yield strength), wall and footing

dimensions, minimum required concrete cover for reinforcement, minimum required lap splice lengths, type of backfill material, slope of backfill at finished grade on both sides of wall, and drainage method for backfilled walls. The details shall bear a seal and signature of a professional engineer registered in the state of Georgia.

- Provide applicable soil parameters utilized in the wall design including allowable soil bearing pressure, equivalent lateral fluid pressure (active and passive), surcharge load, internal angle of friction, coefficient of friction, and soil density for each stormwater/detention pond wall (dam) and each retaining wall in excess of 6 feet in height.
- Include the following note on the plans for each stormwater/detention pond wall (dam) and for each retaining wall that exceeds 6 feet in height (from top of footing to top of wall): Prior to construction, soil design parameters stated on the construction wall details including but not limited to allowable soil bearing pressure, equivalent lateral fluid pressure (active and passive), internal angle of friction, coefficient of friction, and soil density shall be field-verified by a geotechnical firm. A corresponding written report with the seal and signature of a professional engineer registered in the state of Georgia and employed by the geotechnical firm field verifying the soil design parameters shall be submitted to the City of Auburn Building Inspector prior to construction of the wall. If there is a discrepancy between field-verified soil parameters and those specified on the construction plan, construction shall not proceed until applicable design modifications have been submitted by the wall design engineer of record and have been reviewed by City of Auburn.
- Provide a stormwater/detention pond wall tie in detail.

STORMWATER MANAGEMENT REPORT

1. APPLICANT INFORMATION

- Name, legal address, and telephone number

2. COMMON ADDRESS AND LEGAL DESCRIPTION OF SITE

- Site address and legal description of site

3. VICINITY MAP

- Site address and legal description of site

4. SIGNATURE AND STAMP OF REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF GEORGIA

- Signature, stamp, and date

5. PROJECT DESCRIPTION/EXECUTIVE SUMMARY/HYDROGRAPH ANALYSIS

- Description of project (i.e. existing conditions – wooded, grassed, channels, creeks, existing buildings, etc., adjacent properties – residential, commercial, etc., type of project, number of lots, amount of proposed impervious surface, amount of natural conservation area, amount of pervious surface, number of basins and location of stormwater entering and exiting the site for both pre and post developed conditions including all off-site runoff draining onto site for each basin)
- The Rational Method shall not be used for stormwater/detention pond design
- Provide time of concentration calculations for all hydrographs. Sheet flow length shall not exceed 100 ft.*
- Provide curve number calculations for pre-developed and post-developed conditions for all hydrographs
- Use a composite pre-developed CN less than or equal to 60. Use a pre-developed curve number of 55 for wooded conditions*
- Post-developed flows at every location where runoff leaves the site (at the property line) must be less than or equal to pre-developed flows at the property line for the 2, 5, 10, 25, 50, and 100-year storms
- Provide hydrograph data for the 2, 5, 10, 25, 50, and 100-year storms for all basins. All hydrographs shall be based on a 24-hour storm
- Use the following 24-hour rainfall data in analysis:

Frequency	2 yr.	5 yr.	10 yr.	25 yr.	50 yr.	100 yr.
P (inches)	3.60	4.80	5.28	6.24	7.20	7.68

- Provide flow summary for all basins similar to table below:

FLOW SUMMARY

Basin	Return Frequency	Pre-Developed Flow @ Property Line	Post-Developed Flow @ Property Line	Post-Developed Routed Flow	Post-Developed By-Pass Flow	Post-Developed Flow (routed + by-pass) @ Property Line	100 Year Ponding Elevation
A	2						
	5						
	10						
	25						
	50						
	100						

- Provide energy dissipator calculations for pipe outlets and stormwater/detention ponds. Ensure energy dissipator proposed corresponds with the Froude number range in the table below:

Energy Dissipator	Froude Number Range
Riprap Apron	Less than or equal to 2.5
Riprap Outlet Basins	Less than or equal to 2.5
Baffled Outlets	1 to 9

- Provide pre-developed and post-developed drainage area maps designating all on-site drainage areas, off-site drainage areas, and all pond by-pass areas utilized in hydrograph calculations, and other pertinent features including drainage structures and storm drain pipes, and site boundaries
- Provide calculations showing outlet pipe for detention ponds will accommodate 125% of Q100 routed flow if no earthen embankment emergency spillway is proposed
- The required storage volume for the channel protection may be provided above the water quality storage in stormwater ponds with appropriate hydraulic control structures for each storage requirement*
- Include on-site area only in the water quality volume structural stormwater control calculations
- Use equations 2.1.20 and 2.1.21 in the Georgia Stormwater Management Manual to calculate the water quality volume. Use the following equation to size the water quality orifice:

$$A = (WQv/t) / [0.6 * (64.4 * H / 2)^{0.5}]$$
 where: t= 86,400 sec.
 A= area of the orifice (ft²)
 H= height between 100% water quality volume elevation and centroid elevation of the water quality orifice
 WQv=water quality volume
- Provide the Stormwater Quality Site Development Review Tool for all basins modeling on-site area only. Use a separate drainage area spreadsheet for each on-site basin.
- Provide a BMP Tracking Form for each stormwater control
- Include all off-site area in the channel protection volume draining into the structural stormwater control
- Use equation 2.1.6 in the Georgia Stormwater Management Manual in the calculation of the channel protection volume.

Use P=3.36 inches

Use the following equations to determine the required channel protection volume:

$$V_s/V_r = 0.682 - 1.43 (q_o/q_i) + 1.64 (q_o/q_i)^2 - 0.804 (q_o/q_i)^3 \text{ (equation 2.2.9 in the GSMM)}$$

Figures 2.1.5-6 and 2.2.5-1 in the Georgia Stormwater Management Manual may be used to determine q_o/q_i .

The required storage volume can then be calculated by:

$$CPv = (Vs/Vr)(Qd)(A)/12$$

Use the following equation to size the channel protection orifice: $A = (CPv/t) / [0.6 * (64.4 * H/2) 0.5]$

where: $t = 86,400$ sec.

A = area of the orifice (ft²)

H = height between 100% channel protection volume elevation and centroid elevation of the channel protection orifice

CPv = channel protection volume

- Provide drainage structure area map designating areas used in storm drain pipe design
- Provide gutter spread calculations in accordance with Section 4.2 of the Georgia Stormwater Management Manual and summary table similar to table below:

CB	Max. Spread (ft)
X-1	
X-2	

- Analyze downstream conditions and include hydrograph data for all storm events and a topographic map of area where project area is 10% of total area in accordance with Section 2.1.9 of the Georgia Stormwater Management Manual
- Provide a detailed narrative describing downstream conditions noting any concerns*
- Provide a photograph looking downstream at each property line study point and at the 10% study point*
- Provide a map showing drainage areas considered in the downstream analysis
- Provide calculations determining the capacity of all existing pipes and channels within 500 ft. downstream of site boundary to carry the proposed discharges*

6. OPERATIONS AND MAINTENANCE PLAN (SUBMITTED PRIOR TO CO OR FINAL PLAT)

- Name, legal address, signature(s), and phone number of responsible parties for maintenance activities
- Description and schedule of maintenance task
- Description of applicable easements
- Description of funding source
- Access and safety issues
- Procedures for testing and disposal of sediments, if required

7. Evidence of acquisition of all applicable local and non-local permits – submit permits

8. Waiver requests submitted

9. Evidence of acquisition of all necessary legal agreements (e.g. easements, covenants, land trusts, etc.) – submit copies

10. Submit as-built stormwater management report and plan for all stormwater/detention ponds and as-built plan, profile, and pipe chart for all storm drain pipe and drainage structures for review and approval prior to issuance of CO or final plat.

*City of Auburn’s interpretation to meet or exceed the minimum guidelines of the Georgia Stormwater Management Manual