Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 1 -	1.2	Travis Tyboroski (JAECO)	Section 1.2: the manual "neither replaces the need for sound engineering judgment, nor precludes the	This language has been updated, as it was not intended to
Introduction			use of information not presented". Specific examples to the contrary include the explicit exclusion of the	introduce other methods.
			modified rational method and frustratingly the limitation of HGL to the crown of pipe.	
Chapter 1 -	1.8 Definitions	Suzanne Harris (Home	Need a definition for "concentrated flow" as it's referenced multiple places in the manual. For example,	We will be using the following definitions for concentrated flow -
Introduction		Builders Association)	any downspout, regardless of captured roof area, is currently being considered "concentrated flow". This	(a) Section 2.1 now defines it for the Lot Grading Plan. (b) Chapter
			is much too broad for use in engineering practice.	3 refers to shallow concentrated flow as defined by NRCS TR-55.
				(c) the reference to concentrated flow was removed from Chapter
				4 (d) In Chapter 5 the term "concentrated runoff" is used and a
				reference to the buffer rules has been added. (e) references to
				concentrated flow were removed from Chapter 6. (f)
				concentrated flow is defined in Chapter 7 for the context of the
				Downstream Discharge Permit.
Chapter 1 -	1.8 Definitions	Suzanne Harris (Home	Need a definition for "disturbed area". Staff currently interpret driving on a concrete driveway to	Limits of disturbance are defined in detail in Section 8.2.1.
Introduction		Builders Association)	demolish a structure as disturbed area. It's not, it's still concrete.	
Chapter 1 -	1.8 Definitions	Travis Tyboroski (JAECO)	The definitions are a little thin, but I understand this may be a "less is more" situation.; teset	Noted.
Introduction				
Chapter 1 -		Hunter Freeman	Under permit information / exempt requirements, I suggest revising the language to: "These impervious	The document has been updated.
Introduction		(McAdams)	surface limitations may be exceeded if runoff is properly managed with with constructed stormwater	
			controls or adequate engineering studies are prepared by a qualified licensed professional as described	
			in the UDO and in Chapter 5."	
			Under traditional stormwater requirements " Typically, the development will need to construct one or	
			more stormwater control measures (SCM) to meet those requirements."	
			Underlying Regulations: The City of Raleign's NPDES MIS4 Permit	
Chapter 1 -		Keri Hamlin (Citizen)	The manual IS READ and reviewed by non- professionals who are land owning citizens in Wake County/	Most of the chapters do not apply to single family properties
Introduction			City of Raleigh. Please ensure the manual is written in a manner that makes the information accessible to	adding things like decks or accessory structures. We have tried to
			a wide audience.	make Chapter 1 accessible to a wide audience and Section 2.1 is
			For example: runoff rate compliance standards are of great importance to adjoining land owners!!	applicable to single family properties and addresses runoff from
				infill development. Additionally, we have work planned for the
				Stormwater website to better explain regulations to a non-
				technical audience.
Chapter 1 -		Suzanne Harris (Home	More comments to come.	NA
Introduction		Builders Association)		
Chapter 1 -		Suzanne Harris (Home	A. First look at SW Chapter 1 "This manual and its contents are fully incorporated into the City's UDO	Raleigh Stormwater already conducts reviews of Building permits.
Introduction		Builders Association)	under UDO Sections 1.1.12 and 9.2.1B and 9.4.2" Then looking at the website cover page of the	For infill development of single family homes, we have added the
			Engineering Services Department, see that "We manage the stormwater system". The implication of	requirements in Section 2.1 of this Manual. Applicable to
			these two statements is that the Building Permit Application will have to be substantially expanded or an	development at all scales, we now have requirements for a
			additional permit will be required.	Stormwater Conveyance permit. That permit can be obtained
				under a Building permit.
Chapter 1 -		Travis Tyboroski (JAECO)	Thank you for removing the planning "process" references; avoids unnecessary potential confusion	Thanks. Yes, the names of specific submittals and other process
Introduction			if/when planning changes terminology.	items change frequently.
Chapter 1 -		Travis Tyboroski (JAECO)	The permit information, underlying regulation, and required reference summaries are an excellent	Thanks.
Introduction			addition!	
Chapter 1 -		Vinicius Taguchi (Designer)	I'm glad to see that stormwater regulations extend to infill developments of less than 1/4 acre.	The stormwater regulations have applied to infill development
Introduction				since 2016. This is being strengthened with the Lot Grading Plan in
1				Section 2.1 of the Draft Manual.

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 2 - Site	2.1	Hunter Freeman	A statement to the effect of "LGPs are a simplified stormwater management report used for small	Thank you for the suggestion. Some edits have been made to the
Development Requirements		(McAdams)	projects. Larger site plans require compliance with Section 2.2 Stormwater Compliance Report"	appliability sections for LGP and SCR.
Chapter 2 - Site	2.1	Hunter Freeman	For the LGP, I suggest using the language that you used in the summary of revisions to clarify when an	Section 2.1.1 has been updated to better clarify that it applies to
Development		(McAdams)	LGP is an option - "The Lot Grading Plan will now only be required for projects that fall under Exempt	projects not subject to the Fulll Stormwater Requiremnts.
Requirements			Property requirements in UDO 9.2.2.A or for other one- and two-unit dwelling projects." The language in the draft manual is confusing to me.	
Chapter 2 - Site Development Requirements	2.1	Suzanne Harris (Home Builders Association)	Additionally, many of the SW chapter 2 requirements are redundant – but just different enough – to the Residential Permit Data Form that no one site plan can satisfy the requirements of both.	The Residential Permit Application and the Tier One Site Plan Checklist have been compared to the Lot Grading Plan requirements. The Stormwater Design Manuall contains the items that are necessary to conduct the stormwater review. This ensures that if Planning and Development were to change the Tier One Site Plan Checklist, the stormwater items would still be required. We will work with Planning and Development in 2024 in updating the checklist. That is on a different timeline because checklists do not require council approval.
Chapter 2 - Site	2.1	Suzanne Harris (Home	B. SW 2.1 has equated the process of procuring a SFR building permit with a) being a development and b	The Lot Grading Plan can be submitted with a building permit. It
Development Requirements	24	Builders Association)	a Site Plan for a development. Additionally, an LGP will be required for adding impervious surface and grading. This could result in requiring a Lot Grading Plan for a 4000sf existing lot.	does not create the need for a site permitting review (SPR) if one is not otherwise required by Planning and Development. The intent of the Lot Grading Plan is to address common stormwater issues without requiring an engineer to be hired. It is necessary to understand the proposed grading on a site. This impacts the LOD and in some cases the buffer and floodplain permits.
Chapter 2 - Site	2.1	Suzanne Harris (Home	Summary: Chapter 2 and the concept of creating drainage codes is different from current impervious and	Section 2.1.2 has been added to better define the requirements of
Requirements		Builders Association)	 20ming rules. The impervious rules and infinitise back rules are defined and are mostly hor subjective (ex: 38% plus 400sf). It will be difficult to create rules, define on a permit, and then enforce, based on the nature of single-family infill and existing conditions of the lot and neighbor. Will require almost all additions and new homes to: elave a as-built survey and full topography by a surveyor prior to plans Employee a site/civil engineer to design the plan elave the site engineer issue the SCR Potential have a recorded easement This will apply to any added impervious surfaces The negative impacts of this are: More trees removed and large disturbed areas to meet the grading demands Added cost, survey, engineering, landscaping cost Slow the permitting time down further and overburden an already understaffed permitting office. One added gutter downspout or any added impervious during construction could trigger a revised permit. elf an easement is required for concentrated water discharge, the neighbors can deny that easement, if they accepted, the process of recording this would be time consuming. 	the tot Grading Plan. The Design Manual does not change the existing UDO Section 9.2.2.A which exempts certain developments from the Full Stormwater Requirements (UDO Section 9.2.2.B through H). The lot grading plan seeks to address other issues that that are being seen as part of infill development. In terms of what will be required: surveys are already required; the requirements are strctured so an engineer is not required; as-built surveys are already required; SCR will not be required for most single family, unless it is in a watershed overlay; options have been added instead of easements; the rules already apply to any added impervious. Also: we are not requiring grading; we are not requiring new survey or an engineer; our permitting office has been fully staffed for most of the past year - if you are having issues with review timelines not being met, please contact Sally Hoyt; added impervious has always had the possibility to trigger a permit revision; we have added 4 options other than an easement.
Chapter 2 - Site Development Requirements	2.1	Suzanne Harris (Home Builders Association)	Overall the LGP requirements add costs to homeowners/developers for any addition of new impervious on a lot	Changes have been made to Section 2.1.2 in response to conversations with representatives of the Home Builders Association.
Chapter 2 - Site Development Requirements	2.1	Suzanne Harris (Home Builders Association)	Per the comment responses, the City states the LGP can be performed by the homeowner or builder. I believe this to be a misleading statement as I highly doubt any homeowner, not in the design field, could accomplish this. There are probably some builders that could produce this, however this would certainly be a cost that would be passed onto the homeowner. This requirement is much too costly and broad and	Changes have been made to Section 2.1.2 in response to conversations with representatives of the Home Builders Association. If the revised requirements do not address this concern, please let us know.
			will subject homeowners to thousands of additional dollars for preparation and the review process, even if their patio project is only 5 SF.	

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 2 - Site	2.1	Suzanne Harris (Home	Whereas neither the SW Chapter 2 nor the Permitting staff of COR has addressed the	Section 2.1 is built upon the exemptions created in UDO Section
Development		Builders Association)	application/integration of the SWv3 into the Residential Building Permit Process, the potential for	9.2.2.A. If those exemptions did not exist, there would be no need
Requirements			confounding the permit process by two-fold remains in the interpretation of both the SW and the UDO	for the Lot Grading Plan. The impervious cover limits in UDO
			as to the applicability of the SW to preexisting residential lots. Overtly incorporating UDO 9.2.2.A into	Section 9.2.2.A.4 do not fully address the impacts of infill
			SW 2.1 would go far in mitigating this lack of clarity. An overview of the permitting process shows the	development. Thus, the criteria in Design Manual section 2.1.2
			inefficiencies of the "silo" organization of the permitting process, this Chapter 2 accentuates that. The	has been added. These process are not siloed - they will be
			silo organization does not allow for sequential review flow or permit process administration.	evaluated by the same reviewer.
Chapter 2 - Site	2.1	Travis Tyboroski (JAECO)	Section 2.1: understand with the lot-to-lot drainage sensitivity we want to offset downspouts from	This language has been removed.
Development		, , ,	traditional boundaries, but I'm not sure offsetting from a drainage easement accomplishes this.	
Requirements			Wouldn't encroachment in fact be encouraged as to limit the overland flow from the downspout to a potential existing outfall?	
Chapter 2 - Site	2.1.1	Suzanne Harris (Home	2.1. 1 LGP Applicability- I am not sure if they are referencing UDO 9.2.2. B-H correctly, below is the first	When we reference the Full Stormwater Requirements (UDO
Development		Builders Association)	part oc Sec 9.2.2	Section 9.2.2.B-H) we are referenced the requirements for the
Requirements				projects that do not receive exemptions per UDO Section 9.2.2.A.
Chapter 2 - Site	2.1.1	Suzanne Harris (Home	B.1 LGP 4th bullet point cites UDO 9.222B-H as exemptions from the LGP requirement. It is unclear that	Please see other responses.
Development		Builders Association)	by not referencing UDO 9.2.2.A, that as the SW is a subset of the UDO, if this section is still applicable; if	
Requirements			it is still applicable, then the impact of the SW for Building Permits is considerably mitigated.	
Chapter 2 - Site	2.1.2	Suzanne Harris (Home	2.1.2 - The manual is encouraging the use of piping systems to connect to existing drainage	Chapter 2 is encouraging flow to be discharged to the ROW rather
Development		Builders Association)	infrastructure however, a 15" min. Pipe size is required in the ROW. Accommodations need to be made	than to neighboring parcels, when possible. In terms of
Requirements			for smaller drainage to connect.	connecting to existing drainage infrastructure, please see Draft
				Manual Section 4.2.8 regarding connecting to conveyance systems
				in the City ROW. We will allow privately owned pipes under 15" to
				connect to City infrastructure. However, it will require a
				Stormwater Conveyance Permit so that City inspectors can inspect
				the connection.
Chapter 2 - Site	2.1.2	Suzanne Harris (Home	C. SW 2.1.2 This clause may well result in the need for civil engineering apart and different from the site	The intention is the requirements could be met by a surveyor.
Development		Builders Association)	plans, by surveyors, presently required for a SER Building Permit.	
Requirements		· · · · · · · · · · · ,		
Chapter 2 - Site	2.1.3	Suzanne Harris (Home	D. SW 2.1.3 bullet point 13 references SW Chapter 2, Section 9. Currently, there is no Section 9.	This reference has been removed.
Development		Builders Association)		
Requirements				
Chapter 2 - Site	2.1.3.	Suzanne Harris (Home	Section 2.1.3- Who decides what is practical and what if the existing flow pattern is harmful to the	Explicit criteria have been added to Section 2.1.2.
Development		Builders Association)	neighbors?	
Requirements				
Chapter 2 - Site	2.2	Suzanne Harris (Home	E. SW 2.2 Opening paragraph calls for a Stormwater Compliance Report (SCR) "Prior to the approval of	This language has been updated to clarify that the SCR is required
Development		Builders Association)	any preliminary or permitting submittal" for (as per) SW2.2.1 bullet 2 "Under 1 acre (one and two unit	only if the project seeks to exceed the established impervious
Requirements			detached residential)" As in SW2.1, this could result in a SCR for a 4000sf existing lot.	limits.
Chapter 2 - Site	2.2 and 2.3	Suzanne Harris (Home	G. The balance of SW 2.2 and SW 2.3 is concerned with technical design, assemblies, and requirements.	No response.
Development		Builders Association)		
Requirements				
Chapter 2 - Site	2.2.2	Suzanne Harris (Home	2.2.2 - Typo in first bullet, "Lager 1 acre"	This has been corrected.
Development		Builders Association)		
Requirements				
Chapter 2 - Site	2.2.2	Suzanne Harris (Home	F. SW 2.2.2 In both the opening paragraph and 2.2.2.1 the SCR is to be signed and sealed by a	Based on State law, there are different designs that can be
Development		Builders Association)	licensed/design professional. What kind of professional is not called out.	performed by different professions. These have been noted in
Requirements				specific chapters or requirements. When it is necessary to present
				work done by more than one professional, typically one
				protessional will attach appendices containing work performed by
				other professionals that has its own cover.
1	1	1		

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 2 - Site	2.2.2	Travis Tyboroski (JAECO)	Section 2.2.1 and 2.2.2: an SCR including cost estimates at "preliminary" is excessive. Can certain	Yes, the cost estimate can be provided at permitting review. The
Development			sections be moved to only required at "construction"?	text has been updated.
Requirements				
Chapter 2 - Site	2.2.2.12	Suzanne Harris (Home	2.2.2.12 - Cost estimates - Does this eliminate the O&M Cost estimate? Why is it required in the SCR?	City staff are currently debating whether the cost estimate will be
Development		Builders Association)		in the SCR or the O&M Manual. It will only be required in one
Requirements				location.
Chapter 2 - Site	2.2.2.2	Suzanne Harris (Home	2.2.2.2.b.vi - Why is an SCR required with complying with the maximum impervious areas of UDO Sec.	The SCR is not required in that situation. The language has been
Development		Builders Association)	9.2.2.A.4?	changed to clarify this.
Requirements				
Chapter 2 - Site	2.2.2.5	Hunter Freeman	2.2.2.5.a.i - sentence is incomplete	The language has been updated.
Development		(McAdams)		
Requirements				
Chapter 2 - Site	2.2.2.5	Hunter Freeman	2.2.2.5.c.2.4 - SNAP reports volume in an annualized basis (not one particular storm event) and they	Thank you. This comment will be fully addressed with Chapter 5.
Development		(McAdams)	have removed Storm-EZ from their website. The City might want to revisit their guidance on volume	
Requirements			matching, or talk with a consultant who might be able to provide them with a copy of Storm-EZ pre-	
			populated with Raleigh's P90 rainfall data so consultants have a tool to compute the P90 volumes.	
Chapter 2 - Site	2.2.2.5	Hunter Freeman	2.2.2.5.d.i.1 - I don't think POI was defined earlier	The term has been spelled out.
Development		(McAdams)		
Requirements				
Chapter 2 - Site	2.2.2.5	Hunter Freeman	5.b.ii - suggest revising to "List the maximum allowable impervious area (or allocation), and the existing	This change has been made.
Development		(McAdams)	and proposed impervious areas"	
Requirements				
Chapter 2 - Site	2.2.2.5	Hunter Freeman	5.c - so the previous two requirements use Impervious Area, and 5.c uses BUA, is there any way to	We have changed the language around the Nitrogen requirements
Development		(McAdams)	standardize these terms/calculations?	to reflect the State's requirement to use the term BUA. We have
Requirements				chosen to continue using the term impervious in UDO Section
				9.2.2.A, so that we do not need to retrain the many citizens and
				small builders who are subject to that section.
Chapter 2 - Site	2.2.2.5	Hunter Freeman	5.e.1 - you want the whole table in the SCR? Isn't this usually included on the site plan? Maybe just ask	Yes, we call for a table. In cases where many lots have the same
Development		(McAdams)	that the narrative mentioned the MISA/lot? On residential projects the table can be large.	limits, these are typically grouped into one line.
Requirements				
Chapter 2 - Site	2.2.2.5	Suzanne Harris (Home	2.2.2.5.c - Can we assign a rainfall to the 90th percentile, or at least a source?	This information will be provide on the City's website along with
Development		Builders Association)		other rainfall data.
Requirements				
Chapter 2 - Site	2.2.2.8	Hunter Freeman	2.2.2.8.a - suggest revising to "Provide UDO references and justification for any floodplain fill proposed	Language has been revised.
Development		(McAdams)	on the project". The current language of "indicate why" is inviting a lot of responses that might not have	
Requirements			anything to do with the UDO :)	
Chapter 2 - Site	2.2.2.8	Hunter Freeman	2.2.2.8.c - elaborate or rephrase. I think you're asking the applicant to specify if an elevation certificate is	Correct. Language has been revised.
Development		(McAdams)	required.	
Requirements				
Chapter 2 - Site	2.2.2.9	Hunter Freeman	2.2.2.9.a - these are two fragments of sentences. the second sentence is incomplete	Language has been revised.
Development		(McAdams)		
Requirements				
Chapter 2 - Site	2.2.3	Travis Tyboroski (JAECO)	Section 2.2.3: The way this reads to me, with specific language re: "vegetated area", is that there is an	Yes this is correct.
Development			allowance for steeper slopes with additional treatment/armoring; is that true? If so recommend clarity	
Requirements			here to that point.	
Chapter 2 - Site	2.3.2	Hunter Freeman	2.3.2 - is there a requirement for a site survey? And would a site survey, even if more than 1 year old,	Yes, a site survey is needed. Site surveys greater than 1 year old do
Development		(McAdams)	grandfather a claim of previous impervious?	not grandfather the impervious area.
Requirements				
Chapter 2 - Site	2.3.3	Suzanne Harris (Home	2.3.3 - 2:1 slopes are very commonly used stabilized with various landscaping techniques. This	Steeper slopes are allowed when stablized.
Development		Builders Association)	requirement will result in loss of development potential and the addition of unnecessary land	
Requirements			disturbance.	

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 2 - Site	2.3.3	Suzanne Harris (Home	2.3.3 - Does this mean that all slopes on site must be 3:1? What about the inclusion of geotechnically	Steeper slopes are allowed when stablized.
Development		Builders Association)	stabilized slopes with matting for slopes less than 3:1?	
Requirements				
Chapter 2 - Site	2.3.4.1	Hunter Freeman	2.3.4.1 - Provide some guidance on how this impacts SCM sizing. Lassume impervious areas draining to	Raleigh Water has stringent rules regarding what can be
Development	-	(McAdams)	sanitary do not need additional SCMs. But you probably want to add more gualifiers so applicants don't	discharged to the sanitary sewer that prevent excess diversion.
Requirements		(/	direct any additional runoff to the SS in an effort to bypass stormwater requirements.	
Chapter 2 - Site		Anonymous	conflicting draft language regarding downspout distances from the property line/building setback line	The language about downspout distance from the property line
Development		.,	and the encroachment standards of UDO Sec 1.5.4.D.2.c. The language shown below is in Section 2.1.3.	has been removed.
Requirements			LGP Design Considerations and Requirements of the Stormwater Design Manual Draft Version 3 pdf.	
Chapter 2 - Site		Hunter Freeman	The UDO uses Built Upon Area. Built Area. and Imperviousit's confusing to me, and probably	As part of the text changes associated with the Manual, we will
Development		(McAdams)	confusing to you as well	propose to eliminate Built Area. We intend to keep both BUA and
Requirements				Impervious, but treat them as synonyms.
Chapter 2 - Site		Suzanne Harris (Home	The purpose of this review is to compare Chapter 2 with the existing UDO/Zoning ordinances and	Noted.
Development		Builders Association)	permitting process. SW shall indicate Storm Water and UDO shall indicate the existing Uniform	
Requirements		Dunaero / losociación/	Development Ordinance	
Chapter 2 - Site		Suzanne Harris (Home	What happens when a homeowner adds a gutter downspout after closing and a neighbor complains?	If your permits are closed out, this becomes the new owner's
Development		Builders Association)	· · · · · · · · · · · · · · · · · · ·	issue.
Requirements		,		
Chapter 2 - Site		Travis Tyboroski (JAECO)	The "downstream assessment" (10% rule) is oftentimes unnecessarily burdensome (i.e. urban	Thank you for the feedback.
Development		, , ,	redevelopment), and entirely too subjective. Accurate modeling of the subject areas is unlikely and the	,
Requirements			resulting analyses and/or measures, in our Professional opinion, would not have resulted in	
			demonstrably improved water quality or peak flow reduction on downstream neighbors. Frankly happy	
			to see this section eliminated.	
Chapter 2 - Site		Vinicius Taguchi (Designer)	Require sweeping and leaf litter management plans for any plans where trees would overhang	The Stormwater Design Manual and UDO address activities at the
Development			impervious surfaces. https://www.usgs.gov/centers/upper-midwest-water-science-center/science/using	time of development and do not require this type of on-going,
Requirements			leaf-collection-and-street-cleaning-reduce	programmatic nutrient reduction measure. Note that the City
				performs street sweeping and leaf management as a municipal
				program.
Chapter 2 - Site		Vinicius Taguchi (Designer)	Require that roof drainage prioritize surface runoff or direct SCM connection over direct storm sewer tie	We agree with this statement. Do you have specific language that
Development			ins.	you think is counter to this principle? Disconnected Impervious
Requirements			https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater/BMP%20Mar	Surface is an SCM option that applicants may choose. Also, the
			ual/Ch%2024%20DIS%20Final%20Draft.pdf	principles of DIS are used in the new option in 2.1.2.1.C.
Chaptor 2 Sito		Vinicius Tagushi (Dosignor)	The actablishment of a maintenance agreement is important, but how will it be enforced? Is it tied to the	The City has required SCM maintenance and inspection since 2002
Chapter 2 - Site		vinicius raguchi (Designer)	Ine establishment of a maintenance agreement is important, but now will it be emoreed? Is it tied to the	Fine City has required SCM maintenance and inspection since 2002.
Pequirements			will be difficult for new owners to cover restorative maintenance (and of design life or total failure) costs	have a team that checks these inspections and enforces the
Requirements			unless some sort of usage fee is collected regularly to save up. Sotting up such a program is important	requirement. Please see UDO Section 0.2.2.6. Also see
			cince municipal utility funds are not generally available for private SCMs	https://raleighpc.gov/stormwater/services/submit-stormwater-
				device-inspection-report
Chapter 3 - Hydrology	3.2	Hunter Freeman	3.2 Drainage "Area" Delineation and Analysis	The document has been updated.
		(McAdams)		
Chapter 3 - Hydrology	3.3	Dori Sabeh (Withers	1.Section 3.3 Hydrologic Design Methods. EPA SWMM is listed as acceptable method. The software	Our intent is that the SWMM curve number is made acceptable by
		Ravenel)	does not solve the NRCS Unit Hydrograph method. Will the SWMM curve number be added as an	the language in Draft v3.
			acceptable method (non-linear reservoir, not commonly used)? FEMA's Hydrologic Guidance Document	
			91 provides the following guideline: "If the Mapping Partner uses an option to model the response as a	
			series of hydraulic processes, i.e., Kinematic-wave models or nonlinear reservoir models, that option	
	1		must be fully documented in the hydrology report, including the reasoning for choosing it in lieu of a unit	
1		1	hydrograph approach."	

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 3 - Hydrology	3.3	Hunter Freeman	3.3 - consider adding Mannings Equation to the list for channel design	Mannings equation is an option for channel design. We consider
		(McAdams)		that a hydraulic method, so it is not listed in this chapter.
Chapter 3 - Hydrology	3.3	Suzanne Harris (Home	3.3 - Modified Rational was removed. Why? This methodology has been utilized in raleigh for more than	The Modified Rational Method is not contained in nor allowed in
		Builders Association)	20 years and I believe it to be more accurate for smaller sites vs. NRCS. This has been accepted without	the current (2002) Stormwater Design Manual. However, it may
			exception so are do you think there is a flaw in the method? Is it beneficial for stormwater controls to	have been allowed by reviewers in the past. We removed the
			remove it?	method because it is not used by NCDOT, by the FHWA, or another
				reference material that is applicable to North Carolina.
Chapter 3 - Hydrology	3.3	Travis Tyboroski (JAECO)	Section 3.3: only two methodologies are specifically NOT allowed here; I'm assuming that means the	Use of the Modified Rational would require a Design Exception.
			modified rational is still an option and not explicitly excluded (as was my understanding while i was	
			reviewing section 1).	
Chanter 2 Undrology	2.4	Suzanna Harris (Hama	Law often will the reinfall date be undeted (section 2.4)? What will be not if a project is in the middle of	Dainfall data will be pacted with a data. If the project was
chapter 5 - Hydrology	5.4	Builders Association	now orien will the rainfall data be updated (section 5.4)? What will happen if a project is in the initiale of	cubmitted prior to an undated rainfall date, it will use the older
		Builder's Association)	neview and there is an update to this rannah data? Whi the project be grandrathered in under the	data
Chanter 3 - Hydrology	3.6	Dori Saheh (Withers	3 Section 3.6 Time of Concentration. We understand removing the Kirnich method for drainage design	No change has been made. Some analyses for NCDOT also require
chapter 5 Hydrology	5.0	Ravenel)	similar to NCDOT's requirement. However, can it still be accented for evaluation of large areas?	analysis of larger areas
		navenery		
Chapter 3 - Hydrology	3.2.1	Hunter Freeman	3.2.1 - for runoff rate control these were called POI in Chapter 2, now they're POA.	The document has been updated.
		(McAdams)		·
Chapter 3 - Hydrology	3.2.1	Hunter Freeman	3.2.1 - the second paragraph is confusing, makes it sound like we need to document peak flow pre/post	The document has been updated.
		(McAdams)	at every inlet when I think you mean that the designer needs to delineate a drainage area and land use	
			to each inlet, which is fine. Although technically correct, no one I've worked with would consider an inlet	
			a "point of analysis", but they would delineate drainage areas to each inlet. Consider using a different	
			phrase.	
Chapter 3 - Hydrology	3.5.2	Dori Sabeh (Withers	2.Section 3.5.2 Land Use/Land Cover. The wording of the section indicates that all design would need to	Your concern is noted; however, this is an infrequent situation.
		Ravenel)	be sized for full build out of offsite areas, so any offsite runoff onto a site or through an scm in existing	Typically the off-stie runoff is either from a small drainage area or
			conditions would have to be sized to accommodate for full build out. However, future development will	is conveyed via a jurisdictional stream.
			be required to provide onsite runoff control/treatment. This will result substantial oversizing of bypass	
			piping systems that do not provide added value to the community.	
Chapter 3 - Hydrology	3.7.1	Hunter Freeman	3.7.1 - a little confusing to list Rational Method under "hydrographs" since it's a peak flow, not a volume.	The document has been updated.
		(McAdams)	I do agree that modified Rational should be prohibited/discouraged though. You may want to state that	
		a	Modified Rational is not allowed (or was it just removed, but is still allowed?)	
Chapter 3 - Hydrology	Table 3.2	Suzanne Harris (Home	Are the Rational Method Coefficients (Table 3.2) meant to be minimum requirements or are these to be	If the designer chooses to deviate from these values, the SCR
		Builders Association)	the standard across a site?	needs to document the reason for the adjustment. The values in
				Table 3.2. are definitely required for future conditions analysis of
Chanter 2 Undralage		Duan Brown (AutoDack)	Place considering including lafe Drainage under the examples of coffigure that can be used for	OIT-site areas.
chapter 5 - Hydrology		Ryall Blown (AutoDesk)	convolution and SCM design. VDSM/MM is a product from Autodesk/Ippolute that can be used for	The document has been updated.
			actively developed, whereas infoDrainage is being actively developed and is intended to replace	
			XECIVELY developed, whereas intobrainage is being actively developed and is intended to replace	
			and mosts the design requirement haid out in the proposed manual. Additionally, lafeDrained uses the	
			latest EPASW/MM engine. More information can be found here on InfoDrainage:	
			https://www.autodesk.com/products/infodrainage/overview_As a resident of Baleigh_an employee of	
			Autodesk/Innovvze, and a technical resource for drainage design products. I'm happy to answer any	
			questions or address any concerns about this suggestion at rvan brown@autodesk.com. Thank you for	
			the consideration.	
Chapter 3 - Hydrology		Travis Tyboroski (JAECO)	Entire section is clear and concise. I cannot emphasize enough how well organized this is.	Thanks.
Chapter 4 -	4.2.2	Hunter Freeman	4.2.2 - consider some variance or provision for pumping. With climate change, more development, and	This is a hard rule and a industry best practice. We see entities
Conveyance		(McAdams)	recent research, stormwater pumping is becoming more common. I know we're not at the coast, but	struggle to maintain their gravity-based systems, so there are
			hybrid pumping & nature based systems are something that NCSU is researching.	series concerns about maintenance of a more complicated system
				that has much higher risks with failure. The City does allow
				pumping for rainwater harvesting systems, which would fall under
		1		the nature based systems umbrella.

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 4 -	4.2.2	Suzanne Harris (Home	4.2.2 - What about pumping for SCM maintenance? If required to gravity drain all SCMs this could	Using a temporary pump to dewater an SCM for maintenance is
Conveyance		Builders Association)	increase costs by having to build-up SCMs higher, or lose density to get more available room for the SCM	allowed. There is a limit on the peak discharge from the pump -
			upstream to gravity drain entirely. Pumping should be allowed for maintenance, and be on the burden of the owner/HOA	see this Manual Section 6.5.3.H.
Chapter 4 -	4.2.3	Hunter Freeman	4.2.3 - I assume that the attenuation of upstream SCMs can be included before modeling the HGL in	Yes.
Conveyance		(McAdams)	existing roadway systems	
Chapter 4 -	4.2.3	Suzanne Harris (Home	4.2.3 - This could lead to certain situations where new pipes that are not being disturbed have to be	This requirement has been clarified to only apply to Tier 3 site
Conveyance		Builders Association)	upsized, leading to larger pipes discharging to smaller pipes downstream	plans. We recognize that this could lead to larger pipes upstream
				of smaller pipes, a scenario addressed in Section 4.2.6.
Chapter 4 -	4.2.3	Suzanne Harris (Home	4.2.3 - Why are projects going to be required to replace existing infrastructure that was designed under	This requirement has been clarified to only apply to Tier 3 site
Conveyance		Builders Association)	completely different requirements than are being proposed? This includes pipe size, capacity, cover,	plans.
			material, or even gutter spread calculations, which are all being made more stringent than ever before.	
			Please explain. No applicability statement, could this be applied to single family?	
Chapter 4 -	4.2.3	Travis Tyboroski (JAECO)	Section 4.2.3: this will be a theme but the "private" portion of this feels like overreach. Should the City's	Your concern is noted. No change has been made to the language.
Conveyance			authority extend to private property in these instances? If a licensed Engineer certifies a design is safe	
			(as the Engineer's primary charge is the health safety and welfare of the public) the Engineer then	
			accepts the responsibility for that design and its viability.	
Chapter 4 -	4.2.4	Hunter Freeman	4.2.4 - consider some exemptions, especially in highly urban areas with existing development	There are multiple issues and risks associated with conveyance
Conveyance		(McAdams)		systems under a building, so that will not be an approved pratice
				per the Manual. While not an exemption, we do have a Design
Classica A	124	C		Exception process.
Chapter 4 -	4.2.4	Suzanne Harris (Home	4.2.4 - Pipes certainly should be allowed to be in closer proximity to retaining walls as they can often be	Retaining walls may seek a Design Exception. See Chapter 7.
Conveyance		Builders Association)	part of an SCIVI. Outfails from sites and SCIVI also typically extend through retaining walls and design	
			professionals make design accommodations for such. This restriction simply restricts common	
Chanter 4	126	Huntor Frooman	engineering practice. Please explain.	This is not a contradiction. We are requiring the immediately
	4.2.0	McAdams)	4.2.0 - Seems to contradict 4.2.3	adjacent nine in POW to be addressed, but not the nines
Conveyance		(MCAuditis)		downstream of that
Chanter 4 -	427	Hunter Freeman	4 2 7 - just sidewalks? maybe add the curbline as well?	This language has been undated
Conveyance	4.2.7	(McAdams)		
Chapter 4 -	4.2.8	Suzanne Harris (Home	4.2.8 - This section states that connections to structures and to the gutter through the curb shall be	The language has been updated to indicate this section is about
Conveyance		Builders Association)	performed in accordance with the City of Raleigh Details - Does this include driveway connections? Will	stormwater conveyances, not driveways.
		,	we be required to provide gutter spread calculations for driveway connections?	
Chapter 4 -	4.3	Travis Tyboroski (JAECO)	Section 4.3: Again building on the above, and the issue taken in chapter 1, properly gasketed pipes are	We would counter that the public, including future homeowners,
Conveyance		, , ,	capable of passing flows with HGLs above the crown of pipe without detriment to the pipes themselves,	are better protected by these standards.
,			and an Engineer willing to certify to the same should be allowed to do so. NCDOT is willing to accept this	. ,
			scenario. While JAECO understands this desire, and frankly is unable to strongly object to pipes in the	
			public right-of-way as they ultimately will be the City's "property" and responsibility, the extension of	
			these standards to private infrastructure is an unnecessary burden; the Public is not better protected by	
			the extension of these standards.	
Chapter 4 -	4.3.1	Suzanne Harris (Home	4.3.1 - Ideally all storm systems should be designed with the HGL within the system, however there	The concern is noted. A Design Exception could be on option in
Conveyance		Builders Association)	should be a consideration for o-ring pipe in certain situations where the HGL cannot be kept within the	the situation listed.
			system. For example, there could be a system that has to buck grade for a long run and the invert into	
			the pond becomes deeper than the normal pool elevation. This could be analyzed on a case-by-case	
Chapter 4 -	4.3.4	Dori Sabeh (Withers	4.Section 4.3.4 Inlet And Gutter Sizing Criteria. Is the NCDOT standard 4 in/hr intensity for spread	The City does not use the NCDOT standard for rainfall instensity
Conveyance		Ravenel)	calculations inadvertently omitted, or is the City opting to use a 10-year storm event instead?	for spread calculations. Since 2002, the City has used the 2-year
				storm. With this manual, the requirement is being changed to the
				10-year storm.
Chapter 4 -	4.3.4	Hunter Freeman	4.3.4 - 10-yr design storm for gutter spread, and not 4 in/hr?but then limited to 4' if there's a	The City does not use the NCDOT standard for rainfall instensity
Conveyance		(McAdams)	shoulder?	for spread calculations. Since 2002, the City has used the 2-year
				storm. with this manual, the requirement is being changed to the
				10-year storm. For the shoulder situation, a Design Exception
				coula de considerea.

Chapper 4 S1-AC Size Note Name Hards S1-AC Expression S1-S1-Nite Medide to complicate Mark Chapper 4 3.3.4 Size Note Name Hards S1-AL expression S1-AL	Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Conceptence Image: Instrument of the standard set stopent in Table 4.7 Fet. Be written this applies to and integer property. Conceptence 3.4.1 Statuser Harris Home 3.4.3 The drag statuser is a statuser in the statuser is a statuser is a statuser in the status is a statuser in the statuser is a statuser in the statuser is a statuser is a statuser in the status is a statuser in the statuser is a statuser in the statuser is a statuser in the status is a statuser in the statuser is a statuser in the status is a statuser in the status is a statuser in the statuser is a statuser in the status is a statuser in the statuser in the statuser is a statuser in the statuser is a statuser in the status is a statuser in the statuser in the statuser in the statuser in the status is a statuser in the statuser in the status is a statuser in the statuser in the status is a statuser in th	Chapter 4 -	4.3.4	Suzanne Harris (Home	4.3.4 - Gutter spread for private streets - is this meant to cover alleys? If so, why?	This is not intended to cover private alleys.
Chapter 4 4.4.4 Wanner karrs (Meres Association) 4.3.4 A = The displayed to the same divers infrast standards as shown in Table 4.2.3 Procession Chapter 4 4.3.6 Summe Name Name Name Name Name Name Name N	Conveyance		Builders Association)		
Convenient Buildet Ausocition 4.3.4 Mode status 4 Convenient C	Chapter 4 -	4.3.4	Suzanne Harris (Home	4.3.4 - Are private yard inlets subject to the same design standards as shown in Table 4.4?	Yes, as written this applies to yard inlets on private property.
Chapter 4: 6.3.4 Suame Harris (Home Julies 4/m standard) 4.3.4 The design starm for guter spreads is far more stringent than NCDCT consider than NCDCT consin NCDCT consider than NCDCT consin NCDCT than NCDCT cons	Conveyance		Builders Association)		
Gameyance Builders Association utilizes 4 f/m storm, you're increasing that to 2.22 infty, them requirem the eleight to consider the intest. for greated calculations. Since 2002, the Dty has used the 2-year ADD. Comport 4. 4.3.4 Source thank blocks and the 2-year ADD. Source thank blocks and the 2-year ADD. Comport 4. 4.3.4 Source thank blocks and the 2-year ADD. The Linguage has been updated to duity fruit the SOK blockage to applied to applied the 2-year ADD. Comport 4. 4.3.4 Source thank blocks and yoedfiles at sage 2000 and additional oblicits at sage 2000 and additional oblicity additional oblicits at sage 2000 and additional oblicity addition additional oblicity addi	Chapter 4 -	4.3.4	Suzanne Harris (Home	4.3.4 - The design storm for gutter spread is far more stringent than NCDOT currently requires. NCDOT	The City does not use the NCDOT standard for rainfall instensity
bit bit server in the server is a Soft bit bit server is Soft bit bit server is the server is a server	Conveyance		Builders Association)	utilizes 4"/hr storm, you're increasing that to 7.22in/hr, then requiring the design to consider the inlets	for spread calculations. Since 2002, the City has used the 2-year
Chapter 4- 4.3.4 Builders Associations Easier 4- the same farms (Home Builders Associations) Easier 4- the same farms (Home Builders Association) Easier 4- the same farms (Home Builders Association) <theasier 4-<br="">the chare farm</theasier>				50% blocked. That's nearly a 180% increase over NCDOT. Why?.	storm. With this manual, the requirement is being changed to the
Compared Last From 533 mit/more 2.04 m/y at 800 Compared 4.3.4 States 4- Builders Association) 4.3.4 - This only specifies the grate initet blockage, should it also include open throat inites? The Imaging has been updated to damP that the 50% blockage applies to the grate but not the open throat. Compared 4.3.4 Statement Farms (from Builders Association) 4.3.4 - Way require additional inites at sag. We require that the ele as in inites at the sag and that the 50% blockage paper 4. 4.3.4 France Statement Applies to the grate but not the open throat. Compared 4.3.4 Builders Association) A.3.4 hild Blockage. This states were to the state were to affere the grate parts. Compared 4.3.4 Travis Tyboroski (JACC) Section 4.3.4. This is another deal hose I will continue to beart. Applica to the grate built not the open throat. Compared 4.3.4 Travis Tyboroski (JACC) Section 4.3.4. This is another deal hose I will continue to beart. Applica to the grate built not the open throat. Compared 4.3.4 Travis Tyboroski (JACC) Section 4.3.4. This is another deal hose I will continue to beart. Applica to the state sta					10-year storm. For a 5-minute time of concentration, this is a shift
Chapter 4- Chapter 4-					from 5.53 in/hr to 7.04 in/yr at RDU.
Convegance Builders Association applies to the grate builder Model applies to the grate builder Model Convegance 4.3.4 Suzanne Harris (Home 4.3.4 - Why require additional intest as say locations if they aren't needed? This seems to add there not requirely additional intest as say. We require that Convegance 4.3.4 Suzanne Harris (Home 4.3.4 - Why require additional intest as Say is located when grate intest are Grate intelst will be required into the grate portion. Convegance Builders Association required. Canvegance Grate intelst will be required into the grate portion. Chapter 4 - 4.3.4 Travis Tyboroski (JACCO) Section 4.3.4 does the Stable back erequired. The language has been updated to clarify that the Sox blockage requirement ateed to combination intest (Le NLDDT 2440.02) or the Canvegance The ungage has been updated to clarify that the Sox blockage requirement are overfail. Even accounting from these daditions will be too conversive. The ungage has been updated to clarify that the Sox blockage on paper to grate "Canvegance" Convegance 4.3.4 Fable 4. Felly Heffers and Ting from these daditions will be too conversive. The ungage has been updated to darify that the Sox blockage on paper to accounting for the specific will be conversive. Convegance 4.3.4 Fable 4. Felly Heffers and Ting from these daditon will be too conversive. The table hea	Chapter 4 -	4.3.4	Suzanne Harris (Home	4.3.4 - This only specifies the grate inlet blockage, should it also include open throat inlets?	The language has been updated to clarify that the 50% blockage
Chapter 4- Conveyance 4.3.4 Suzame Harris (Home Bulders Association Bulders Association unnecessary costs 4.3.4 - Why require additional inlets at sage locations if they aren't needed? This seems to add unnecessary costs We require duitonal inlets at sage locations in they reaches and they are not required. Conveyance We require duitonal inlets at sage locations if they aren't needed? This seems to add there be an inlet at the sage and that 50% blockage bappled to they reaches and the social set of units of the social set of the social set of units of the social set of the social set of units of the social set of the social set of the	Conveyance		Builders Association)		applies to the grate but not the open throat.
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Add Add <td>Conveyance</td> <td></td> <td>Builders Association)</td> <td>unnecessary costs</td> <td>there be an inlet at the sag and that the 50% blockage be applied</td>	Conveyance		Builders Association)	unnecessary costs	there be an inlet at the sag and that the 50% blockage be applied
Chapter 4 4.3.4 Suzane Harris (Home 4.3.4 Intel Blockage - This states we're to assume the inites are 30% blocked when grate inites are Grate inites will be required in ROW. The City is working to Conveyance Chapter 4 - 4.3.4 Travis Tyboroski (LACCO) Section 4.3.4.: does the 50% blockage enquirement extend to combination inlets (b. RNODT 840.02) or the grate 'monitor' the open throat. Page interval Section 4.3.4.: does the 50% blockage enquirement extend to cardinard as it were is different and more difficult to object to be accounting for storm storm storm interval. Full comparison in the combination inlets (b. RNODT 840.02) or the grate 'monitor' as twee is different and more difficult to object to be grate 'monitor' as twee is different and more difficult to object to be grate 'monitor' as twee is different and more difficult to object to be grate 'monitor to be part but not be open throat. Chapter 4 4.3.4/Table 4.4 Kelly Here and Erica Contrive the page trainet's main the open throat. Section 4.3.1. Table 4.4 Kelly Here and Erica Contrive the page trainet's main the open throat. Section 4.3.4.7 Table 4.4 Kelly Here and Erica Contrive the page trainet's main the open throat. Section 4.3.4.7 Table 4.4 Kelly Here and Erica Contrive the page trainet's main throat method to carrive the to open throat. Section 4.3.4 Table 4.5 Kelly Here and Erica Section 4.3.4 Table 4.5 Kelly Here and Erica Kelly Here and Erica Kelly Here and Erica					to the grate portion.
Conveyance Builder Association required. Clarify when they're requirement extend to combination inlets (i.e. NOCH 2010) or grate "Tavis Tyboroski (JACO) prediate the Standard Details and will refer to NCODT Details in Conveyance Conveyance 4.3.4 Tavis Tyboroski (JACO) Section 4.3.4. does the Stockage requirement extend to combination inlets (i.e. NOCH Conveyance Imaginge has been updated to carify that the SOK blockage applies to the grate but not the open throat. Conveyance 4.3.4/Table 4.X Kelly Heffer and Erica Clarify that blockage for combination inlet. Does SOK blockage only apply to grate? The language has been updated to carify that the SOK blockage applies to the grate but not the open throat. Conveyance 4.4 A.4 Hegan and Tiffary Ferrel (American and COPA) Terch Width Discregancy - here you call for NCDOT trench width and on Std. Detail 10.14 it says the process of updated to reference City details. The City is in the process of updated to reference City details. Chapter 4. 4.5 A Hegan and Tiffary Ferrel (American and COPA) Table 4.5 Gover - manufacturer glas fix spelling in the trench width and on Std. Detail 10.14 it says the process of updated to reference City details. The calls fix spelling in the trench width section and COPA) Chapter 4. 4.5 Kelly Heffer and Erica (MAddans) First paragraph - be clear about the applicability. What does it mean to connect to public ROW? The applicability section has been clarified.	Chapter 4 -	4.3.4	Suzanne Harris (Home	4.3.4 Inlet Blockage - This states we're to assume the inlets are 50% blocked when grate inlets are	Grate inlets will be required in ROW. The City is working to
Chapter 4- 4.3.4 Travis Tyboroski (IAECO) Section 4.3.4.: does the 50% blockage requirement extend to combination inites (i.e. NCDDT 8402.00° The language has been updated to clarify that the 50% blockage Conveyance 4.3.4 Travis Tyboroski (IAECO) Section 4.3.4.: This is another dead horse I will continue to combination inites is ultimately Your response is noted. The requirement has not been changed. Conveyance 4.3.4 Travis Tyboroski (IAECO) Section 4.3.4.: This is another dead horse I will continue to combination inites. Use accounting for strandard' as it were is different (Iam concernation.) Tow response is noted. The requirement has not been changed. Chapter 4- 4.3.4/Table 4. Kelly Hefer and Erica Clarify intel: blockage for combination inlets. Dees 50% blockage only apply to grate? The language has been updated to darify that the 50% blockage only apply to grate? Conveyance A A Hogan and Tiffary Ferrell (America in the process of updating our details. Ferrell (America in the process of updating our details. Section 4.4 has been requirements for RCP are process of updating our details. Conveyance A A Hogan and Tiffary Ferrell (America in the process of updating our details. Ferrell (America in the process of updating our details. Conveyance A A Hogan and Tiffary Ferrell (America in the proceshide. Ferrell (America in the process of updatin	Conveyance		Builders Association)	required. Clarify when they're required.	update the Standard Details and will refer to NCDOT Details in
Conveyance grate *only*? applies to the grate but not the open throat. Conveyance 4.3.4 Travis Tyboroski (LAEC) Section 4.3.4. This is another dead horse I will continue to beat. Again acknowledging this is ultimately. Your response is noted. The requirement has not been changed. Conveyance 4.3.4/Table 4.4 Kelly Helmer and Erica Conveyance The language has been updated to darify that the 50% blockage on papely to grate? The language has been updated to darify that the 50% blockage on papel to grate? Conveyance 4.4 Al Hogan and Tiffany Ferrel (American Concrete Pipe Association and COPPA) Might be helpful to reference the NCDOT handling and Storage Guideline here (attached to our email and COPPA) The table has been updated to reference City details. The City is in the process of updating our details. Conveyance 4.5 Al Hogan and Tiffany Ferrel (American Concrete Pipe Association and COPPA) The table has been updated to reference City details. The City is in the process of updating our details. Conveyance 4.5 Hinter Freeman Concrete Pipe Association and COPPA) Table 4.5 Cover - manufacture should be manufacturer (also fix spelling in the trench width section) Addressed. Conveyance Michaeman First paragraph - be clear about the applicability. What does it mean to connect to public ROW? The applicability section has been clarified. <	Chapter 4 -	4.3.4	Travis Tyboroski (JAECO)	Section 4.3.4.: does the 50% blockage requirement extend to combination inlets (i.e. NCDOT 840.02) or	The language has been updated to clarify that the 50% blockage
Chapter 4- Conveyance 4.3.4 Travis Tyboroski (UAECO) Section 4.3.4 mills is another dead horse I will continue to beet. Again acknowledging this is ultimately the City's infrastructure to accept and the 'standard' as it were is affirent (and more a filtenuit to bjeck) conveyance Your response is noted. The requirements has not been changed. Chapter 4. Chapter 4- Chapter 4- Conveyance 4.3.4 (Kelly Hefner and Frica Conveyance Clarify intel blockage for combination inlets. Does 50% blockage only apply to grate? applies to the grate but not the open threat. Chapter 4- Conveyance 4.4 (Hefner and Tiffany Ferrel (American and CCPPA) Might be helpful to reference the NCDOT handling and Storage Guideline here (attached to our email response)? Section 4.4 has been removed. The handling requirements for RCP are include below. Chapter 4- Conveyance 4.5 Al Hogan and Tiffany Ferrel (American and CCPPA) Trench Width Discrepancy - here you call for NCDOT trench width and on Std. Detail 10.14 it says minimum 6' - 12''outside 0.D. each side. The table has been updated to reference City details. The City is in the process of updating our details. Chapter 4- Conveyance 4.5 Kelly Hefner and Tirica MickAams) Trench Width Discrepancy - here you call for NCDOT trench width and on Std. Detail 10.14 it says minimum 6' - 12''outside 0.D. each side. Addressed. Conveyance Kelly Hefner and Tirica MickAams) Trench Width Discrepancy - here you call for NCDOT trench width and on Std. Detail 10.14 it says mininum 6' - 12''outside 0.D. each side. <td>Conveyance</td> <td></td> <td></td> <td>grate *only*?</td> <td>applies to the grate but not the open throat.</td>	Conveyance			grate *only*?	applies to the grate but not the open throat.
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Image: Chapter 4- Conceyance 4.4/Table 4.4 Kelly Hefner and Erica Wangelin (ADS Pipe) Conceyance Conceyance The Language has been updated to clarify that the 50% blockage applies to the grate but not the open throat. Conceyance 4.4 Kelly Hefner and Erica Conceyance Alt Mogan and Tiffany Ferrel (American and CCPA) Might be helpful to reference the NCDOT handling and Storage Guideline here (attached to our email response)? The table has been updated to reference. The ADM are included below. Chapter 4- Conceyance 4.5 Al Hogan and Tiffany Ferrel (American and CCPA) Therch Width Discrepancy - here you call for NCDOT trench width and on Std. Detail 10.14 it says minimum 6 ⁻ 12 ⁻ outside 0.D. each side. The table has been updated to reference City details. The City is in the process of updating our details. Conveyance 4.5 Kelly Hefner and Erica Minimum 6 ⁻ 12 ⁻ outside 0.D. each side. Addressed. Conveyance 4.5 Kelly Hefner and Erica Minimum 6 ⁻ 12 ⁻ outside 0.D. each side. Addressed. Conveyance 4.5 Kelly Hefner and Erica Minimum 6 ⁻ 12 ⁻ outside 0.D. each side. Addressed. Conveyance 4.5 Kelly Hefner and Erica Minimum 6 ⁻ 12 ⁻ outside 0.D. each side. The table has been updated to reference City details. The City is in fast trace of updating our details. Conveyance 4.5 Kelly Hefner and Erica Mindetailton Trench Width - be aware that NCDOT	Conveyance			the City's infrastructure to accept and the "standard" as it were is different (and more difficult to object	
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Chapter 4 - 4.5.2 All logan and finany Should also list folgue and groove with single onset spigot as larger diameter pipe may be straight wait We don't fully inderstand this comment. Dan clinton is following up with CCPPA Conveyance Ferrell (American and CCPPA) (no bell) up with CCPPA Chapter 4 - All Hogan and Tiffany Second bullet point - consider this language for clarification The language has been updated. Conveyance Ferrell (American Concrete Pipe Association and CCPPA) - or single offset or tongue and groove joint with Conseal (ASTM C990) sealant with the addition of filter The language has been updated. Conveyance NOTE to COR - NCDOT only requires exterior init wrap for pipe 42" and larger. NOTE to COR - NCDOT only requires exterior init wrap for pipe 42" and larger. NOTE to COR - NCDOT only requires exterior init wrap for pipe 42" and larger.	Chanter 4	4.5.2	ALLIAGON and Tiffony	Chauld also list Tangua and graque with single offect spiget as larger diameter pipe may be straight well	We don't fully understand this commant. Dan Clinton is following
Concrete Pipe Association and CCPPA) Chapter 4 - Concrete Pipe Association Concrete Pipe Association Concrete Pipe Association fabric wrap on exterior for pipe 42" diameter and larger. NOTE to COB - NCDOT only requires exterior init wrap for nine 42" and larger	Chapter 4 -	4.5.2	Al Hogan and Tillany	Should also list forgue and groove with single onset spigot as larger diameter pipe may be straight wait	we don't fully understand this comment. Dan clinton is following
Chapter 4 - 4.5.2 AI Hogan and Tiffany Second bullet point - consider this language for clarification - or single offset or tongue and groove joint with Conseal (ASTM C990) sealant with the addition of filter Concrete Pipe Association fabric wrap on exterior for pipe 42" diameter and larger.	Conveyance		Ferreii (American		up with CCPPA
Chapter 4 - 4.5.2 AI Hogan and Tiffany Second bullet point - consider this language for clarification - or single offset or tongue and groove joint with Conseal (ASTM C990) sealant with the addition of filter Concrete Pipe Association fabric wrap on exterior for pipe 42" diameter and larger.			concrete Pipe Association		
Conveyance Ferrell (American Consult of the point of the	Chapter 4 -	152	Al Hogan and Tiffany	Second hullet point - consider this language for clarification	The language has been undated
Concrete Pipe Association ADD For COR - NCPOT only requires exterior ionit was for pipe 42" and larger	Conveyance	4.3.2	Forrell (American	ar single offset or tongue and groove joint with Consol (ASTM COOD) solant with the addition of filter	
and CCPDA) NOTE to COR a VCPCDT confurge set and in the set of an interest of and larger.	conveyance		Concrete Pipe Association	fabric wran on exterior for nine 12" diameter and larger	
			and CCPPA)	NOTE to COR - NCDOT only requires exterior joint wran for nine 40° and larger	

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 4 -	4.5.2	Al Hogan and Tiffany	PLEASE REVISE - Pipe Strength class shall be based upon the Indirect Design Method as found in Section	This requirement has been updated.
Conveyance		Ferrell (American	12 of the AASHTO LRFD Bridge Design Specification.	
		Concrete Pipe Association	Direct Design methodology for RCP is typically only used for special design cases when the load on the	
		and CCPPA)	pipe (caused by extremely high cover or unusual Live Load condition) exceeds the standard strength class	
			of RCP as noted in ASTM C-76.	
Chapter 4 -	4.5.2	Al Hogan and Tiffany	Much simpler to refer to AASHTO R-73 to determine acceptance of RCP at time of delivery or anytime	The language has been updated.
Conveyance		Ferrell (American	prior to the pipe being backfilled.	
		Concrete Pipe Association	Keep 72 Hour deliveryand acceptance of the pipe at point of delivery bullet points if you wish.	
		and CCPPA)		
Chapter 4 -	4.5.2	Kelly Hefner and Erica	"Use Conseal and Wrap Joint Externally with geotextile" - capitalization issue	The language has been updated.
Conveyance		Wangelin (ADS Pipe)		
Chapter 4 -	4.5.3	Al Hogan and Tiffany	Installation trench width should follow NCDOT trench details or a COR trench detail needs to be created	The City is in the process of updating our details. That work will be
Conveyance		Ferrell (American	by COR -	completed before the effective date of this Manual.
		Concrete Pipe Association		
		and CCPPA)		
Chapter 4 -	4.5.3	Al Hogan and Tiffany	Pipe to structure connection for Polyethylene or Polypropylene should be made with a resilient water	The language has been updated.
Conveyance		Ferrell (American	tight connector. Resilient connectors shall meet ASTM C923, ASTM C1478, and ASTM F2510.	
		Concrete Pipe Association		
		and CCPPA)	As flexible pipe deflects out of round the grout will crack and possibly dislodge allowing embedment	
			backfill to enter pipe/structure and lead to settlement of pavement and or even failure in extreme	
			conditions or left unchecked.	
			At a very minimum the pipe to structure connection should have a filter fabric - geotextile Jacket	
			installed/provided at the connection. See MarMac.com website for example of geotextile jacket.	
Chapter 4 -	4.5.3	Kelly Hefner and Erica	Is City really requiring mandrel testing for private pipe?	The cost concerns have been noted. The requirement has not
Conveyance		Wangelin (ADS Pipe)		been changed.
Chapter 4 -	4.5.3	Kelly Hefner and Erica	Bullet that begins "Certification" is really 2 bullets. Start new bullet with "Double"	The language has been updated.
Conveyance		Wangelin (ADS Pipe)		
Chapter 4 -	4.5.3	Kelly Hefner and Erica	Clarify that "Installation trench minimum width shall be per manufacturer's specifications" - inconsiste	The language has been updated.
Conveyance		Wangelin (ADS Pipe)	with language in Table 4.5	
Chapter 4 -	4.5.3	Kelly Hefner and Erica	Bullet that begins "PP shall" is really 2 bullets. Start new bullet with "Transition"	The language has been updated.
Conveyance		Wangelin (ADS Pipe)		
Chapter 4 -	4.5.3	Kelly Hefner and Erica	Bullet that begins "PP shall" - clarify the backfill?	The language has been updated.
Conveyance	47	Wangelin (ADS Pipe)		
Chapter 4 -	4.7	Suzanne Harris (Home	4.7 - "Dump No Waste - Drains to River" - This is not currently on all of your standard details, so I assume	The City is in the process of updating our details. That work will be
Conveyance		Builders Association)	the details would be updated.	completed before the effective date of this Manual.
Chantar 4	4.6.1	Travis Tubaraski (IAECO)	Costion 4.6.1. "vegetated" conveyence confusion again. If the channel is atherwise armoved do the same	See the text of the beginning of $A \in \mathbb{R}^{n}$ that applies upless otherwise
	4.0.1	Travis Typoroski (JAECO)	section 4.6.1: Vegetated conveyance confusion again. If the channel is otherwise armored do the same	see the text at the beginning of 4.6 - That applies unless otherwise
Conveyance Chapter 4	471	Travic Tyborocki (IAECO)	Citeria dippiy?	Specified below.
	4.7.1	TTAVIS TYDUTUSKI (JAECO)	"angineering" judgement, especially as it relates to the extension to private infrastructure	rour response is noted. The requirement has not been changed.
Conveyance Chapter 4 -	1.8	Al Hogan and Tiffany	Imperitive COP includes some guidance to EOP as to how to evaluate issues of concern found during PIL	Recommend resources for the repair plan will be provided outside
	4.0	Forrell (American	ASTM C 1840 and or NCDOT Evaluation Guidelines are both good reference for but if you do not require	of the Manual
conveyance		Concrete Pine Association	measurement of defects those are not annlicable	
		and CCPPA)	The AASHTO "Guide Specifications for Highway Construction" Appendix X5 would be best option if you	
		and CCFFA)	are not going to require measurement of defects by the Inspection companies	
Chanter 4 -	1.8	Al Hogan and Tiffany	Might want to consider allowing Laser Profiler and Mandrel Test as ontions for deflection verification of	Laser profiling has been added as an alternate to mandral testing
	4.0	Ferrell (American	flavible nine?	taser proming has been added as an alternate to manurer testing.
conveyance				
		and CCPPA)		
Chanter 4 -	4.8	Kelly Hefner and Frica	How does nine pass or fail CCTV inspection?	Section 4.8.3.2 has been added to state the criteria for acceptance
Conveyance		Wangelin (ADS Pine)		section housing has been added to state the criteria for acceptance.
Chapter 4 -	4.8	Suzanne Harris (Home	4.8 - CCTV - Another increase for private infrastructure. Are there accentable tolerances or criteria?	Section 4.8.3.2 has been added to state the criteria for acceptance
Conveyance		Builders Association)		

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 4 -		Karen Rindge (Designer)	Chapter 4, Stormwater Conveyance Design - I work in the landscape industry and deal with homeowners	s' The City is aware of this on-going issue with infill development.
Conveyance			stormwater problems on a regular basis. It is common to see that a neighbor's downspouts have been	We have created requirements for projects that are exempt from
			piped underground to flow downhill directly onto their nextdoor neighbor's yard. This was probably	the peak discharge requirements under UDO Section 9.2.2.A.
			done by the developer when the home was built. One egregious example was a property that had piped	Those have been further clarified/strengthened with the 11/27/23
			all 5 downspout pipes (from a very large home) to the same spot at the bottom of their property,	version. See the Draft Manual Section 2.1.2.
			resulting in massive flooding onto the neighbor's yard. Downspouts should drain onto the homeowner's	
			property, not their nextdoor neighbors, thus creating an expensive and mosquito stormwater problem	
			for others. This is simply unfair as the impacted property owner has no recourse against the neighbor	
Chapter 4 -		Suzanne Harris (Home	There is a need to allow smaller pipe sizes entering the ROW to aid with downspout and yard drain	This type of connection is addressed in the Draft Manual Section
Conveyance		Builders Association)	connections. Please provide clarity here that does not require an encroachment permit and large	4.2.8. When the purpose of the private pipe in the ROW is to tie-
			insurance policy.	into the City's conveyance system, no encrachment agreement (or
				associated insurance policy) is required.
Chapter 4 -		Suzanne Harris (Home	When using HDPP or HDPE pipe for detention purposes, a common connection is an insert-a-tee and	The bullet point in Table 4.6 has been updated to clarify that SCM
Conveyance		Builders Association)	should be allowable without requiring cleanouts at each connection location as this causes additional	access locations are addressed in Chapter 6.
			unnecessary fittings at the connection. Please consider.	
Chapter 4 -		Travis Tyboroski (JAECO)	Thank you for the reconsideration of the erosion hazard setback. As noted in the City's responses the	Thank you.
Conveyance			easement and buffer requirements adequately address the same concern elsewhere; less redundancy.	
Chapter 5 -	5.1	Hunter Freeman	Table 5.1 - can we pervious = managed pervious? Let's talk with the state	Yes, any pervious area that is not in a conservation easement
Stormwater		(McAdams)		should be counted as managed pervious for existing and proposed
Management				conditions.
Calculations				
Chapter 5 -	5.2	Travis Tyboroski (JAECO)	section 5.2: UDO 9.2.2.E.2.b allows a 10% increase in post development flow where the manual reads	The document has been updated to reflect the UDO.
Stormwater			"shall not have any".	
Management				
Calculations				
Chapter 5 -	5.2.2	Hunter Freeman	5.2.2 - as I mentioned earlier, it's confusing to use the term "point of analysis" in the stormdrainage	The document has been updated.
Stormwater		(McAdams)	design as well.	
Management				
Calculations				
Chapter 5 -	5.2.3	Suzanne Harris (Home	5.2.3 - Design professionals are made aware of structural flooding at first contact with the City (i.e.	Yes, that is correct.
Stormwater		Builders Association)	sketch plan or site review).	
Management				
Calculations				
Chapter 5 -	5.2.3	Suzanne Harris (Home	5.2.3 - The list of documented structural flooding must be made public. We don't need a map, just	As explained by Ben Brown, there are legal issues with publishing a
Stormwater		Builders Association)	addresses.	list. Designers may contact the review team at any time to check
Management				for documented structural flooding downstream.
Calculations				
Chapter 5 -	5.3	Hunter Freeman	5.3 - as noted earlier, Storm-EZ was taken off the State's website. Let me know if you need a version	We are not looking for a Raleigh-specific version, but will be
Stormwater		(McAdams)	specific to Raleigh, minor updates would not be difficult	pursuing clarifications from the State.
Management				
Calculations				
Chapter 5 -	5.3.1	Suzanne Harris (Home	5.3.1 - Common Plan of Development is far too broad. This should be much better defined vs. allowing	The definition in the Design Manual and the UDO is based on the
Stormwater		Builders Association)	subjectivity from staff.	State's definition. The City was required to use this definition.
Management				
Calculations				

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 5 -		Karen Rindge (Designer)	The Chapter on Stormwater Management Calculations should consider reducing the amount of	The % impervious allowed in UDO Section 9.2.2.A.4 is not being
Stormwater			impervious surface a property is permitted to have without requiring a Green Stormwater Infrastructure	changed with this update. We recommend that proposals to
Management			device. One of the largest negative impacts new development in Raleigh has is the amount and volume	reduce the % impervious allowed be taken to Planning
Calculations			of stormwater runoff that is created by increasing impervious surface that comes with development.	Commission or City Council. / This Design Manual update has
			work in the landscape industry, and I hear repeatedly from homeowners complaints about stormwater	added requirements for infill development in Section 2.1, which is
			runoff generated from new buildings, driveways, patios etc. For example, new infill development	aimed at addressing lot to lot draiange issues. Please let us know
			maximizes impervious exactly to 65% and is not required to include a SCM. Both neighbors and the	if you have feedback on these ontions / We are undated LIDO
			waterways would benefit greatly from requiring a rain garden or other GSI device with high percentages	Section 9.2.2.4.4 b ii which currently results in many properties
			of impervious 65% for R-10 is too high without a GSI requirement. I'm not against density but we	being able to exceed the % impervious without a SCM. The
			need to make dense development work better at reducing stormwater runoff	proposed requirement will require a SCM to meet the standard
Chapter 5 -		Suzanne Harris (Home	more to be submitted	NA
Stormwater		Builders Association)		
Management		Builder's Association		
Calculations				
Chapter 6 - SCMs	631	Hunter Freeman	6.3.1.B consider allowing this if the State rules/guidance changes	We will not be allowing numping, except for rainwater baryesting
	0.012	(McAdams)		
Chapter 6 - SCMs	6.3.1.B	Suzanne Harris (Home	6.3.1.B - Does this include pumping for maintenance? Some ponds which can not gravity flow through	Using a temporary pump to dewater an SCM for maintenance is
		Builders Association)	the riser rely on pumps for maintenance	allowed. There is a limit on the peak discharge from the pump -
				see this Manual Section 6.5.3.H.
Chapter 6 - SCMs	6.3.1.E	Suzanne Harris (Home	6.3.1.E - Does this supersede the 1" WQV if also providing peak attenuation? Could have cost	The document will be clarified.
		Builders Association)	implications if the WQV exceeds 1" for the design storm	
Chapter 6 - SCMs	6.3.10	Jacob Dorman (on behalf	1) 6.3.10 Requirements for All Underground SCMs: Recommend clarifying that access in accordance with	The document has been updated.
		of ConTech)	OSHA standards and requirements includes access to all captured sediment and other pollutants of	
			concern in order to facilitate proper maintenance.	
Chapter 6 - SCMs	6.3.14	Jacob Dorman (on behalf	(2) 6.5.14 Proprietary SCMs: 2nd bulleted item under Additional Requirements Beyond MDC stipulates	We have included this language because it is our understanding
		of ConTech)	that "devices that meet the MDC for Silva Cell Suspended Pavement with Bioretention may be used in	that NCSU has conducted suspended pavement research on
			lieu of Silva Cell." We discourage this language and recommend that only allow systems properly vetted	systems other than Silva Cells. I am familiar with the mechanism
			through the NCDEQ's NEST process be used. The MDC for Silva Cell was developed following robust field	in Silva Cells and know that these can be reproduced within other
			monitoring and contains elements, like material specifications, flow distribution, and storage capacity,	structures. We are not included this language for any other
			among others, that can impact overall system performance if alternatives are allowed. It is not	proprietary device type (e.g. StormFilters or Filterra) as we know
			appropriate to allow a like for like switch without appropriate technical justification.	they have specific media and configurations. We do not conudct
				our own evaluations and rely on the NEST program.
Chapter 6 - SCMs	6.3.2.B	Suzanne Harris (Home	6.3.2.B - Does this apply to all SCM types for the 100-yr storm? Additionally this will increase costs of all	Section 6.3.2. applies only to constructed embankments (in fill)
		Builders Association)	SCMs if required to handle the 100-yr event storm. Ponds will become larger as a result.	where water is ponded more than 3 feet.
Chapter 6 - SCMs	6.3.3	Hunter Freeman	6.3.3 - reference this section in the conveyance part of the manual since there are exceptions from the	This is referenced in Chapter 4.
		(McAdams)	10' rule.	
Chapter 6 - SCMs	6.3.3.D	Suzanne Harris (Home	6.3.3.D - An additional letter from the design engineer is completely unnecessary and redundant.	Typically, the stormwater report only reflects the design by the
		Builders Association)	Engineering ethics and standards require us to consider all factors of our design.	civil engineer (or landscape architect) and not design by the
				structural engineer. If the structural design is done by the same
				person that stamps the SCR this would be fine, but typically the
				SCR author is not qualified in structural design.
Chapter 6 - SCMs	6.3.3.E	Suzanne Harris (Home	6.3.3.E - Unnecessary for an additional letter from the owner. The Stormwater Covenants are already	It is unknown to the reviewer that the owner understands that
		Builders Association)	executed by the Owner and include the O&M. If you want more language, then it should be included in	there will be higher maintenance costs associated with the deisgn
Chamber C. CCM	C 2 4 P	Current and United (United	ITTE U&IM.	decision to place a SCM under a building.
Chapter 6 - SCMs	о.3.4.B	Suzanne Harris (Home	b.3.4.B - An additional letter from the design engineer is completely unnecessary and redundant.	i ypically, the stormwater report only reflects the design by the
		Builders Association)	Engineering etnics and standards requires us to consider all factors of our design including ponded water	civil engineer (or landscape architect) and not design by the
			against a waii.	structural engineer. If the structural design is done by the same
				person that stamps the SCR this would be fine, but typically the
				ISUK author is not qualified in structural design.

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 6 - SCMs	6.3.5	Anonymous	(6.3.5) I would suggest making the "embankment" text a hyperlink to a definition clearly defining what is and what is not considered an embankment. Same with the word "woody vegetation" and I would question if small woody plants with a mature height no more than +/-5' should be acceptable. I'm wondering if you consider a "butterfly bush" a woody plant. Thank you for not excluding non clumping grass like some UDO's do. However, you do exclude it in (6.5.9) level spreader and maybe elsewhere which is probably a mistake since all native deep rooted grass in clumping.	We will be adding hyperlinks back into the final version of the Manual - they provided to be problematic during editing. In terms of woody vegetation, it is standard engineering practice to exclude all woody vegetation on the fill portion of a pond embankment. This does not exclude the use of woody vegetation on the other slopes of ponds or wetlands or within practices such as bioretention.
Chapter 6 - SCMs	6.5.15	Suzanne Harris (Home Builders Association)	6.5.15 - UG Detention Orifice size of 3" will not work on small sites. Adjustable valves sounds like a guessing game.	The document has been updated to broaden the options.
Chapter 6 - SCMs	6.5.15.E	Travis Tyboroski (JAECO)	6.5.15.E: is this requirement necessary? With proper trash rack is the City seeing significant/widespread clogging? That has not been our office's experience.	This is viewed as a safety issue.
Chapter 6 - SCMs	6.5.2.A	Travis Tyboroski (JAECO)	Section 6.5.2.A: The State accepts without forebay which would lead us to believe that the device functions properly without a forebay. Understand this as a recommendation to improve the water quality, but worried this additional footprint area will squeeze out areas that may otherwise be well served by a bio.	Forebay requierments have been updated.
Chapter 6 - SCMs	6.5.3	Anonymous	(6.5.3) Can docks with posts or floating docks be added to wet ponds to increase their usability with kayaking, fishing, etc?	This is a possiblility. Pilings or other structures would require review to ensure the SCM function remains intact.
Chapter 6 - SCMs	6.5.3	Dori Sabeh (Withers Ravenel)	 Section 6.5.3 Wet Pond. B) Wet pond additional requirements call for a turned down elbow. An upturn elbow inside the riser provides for easier maintenance and inspection. Can the verbiage be revised to just say draw from below normal pool, without specifying the detail? C) Use of anti-seep collar has been minimized and replaced with filter diaphragms. Consider adding a cradle under the principal spillway barrel. 	B) Yes, the option of an upturned elbow inside the riser was intended to be allowed. This has been clarified. C) Thank you, this has been updated. Thank you for the suggestion regarding cradles.
Chapter 6 - SCMs	6.5.3.	Travis Tyboroski (JAECO)	Section 6.5.3.G.b: is the intent that without SHWT within 6", essentially wet ponds with less than 25 ac DA will not be allowed?	Wet ponds will still be allowed, but will require more documentation and analysis.
Chapter 6 - SCMs	6.5.4	Travis Tyboroski (JAECO)	Section 6.5.4: same	Wetlands will still be allowed, but will require more documentation and analysis.
Chapter 6 - SCMs	6.5.6	Suzanne Harris (Home Builders Association)	6.5.6 - Detention in Sand Filters - What data was used to state that detention should not be allowed in the sediment chamber. The first flush of runoff contains the vast majority of contaminants, therefore additional flow will not significantly alter the maintenance.	Detention is allowed in connected chambers, but there needs to be a defined sediment chamber for maintenance purposes. It is dififcult for maintenance crews to gather the sediment from a very large area unless many manholes are provided.
Chapter 6 - SCMs		Dori Sabeh (Withers Ravenel)	; 6.For drainage areas between 5 and 10 acres with deep SHWT, a lined wet pond or wetland are not allowed and a sand filter implementation with a maximum width of 20 feet is not practically implementable. Is the intent of the requirement to eliminate/minimize the use of these SCMs in such conditions?	The intent is for designers to consider matching their site conditions with the most appropriate SCM. If a site has sufficient infiltration a infiltration practice should be considered. Also, we haven't totally banned ponds, but have required more analysis. Above ground sand filters are not being limited in width.
Chapter 6 - SCMs		Hunter Freeman (McAdams)	General - what are the City's GSI devices credited as? Bioretention?	Many of the City's GSI devices are bioretention. We also have green roofs, permeable pavement, rainwater harvesting, and suspended pavement systems.
Chapter 6 - SCMs		Hunter Freeman (McAdams)	Should you include the City's GSI standards in this chapter?	Yes, we have tried to integrate the City's GSI standards into Chapter 6.
Chapter 6 - SCMs		Karen Rindge (Designer)	Stormwater Control Measure Design - The chapter should include rain gardens in the list of SCMs. Also, I strongly recommend that the design of rain gardens be reviewed with the goal of reducing the overall construction cost. Current requirements have made rain gardens increasingly expensive to build, and if they cost less, many more rain gardens would be constructed. The City is to be commended for its Rainwater Rewards program, and the funds would go further if construction guidelines were changed.	Chapter 6 of the Manual reflects the NCDEQ Stormwater Design Manual and the associated "Minimum Design Criteria" (MDCs) that are in State code. We cannot allow rain gardens that do not meet the MDCs to be used for regulatory purposes. Your comment will be shared with the staff working on the R3 program.
Chapter 6 - SCMs		Suzanne Harris (Home Builders Association)	When using HDPP or HDPE pipe for detention purposes, a common connection is an insert-a-tee and should be allowable without requiring cleanouts at each connection location as this causes additional unnecessary fittings at the connection. Please consider.	The bullet point in Table 4.6 has been updated to clarify that SCM access locations are addressed in Chapter 6.

Chapter 7 - Essements Suzame Harms (Income Parame Discharge Essements are unrealistic. Developers oil have to purchase essement and displant flow. Neare regulate have in declarge as ICM attributer results (income online velocities) and income online essements. However, the requirement advectory of the come online essements. However, the requirement advectory of the come online essements. However, the requirement advectory of the come online essements. However, the requirement advectory of the come online essements. However, the requirement advectory of the come online essements. However, advectory of the come online essements and advectory of the come online essements. However, advectory of the come online essements and advectory of the come online essements. However, advectory of the come online essements and advectory of the come online essements and advectory of the come online essements. However, advectory of the come online essements and advectory of the come online essements advectory of the come online esseme	Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Builders Association even after complying with every white regularement, even after providing for non-mole velocities and inspirated two, Prases ecolain how of dictory and SW without mise (before mole consents) with every with a base factor 0.1 of the approximation of the second seco	Chapter 7 - Easements	7.2	Suzanne Harris (Home	7.2 - Downstream Discharge Easements are unrealistic. Developers will have to purchase easements	We understand that this puts an onus on developers to acquire an
Image: Section of the sectio			Builders Association)	even after complying with every other requirement, even after providing for non erosive velocities and	easement. However, this requirement addresses a real and on-
Chapter 7 - Essements Table 7.4 Travis Tyborok (194CO) Section 7.2 Travis reported in the integration of the speciality rue for statulety accompany with a definition Mile accompany rule of statulety of rule for statulety accompany rule of statulet				dissipated flow. Please explain how to discharge an SCM without making the flow more concentrated	going issue that has the attention of City Council. For residential
Chapter 7 - Ensement Zub Travit Typerradik (MCC) Manual. Manual. Chapter 7 - Ensement Table 7.2 Semene Harm (Sement H				than the existing condition. This is especially true for sites that currently sheet flow with no defined	infill development, other options are provided in Section 2.1 of the
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Chapter 7 - Exements Jake 7.4 Suzante Harris (Home Bulders Association) Table 7.4 Suzante Harris (Home Bulders Association) The chapter 7 - Exements Table 7.4 Suzante Harris (Home Bulders Association) Chapter 7 - Exements Table 7.4 Anonymois Table 7.4 Suzante Harris (Home Bulders Association) Table 7.4 Nonymois Nonym				Concentrated flow rate? Additional clarity please.	
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					section of this chapter.

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Chapter 8 - ESC		Suzanne Harris (Home	Comments to be submitted.	NA
		Builders Association)		
Chapter 9 - Floodplain	9.2.4	Suzanne Harris (Home	9.2.4 - How far does adjacent apply? This should only be applicable if there is surface water runoff or	Changed from "stream adjacent to the site" to "stream
		Builders Association)	discharge into the adjacent stream. Same applies for 9.5.1	intersecting the site".
Chapter 9 - Floodplain		Dori Sabeh (Withers	7.Section 9.5.2 – "A CLOMR is required when a proposed project will, upon construction, affect the	This is noted in first sentence of Sec. 9.5.2 which states that it is
		Ravenel)	hydrologic or hydraulic characteristics of a flooding source, thus, resulting in the modification of the	"to make changes to the adopted maps within FEMA flood-prone
			existing regulatory floodway, the effective Base Flood Elevation (BFE), or extents of the SFHA." Please	areas"
			clarify that this section applies only for projects that are located within the regulatory	
			floodplain/floodway. The current wording implies that any development requires a CLOMR because it	
			ultimately impacts the hydrologic characteristics of a flooding source.	
Chapter 9 - Floodplain		Suzanne Harris (Home	How much of this chapter overlaps with the UDO and recent text changes?	There is some overlap but most of this chapter is to provide
		Builders Association)		clarification on permitting, flood study, map changes, and
				substantial damage/improvement processes.
Chapter 9 - Floodplain		Suzanne Harris (Home	Comments to be submitted.	NA
		Builders Association)		
Overall		A Pierce (citizen)	are the revisions being made to the manual introducing more or less restrictions and requirements to	The Manual update process seeks to address issues that have
			developers to ensure that they do not introduce stormwater runoff that floods and damages	arisen with increased amounts of infill development. In this
			downstream residential structures and yards? what safeguards and recourse do residents have	version (Draft v4), we have included more specific requirements
			downstream from a development to ensure that their home will not be flooded, and their yards washed out?	for the new Lot Grading Plan. See Section 2.1
Overall		Carla Helms	I would love to see incentives for builders to use GSI in new construction. Often, we are creating rain	This Design Manual update has added requirements for infill
			gardens at brand new houses, where the builder had done grading or directed downspouts where they	development in Section 2.1, which is aimed at addressing lot to lot
			would cause almost immediate problems. An incentive for pervious driveways would be fantastic! It	draiange issues. We are adding rain gardens as one of the options.
			would be more cost efficient to build rain gardens in during the construction rather than afterwards, and	Please let us know if you have feedback on these options. / We are
			that way the downspouts could all be connected and directed to the rain garden, rather than being	updating UDO Section 9.2.2.A.4.b.ii, which currently results in
			retrofitted later.	many properties being able to exceed the % impervious without a
				SCM. The proposed requirement will require a SCM to meet the
				standard. / There are some incentives for permeable pavement
				use - if it is designed to the NCDEQ Manual, it may be counted as
				pervious area.
Overall		Don Procopio (Citizen)	I must admit that I have not had the opportunity to review this document as thoroughly as I would have	1) We have added specific requirements that address lot to lot
			liked during the open comment period, but my general comment is to insure that the following	drainage in infill development. See the Draft Manual Section 2.1.
			conditions are covered in the final document:	This applies to projects that do not meet the threshold for
			1)That any new development (including additions, etc.) not be allowed to increase the storm water	requiring compliance with the full stormwater control regualations
			runoff to an adjacent property within at least a 25-year storm event (minimum) or preferred 100-year	in UDO Sections 9.2.2.B through H. If you would like to see lower
			storm event.	thresholds for the peak discharge rules to apply, you could raise
			2)That all storm water regulations be specified to comply to least a 25-year storm event (minimum) or	this with Planning Commission or City Council. We are proposing
			preferred 100-year storm event. This in recognition of the now inevitable expected future conditions.	an update to UDO Section 9.2.2.A.4.b.ii, which currently results in
				many properties being able to exceed the % impervious without a
				SCM. The proposed requirement will require a SCM to meet the
				standard. We have also added a requirement in the draft Manual
				Section 7.2 that prevent new concentrated flow from entering a
				adjacent property without obtaining an easement - this will apply
				to development of all sizes 2) The stormwater peak discharge
				regulations are based on the 2-year fand 10-year design storms
1				The 10-year design storm aligns with the requirement for sizing
				storm drain pipes and channels. So, the peak discharge
1				requirement is designed so that the downstream stormwater
1				conveyance systems will continue to have canacity Floodplain
				regulations are based around the 100-year storm and when flood
1				studies are conducted they must be based on future conditions
1				(huild-out zoning) This helps to ensure that development will not
				occur in the floodplain.

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Overall		Hunter Freeman (McAdams)	there's a lot here, and I tried to get through everything. I am happy to discuss this with Staff anytime, just	Thank you.
Overall		Jacob Dorman (on behalf of Contech)	I'm submitting comments on behalf of Contech Engineered Solutions. We greatly appreciate the opportunity to be involved in the Manual update process. Thanks in advance for your consideration.	THank you.
Overall		Karen Rindge (Designer)	Given Raleigh's sustainability goals in the UDO, Comprehensive Plan and Sustainability Plan, given the increased pressures from new development (that comes with our city's growth), and given our dependence on surface drinking water supplies, Raleigh's (and North Carolina's) stormwater regulations should be tougher and more forward looking. If we are going to have denser development, we must have better and more environmentally sustainable stormwater control measures, specifically Green Stormwater Infrastructure. We should incentivize developers to incorporate GSI into new development. We should reduce the amount of impervious surface allowed in R 6 and R 10 before requiring the use of SCMs like GSI. We should make rain gardens cheaper to build so more people will install them. In addition, the City should ensure that all its rain gardens are properly planted with effective native plants. Some of our rain gardens (like at Union Station) are almost devoid of plants. Please train staff to understand native plants and rain gardens!	The % impervious allowed in UDO Section 9.2.2.A.4 is not being changed with this update. We recommend that proposals to reduce the % impervious allowed be taken to Planning Commission or City Council. / In terms of incentivizing GSI, Raleigh Stormwater is working on several projects outside of the Design Manual process. In the 11/28/23 meeting of Council Growth and Natural Resources Committee, the Council members directed staff to work on two presented ideas related to incentivizing GSI: (a) develop reiumbursement tables and work with upcoming projects to utilize UDO Section 8.6.5., which authorizes the City to reiumburse private developers for GSI. (b) work with cross-department teams to determine how the City could allow developers to meet regulatory requirements through constructing GSI in ROWs. / In terms of plantings, (a) in section 6.3.5 of this Design Manual, invasive plants have been prohibited in SCMs. This is a more enforceable path than requiring native plants. See the 11/28/23 GNR Committee meeting for a discussion around requiring native plants in general. (b) We are aware that there some City GSI practices outside of Parks that have not been ideally maintained. Raleigh Stormwater is collaborating with PRCR to develop a SCM/GSI maintenance team that will maintain GSI
Overall		Karen Rindge (Designer)	Thanks to our stormwater staff for all your hard work and caring!	Thank you.
Overall		Keri Hamlin (Citizen)	Language needs more uniformly and clearly defined standards for the physical application of of silt fencing and other pre and post construction runoff mitigation tactics used to protect adjoining property owners from damage to their property. Should be language which addresses that flood mitigation tactics need to evolve with the grading and excavation process and be held to more clearly defined standards unique to each phase.	Requirements for erosion and sediment control can be found in UDO Section 9.4, in Design Manual Chapter 8, in the NCDEQ Erosion and Sediment Control Planning and Design Manual, and in the CIty's Standard Details. The NCDEQ Manual and the Standard Details contain very detailed instructions for silt fence and other practicies
Overall		Peyote (West Raleigh CAC	We discussed the design manual as a group and the consensus among our members is that Raleigh should adopt stricter controls for stormwater runoff than proposed in the draft design manual. We believe controlling for 25 year storms should be the minimum for development.	The stormwater peak discharge regulations are based on the 2- year fand 10-year design storms. The 10-year design storm aligns with the requirement for sizing storm drain pipes and channels. So, the peak discharge requirement is designed so that the downstream stormwater conveyance systems will continue to have capacity. Floodplain regulations are based around the 100- year storm, and when flood studies are conducted they must be based on future conditions (build-out zoning). This helps to ensure that development will not occur in the floodplain.
Overall		Peyote (West Raleigh CAC	We also wondered why the stormwater Control Measures use the 2 - 10 -25 - 50 years storm as their benchmarks. We feel it's easier to understand if you referred to storm intensity by number of inches of rain per hour. Is there a reason we use the current system?	Thank you for this comment. This has been standard practice for engineering criteria for some time, but it doesn't mean that it is the only way to do things! In some cases it is beneficial to refer to the storm frequency (2-year, etc) because different calculation methodogies require different inputs. For example, the two most commonly used methods use different inputs: Rational Method uses peak intensity in in/hr but the NRCS method uses total rainfall duirng the storm in inches. Also, there is some variability in historic rainfall data across the City, but this could be considered
Overall		Suzanne Harris (Home Builders Association)	Overall there are missing references, and multiple typos throughout the document.	Noted. We will continue to improve the document's format and editing.
Overall		Travis Tyboroski (JAECO)	Consolidation of the "small" and "large" development, as well as the removal of the "designer's letter" will streamline the process for smaller developments.	Thank you.

Chapter/Overall	Section/Topic	Commentor(s)	Comment/Question	Comment Response 11/27/2023-12/06/2023
Overall		Travis Tyboroski (JAECO)	Additional flexibility allowed with the elimination of the GLDA grading and retaining wall setbacks will	Thank you.
			again allow for a more streamlined process; less design adjustments.	
Overall		Travis Tyboroski (JAECO)	Well organized, clear, and concise. While we don't necessarily agree with every point, and we think the	Thank you. We understand your overall concern and strive to
			private/public scoping delineation needs to shift (more "engineering judgement" should be allowed on	balance interests.
			private side), it is clear the City had a goal to improve runoff quality and the manual is trending in that	
			direction. Sincerely appreciate the opportunity to offer input at each step in the process and look	
			forward to discussing in person.	
Overall		Vinicius Taguchi (Designer)	Great improvements over version 2	Thank you.