

## Comments From TBBA

### **Chapter 3, 3-1, 1<sup>st</sup> paragraph**

The requirement of a Master Stormwater Management Plan (MSMP) for phased developments should not be required. Due to highly variable housing and development markets, it is rare a MSMP remains consistent throughout the life of a development. While convenient for developments that do not change, requiring this on phased developments when future land uses and layouts are unknown cause an undo burden on the developer due to the time and costs associated with producing a product that will change. The requirement should be optional and if part of a phased development, the project submitted must stand on it's own with regards to the requirements of the technical manual.

#### ***Response***

*This requirement is needed in order to insure that the phases are linked to an overall stormwater management plan and so that the accumulative effect does not negatively impact downstream properties. Special exceptions to this requirement can be evaluated on a case by case basis.*

### **3.1**

Cannot find "volume" anywhere in this section. It doesn't appear to have been added.

#### ***Response***

*Agreed. "Volume" was removed from the draft but not from the summary of changes. It has been eliminated from the draft.*

### **3.1**

The term "hydroperiod" should be eliminated since regulation of this highly subjective hydrologic wetland function is regulated by SWFWMD

#### ***Response***

*This criteria mirrors criteria from the SWFWMD and is needed by County reviewers in order to evaluate potential impacts to offsite properties.*

### **3.2**

A, B, C & D clarification of cumulative alteration area? Is this - New impervious? Anything disturbed? Net impervious? Site area? Wording is unclear.

#### ***Response***

*This criteria refers to changes in surfaces from pervious to impervious.*

### **4.1.B.**

The wording in this entire paragraph is vague. For example, "special documnetation requirements for projects may be required due to differences in their complexity..." What kind of documentation for what differences in a project? Who determines when a project requires special documentation and at what point in the process; during the pre-app meeting, after a Preliminary submittal, after a Construction Plan submittal?

**Response**

*Typically, this would occur after the initial submittal.*

**4.1.D.1.**

The statement in the last sentence, "Off-site runoff can not be ..... Increased...." should be stricken or reworded. If the engineer designs a system to allow increased runoff rates to enter a development to alleviate upstream flooding and is able to not increase downstream peak discharges, this section of the code would not allow this to occur. In addition, if the downstream receiving watershed has the capacity to receive the increase in discharge, i.e., the gulf, this section of the code would not allow this to occur.

**Response**

*Agreed, this sentence will be removed from the draft.*

**4.1.D.1 & 4.1.D.2.a**

Added that pond maintenance berms are not considered part of required five-foot horizontal setback from any sidewalk, normal pedestrian area, slab or grade type patio, vehicle driving or parking area or leisure activity area. This will create a 25-foot maintenance berm, which seems unnecessary. The minimum 5ft setback to property line will have an impact on pond designs. Previously allowed to match existing grade at property line but now it has to be at 5ft off property line? Not clear about the sidewalk location and maintenance berm setback. Need a clarification if the 20' maintenance berm is needed when abutting the right of way. The idea of the maintenance berm is to provide access to the pond and it can be provided with the right of way.

**Response**

*This criteria is intended for elevation ponds. The 5' setback from the toe is needed so that the embankment does not terminate at the property line. Also, the 5' provides a minimal area for remedial improvements should adjacent properties be impacted by runoff from the slope or by negative ground water impacts. If the pond is to be located adjacent to a ROW than utilizing the ROW for the maintenance berm will be considered on a case by case basis as a design exception.*

**4.1.D.2a.**

The maximum slope with the setback area is limited to 1:8 slope. What if the natural slope is greater? Requiring a setback area to 1:8 will require a greater setback to be set aside.

**Response**

*Agreed, Will add language for an exception when the natural slope is greater than 1:8.*

**4.1.D.2.a.**

5 ft setback requirement reduces usable development area on property - s ft differential implies about 11 ft of "setback" plus berm slope before the top of bank - 5 [ft@1.8](#) - .625': 1.375 @ 1:4 - 5.5 ft = 10.5 ft total

**Response**

See response to 4.1.D.1 & 4.1.D.2.a

**4.1.D.2.b.**

It is unclear what “functional grading” means. This should be clearly defined.

**Response**

*The STM actually states that “Depressions less than or equal to two (2) feet shall be considered a **function of grading**.” In other words pond criteria would not apply.*

**4.1.D.2.c.**

The wording excludes the right to construct a roadside swale side slope steeper than 1:4 unless a fence is constructed, which in almost all instances not allowed within public right-of-way. Many existing ditches are steeper than 1:4 and the development may be required to make improvements within existing right-of-way which will require slopes steeper than 1:4. Slopes steeper should be allowed provided the depth is limited.

**Response**

*Consideration will be given for a design exception for existing ditches when justified by conditions.*

**4.1D.2.d.**

Fence (full FDOT spec) required **before** a hole greater than 2ft deep with sideslopes steeper than 1:4 is excavated? Unclear regarding the depth of pond required before need to fence during ongoing or complete excavation.

**Response**

*Any excavation greater than 2’ deep with side slopes steeper than 1:4 should be fenced.*

**4.1.E.1. & 4.1E.2.**

We would suggest the “stormwater Management Program Red Line Properties” map/listing to be made available on-line for ease of distribution.

We would suggest the Special requirements for Designated Drainage Basins be made available on-line for ease of distribution.

**Response**

*Currently, Red Line Properties consist of areas designated as being either peak or volume sensitive and can be found at the County’s web site. For a link to the site contact the PGMD. As they become identified, in the future other areas may be included as would areas with special requirements.*

#### **4.1.E.4.a**

Requiring an equal volume of compensation to the volume of encroachment is not always achievable for certain properties and does not allow the engineer to design a system that does not adversely affect adjacent, upstream, and downstream properties. This is especially true for properties within the coastal areas and are subjected to coast storm surge elevations. Any encroachments will have no affect on the storm surge elevation and should not be considered. Such properties should be evaluated on the localized effects of a 100-year 24-hour storm event under pre- and post-development conditions. If the engineer can show that there is no adverse rise in flood stages upstream, adjacent and downstream of the proposed development, then no compensating volume shall be required. Providing a “cup for cup” methodology is just one method of ensuring the public of no adverse affect. It should be left up to the engineer to determine what’s the best method of ensuring the County of no adverse rise of flood stage. Please note the Technical Manual alludes to this methodology on page 4-15, Section 4.1.P.1.c.a.

#### **Response**

*We will add a reference to the exception found in 4.1.P.1.c.1.*

#### **4.1.F.**

Eliminate. Taken literally, one would never develop a piece of property. In addition, this has nothing to due with a Technical Manual which is the purpose of this document.

#### **Response**

*The purpose for this criteria is that “Drainage Patterns Not To Be Changed To The **Detriment** of Neighboring Properties.”*

#### **4.1.H.**

Is a Stormwater Management Plan required to show how to address drainage during construction?

#### **Response**

*Yes, if needed to comply.*

#### **4.1.K.6.**

The term “blue print” is outdated. That technology has largely been replaced.

#### **Response**

*Agreed, “blue print” will be replaced with “hard copies”.*

#### **4.1.K.8.**

Does the video requirement apply if there are no Offsite improvements?

#### **Response**

*Yes, see page 4-22, 4.2.A.3.c.*

**4.1.O.1.c.**

Per the attached memorandum dated 6/6/06 memorandum from Scott Cotrell to Bob Campbell, Item #1 (referencing 5.2.D.13 of current STM), a minimum maintenance berm of 15' is allowed when there are compelling and unusual reasons, such as preventable wetland encroachments and the removal of significant specimen trees.

**Response**

*Yes, this is a design exception that was delegated to the PGMD.*

**4.1.O.1.2.**

Per the attached memorandum dated 6/6/06 memorandum from Scott Cotrell to Bob Campbell, Item #3 (referencing 5.1.D.3 of current STM), a maintenance berm of 20' is allowed on one side when maintenance can be performed from one side of the maintenance.

**Response**

*Yes, this is a design exception that was delegated to the PGMD.*

**4.1.O.1.3**

Per the attached memorandum dated 6/6/06 memorandum from Scott Cotrell to Bob Campbell, Item #1 (referencing 5.2.D.13 of current STM), a minimum maintenance berm of 15' is allowed when there are compelling and unusual reasons, such as preventable wetland encroachments and the removal of significant specimen trees.

**Response**

*Yes, this is a design exception that was delegated to the PGMD.*

**4.1.P.1.a**

Shouldn't the code allow "approved studies" in areas where a study has been approved but not necessarily by FEMA?

**Response**

*Allowed, when approved by County staff. The FEMA have already approved the County's SWMMPs.*

**4.1.P.1.c.2.**

Section 4.1.P.1.c.1 allows modeling and/or a combination of modeling and excavation of compensating floodplain yet Section 4.1.P.1.c.2 disallows the use of modeling and strictly requires a "cup for cup" compensation.

**Response**

*We will add a reference to the exception found in 4.1.P.1.c.1.*

**4.1.P.1.e.**

With the "New" floodway designations on the proposed maps equaling the floodplain limits, this requirement is very restrictive even when crossing a stream or channel.

**Response**

*This is a FEMA requirement.*

**4.1.R.**

This provision limits vaults severely. Many commercial, proven, off the shelf products will not meet the 4 ft vertical clearance at all points inside.

**Response**

*Alternatives will be considered on a case-by-case basis.*

**4.1.S.f.**

Totally unclear of the objective. Needs to be reworded.

**Response**

*This criteria requires freeboard to be contained on the site but allows some temporary flooding, up to .5', within the parking lot. Will add language to require freeboard to be contained on the site in order to clarify.*

**4.2.A.1.c.**

We believe the word "currency" should be "accuracy".

**Response**

*"Currency" is intended in order to confirm that the most current data is being utilized.*

**4.2.A.1.d.**

Depiction of flow paths is really only necessary for Pre-development conditions and usually not required of Post-development conditions. The exception would be where the design engineer determines the post-development time of concentration to be in excess of 15 minutes.

**Response**

*Flow paths may be requested if it is unclear to the reviewer.*

**4.2.A.1.h.**

What is the need of horizontal control for developer constructed projects? This is really only necessary from a public works project.

**Response**

*Horizontal controls are needed to insure that facilities are correctly located.*

**4.2.A.1.I.1**

Since all drainage documents are submitted signed and sealed by the EOR, why go out of the way to state the C or CN values have to be signed and sealed by the EOR in this paragraph? Redundant.

**Response**

*This section refers to master plans, it is important that these values be designed by a P.E. to confirm that the MP is being accurately designed and followed.*

#### **4.2.A.1.I.2**

If a Master Stormwater Management Plan Map is submitted as part of a phased project, there is no reason this could not be reviewed concurrently with a phase of the development. Why have a separate review?

#### **Response**

*Please note the last sentence, which allows concurrent submittals.*

#### **4.2A.1.I.3**

Again, it would be rare that a Master Stormwater Management Plan Map **not** change within a phased development. Therefore, why have a separate review? This is a waste of man-hours since a Master Stormwater Management Plan is conceptual by nature whereas the submitted construction plans represent the final design for construction.

#### **Response**

*This criteria is needed in order to expedite the review. All pertinent information should be readily available for the reviewer to insure a timely review.*

#### **4.2.A.1.I.4**

This entire paragraph is redundant and should be eliminated. The EOR has certified by their signature and seal.

#### **Response**

*This criteria seeks to insure that the design recognizes and follows the master plan.*

#### **4.2.A.2.a.**

Seepage calculations should be separated into two categories; retention ponds and detention ponds. Retention ponds may need to provide seepage analysis for storms up to and including the 100-year storm. Detention ponds should be adequate to provide seepage analysis for the 10-year storm.

#### **Response**

*This criteria is for "ponds located above adjacent properties". Since the pond should be designed to contain the 100 year storm, then its potential for adverse impacts should be evaluated. It should be noted that exceptions are allowed under certain circumstances.*

#### **4.2.A.2.a.**

The sentence "A build-out groundwater table analysis for ponds located above adjacent properties shall be required" is vague and needs to be refined. This should be required only when such a pond is immediately adjacent to an off-site property that could be potentially affected. Upstream detention ponds not adjacent should not be subject to such an analysis since the movement of groundwater is very slow and any tangential affect would be negligible at best.

### **Response**

*The criteria recognizes an exception when the pond is “adjacent to an open conveyance system or sufficiently far from other private properties”. Suggest adding “when the DHW is predicted to be above the elevation of...” as found in other parts of the manual for clarification.*

### **4.2.A.2.a.**

A soils report does not have to be included within a Stormwater Management System Design Report since the stormwater EOR may not be qualified to sign and seal the geotechnical report. The geotechnical report must be submitted as an attachment, and be signed and sealed by the responsible engineer.

### **Response**

*Agreed, will modify language.*

### **5.1.c.2.a**

Allowable discharge for 25 year 24hr post is 5 year 24 hour pre.

### **Response**

*Correct, small site criteria is more restrictive in that the site is usually located in an urban setting where the downstream conveyance system often consists of curb and gutter and/or a more limited conveyance system.*

### **5.1.C.2.b.1.b&c**

Allowable discharge for 25 year 24hr post is 5 year 24 hour pre.

### **Response**

*Correct, small site criteria is more restrictive in that the site is usually located in an urban setting where the downstream conveyance system often consists of curb and gutter and/or a more limited conveyance system.*

### **5.1.C.2b.2.b&c**

100 post development runoff stored and drawn down in 72 hours is difficult to obtain.

### **Response**

*This criteria actually requires storage of the difference in the pre and post 100 year events and is intended for areas designed without a positive outfall. Volume recover is needed in order to prepare for the next storm.*

### **5.1.C.2.b.3**

Store delta 100 year Allowable discharge is 5 year 24 hour pre.

### **Response**

*This criteria is for volume sensitive areas.*

### **5.1.C.5..**

Max discharge allowable under what conditions?

### **Response**

*During the design storm.*

#### **5.1.C.7.a**

A seepage analysis should only be required if the Normal Water elevation, rather than the Design High Water Elevation, is above the existing grade and adjacent to another property, due to the short duration of the Design High Water.

#### **Response**

*During periods of prolonged rainfall the WSE may remain higher than the NWE for extended periods of time, which would be higher than the basis of the analysis. The more prudent approach is to require consideration of the DHW in the analysis.*

#### **5.1.C.8.h.**

A seepage analysis should only be required when the proposed percolation pond is immediately adjacent to another property. If the pond is in the center of a project and not adjacent to another property, why require the analysis? (See item #7 of the attached memorandum from Scott Cotrell to Bob Campbell dated 6/6/06.)

#### **Response**

*Agreed, language will be added to this section to allow a design exception as outlined in the aforementioned memorandum.*

#### **Table 6.1**

For the reference to Section 9.2.G.3 along with the “\*\*\*” notes at the end of the table, the language should be consistent or the same in both locations.

#### **Response**

*While both requirements are the same in both statements, we will revise the language in 9.2.G.3 to be the same as what is found in Table 6-1.*

#### **Table 6.1**

Stormwater collection systems for local/collector roadway revised to 10 year. Local roadways should be adequate for the 3-yr storm.

#### **Response**

*This revision is needed to insure that the sizes of the culverts do not control the spread of flow in the curb and gutter.*

#### **6.1.c.**

Changed County Engineer to County Administrator - Who is this? Not the project review? How difficult will it be to get a response from a County Administrator? How will it be officially 'submitted' by the EOR in order to verify that the Administrator has given approval?

#### **Response**

*Refer to the Preface of the manual, which states... "References to the County Administrator includes his designee which, in this manual, pertains primarily to the Planning and Growth Management Department (PGMD)."*

**6.1.C.2.c.**

The changes to the positive outfall capacity “which have been demonstrated through calculations” can be anything the reviewer wants to ask for. A clear definition is needed here.

**Response**

*Agreed, will revise to the previous requirement.*

**6.1.C.3.d.**

Large Sites Peak Sensitive. Why limit any sized site to 1cfs? Allow a rate per acre or a rate per pre dev CN time Area.

**Response**

*Agreed, will remove option “d.” from the criteria.*

**6.1.C.3.d.**

Changes minimum to maximum. Does not differentiate between different criteria. Looks as if all new developments in Peak Sensitive areas could be limited to discharging a maximum of 1 cfs.

**Response**

*Criteria removed.*

**6.1.C.4.a.2a and b**

Percolation is an unreasonable as a recovery method for delta 100 volume - drainage of excess at 10 year pre is ok. Recovery of 100 year volume at 1”/day is OK. Implies about 10 days for full volume recovery.

**Response**

*If the site in question is unable to recover by percolation within 72 hours, then option “b” may apply.*

**6.1D.2.**

Remove this reference since all of the language refers to compliance with Section 6.1.C which is stated above in 6.1.D.1

**Response**

*6.1.D.1 refers to the requirement elsewhere. Needed for clarity within this section.*

**6.1.D.5.**

A seepage analysis should only be required if the Normal Water elevation, rather than the Design High Water Elevation, is above the existing grade and adjacent to another property, due to the short duration of the Design High Water.

**Response**

*The PGMD can allow a design exception when conditions apply.*

**6.1.D.5.**

Remove the last sentence of this paragraph. If the geotechnical engineer provides the certification, this sentence implies the County reviewer may reject this analysis which also implies said County reviewer is a registered engineer that is licensed, qualified and trained in this field of practice to dispute the recommendations. Does the County have a qualified registered engineer as part of the review process on staff?

**Response**

*This requirement provides an avenue to request back-up supporting data when it has not been submitted with the certification from the geotechnical engineer.*

**6.1.D.7.**

First sentence; the term “store entirely” is taken out of context since the purpose of the detention pond is to “route” excess stormwater runoff into a detention basin. This terminology implies the entire runoff is stored within the pond prior to any routing or discharges. In addition, there may other stormwater management features the design engineer may want to implement outside of a detention pond, i.e., wetlands, floodplains, open channels, etc., to achieve the required discharge criteria in lieu of requiring a detention pond solely.

**Response**

*The beginning of the sentence will be modified to state “The detained or retained storage volume required for the...”.*

**6.1.D.7.**

Most hydrodynamic stormwater models inherently consider the volumetric capacity with open channel conveyance systems. It should be noted this capacity is usually minor for most developments in Hillsborough County and is noted to be negligible.

**Response**

*The requirement that volumetric capacity in ditches not be included in the routing analysis will be removed.*

**6.1.D.10.**

What is the definition of a residential commercial development?

**Response**

*Apartments, townhomes and condominiums.*

**6.1.D.11.**

Should include the limitation of 1:2 sideslopes 10 feet below normal water level.

**Response**

*Agreed, will add similar language found in 6.1.D.10.*

**6.1.D.13**

While improvements to the language in this section have been made, the 5<sup>th</sup> sentence again negates the 4<sup>th</sup> sentence. Suggested language: “Where adjacent to lot development or right-of-way, the maintenance berm shall slope or drain towards the inside top of bank at a slope not to exceed 1:20.”

**Response**

*The fourth sentence will be eliminated.*

**6.1.D.17.**

The wording is unclear with regards to where vertical walled ponds are allowed. Define residential commercial and commercial residential.

**Response**

*“Residential commercial will be removed from the text.*

**6.1.D.17.**

Do all stem walls need to be certified? Does this have to be done prior to issuance of a permit?

**Response**

*Stem walls are not covered by the Stormwater Technical Manual. Please reference the Hillsborough County Construction Code.*

**6.1.D.10-20**

Need to clarify, differentiate or define “berm”, “maintenance area”, maintenance berm” and corridor. It seems these terms are being used synonymously.

**Response**

*They are synonymous.*

**6.1.D.25.**

Why would certain site strippings and grubblings not be allowed to be buried with detention ponds if properly mixed with structural soils and properly compacted? For example, the littoral zone would greatly benefit organics derived from site strippings and grubbing.

**Response**

*The suitability of organic matter proposed to be buried within a littoral zone may be considered by the County or a case by case basis.*

**6.1.E.2.c.**

The use of a bleed-down device having less than 3” inch diameter should not require approval of the County Engineer, as bleed-down devices are commonly designed with less than 3 inch dimensions in order to comply with SWFWMD Regulations for minimum treatment bleed-down times. The intent of the comment may be that “attenuation credit cannot be taken below the top of treatment elevation unless the bleed-down device is at least 3 inches or greater (as outlined in 6.1.E.2.d.2.a)

**Response**

*Agreed. The text will be modified to specify “for purposes of attenuation”.*

#### **6.1.D.7. & 6.1.D.16**

This appears to be an incorrect reference. Information found in 6.1. Cannot find a 6.2.

#### **Response**

*Correct, this was a typo.*

#### **7.3.B. & 7.3.B.1.**

Are the Plan Requirements for a building Plot Plan? If so, state as such. The information required under this section is not applicable to site development plans in which the parameters of the overall neighborhood grading plan is developed. This appears to be geared towards the individual plot plans submitted for building permitting. Please clarify.

Lot Grading Plans. Requirements on lot grading plan: Legal description, show all impervious areas (D/W, A/C pads, pools, etc.), add notes for Drainage easements, etc, will be difficult to fit on normal “Paving, Grading Drainage Sheets”. All of the information is normally included on several different sheets throughout the construction plan set.

#### **Response**

*This criteria is intended for the standard lot grading plan. Agree to remove “l”, as not needed.*

#### **7.5.A.1.**

Standing water in swales near ponds may have standing water more than 48 hours if the treatment volume is shallow and the attenuation volume is also shallow.

#### **Response**

*Agree to remove last sentence.*

#### **Table 8-1**

For the Corrugated metal pipe, the left side of the table should be indented for clarity.

#### **Response**

*Will do.*

#### **8.3.A.1-3**

Since inlet and outlet control is covered in FDOT Drainage Manual as noted, remove the Inlet and Outlet Control design procedure.

#### **Response**

*Will consider removing, along with other design aids.*

#### **10.1.A.5**

When can we have this detail electronically? Is it already available? If so, where?

**Response**

*When the manual is finalized, the drawing can be copied from the manual.*

**10.1.A.5**

Why have the underdrain centered 24-inches from the back of curb when for the past 15 plus years, the underdrain has been installed 18-inches, centered behind the back of curb?

**Response**

*The intent of the manual has always been to have 18" of separation between the outside edge of the curb and the outside edge of the underdrain envelope. This revision only better defines what had been previously misinterpreted.*

**12.10.A.2.**

Spread Flow Calculations are not required for inlets spread less than 300 ft. Does this apply to public and private roads? Does this also apply to runoff leaving a private road onto a public road?

**Response**

*Yes and Yes.*

**10.1C.2.**

Why does UD pipe have to be stepped up a size after 500 ft? Flows are usually very low.

**Response**

*Underdrains should be designed to flow less than full to allow infiltration. Runs greater than 500' have a high probability of flowing full, which could reduce adequate infiltration.*

**11.1.C.2 & C.3.**

Why is there no storage credit - could be a linear pond? In C.3 No Ditch blocks! DOT uses them all the time.

**Response**

*Then it should be designed as a linear pond. Roadside ditches are reserved as a last resort for County roadway projects, thus the exemption. New development should provide new areas for treatment and attenuation.*

**Table 12.1**

There are as many caveats as there are categories. Would it be clearer to add the caveats as columns, making the table clear to the designer and reviewer? In addition, this table in comparison to 10.1.A.4.C on page 10-1 adds to the confusion since there are numerous references to low edge of pavement, base, etc.

**Response**

*The caveats address particular conditions and would not be suitable for the chart. For consistency 10.1.A.4.C. will be changed from the low edge of pavement to the bottom of the roadway base coarse.*

#### **12.10**

Spread of Flow. Clarification if County will allow spread of flow to overtop the back of curb if it meets the crown of roadway.

#### **Response**

*Dependent on curb type and the conditions along the back of curb. Should be determined by the reviewer.*

#### **13.1.A.2.**

What is the purpose of this paragraph and how is it to be implemented and by what standard? Are there standards to meet? Specific criteria? What is the measurement to which one would approve the site configuration?

#### **Response**

*Agreed, will remove.*

#### **13.1.B.3.**

2<sup>nd</sup> sentence - "thirty" should be changed to "seven"

#### **Response**

*Agreed.*

#### **Appendix A, A.3.A**

Why is the Kinematic Wave the only recommended method of calculating time of concentration for overland flow? It is limited to 300 feet. Recent research indicates (TR-55) that overland flow is restricted to 100 feet before channel flow occurs. In addition, the section of the FDOT Drainage manual referenced also recommends Overland Flow Velocity as an acceptable method of computing time of concentration.

#### **Response**

*The Kinematic Wave is the prescribed method in the TR-55 Manual (version-1986) if there is a more current version, please advise.*

#### **Appendix B, B.1.A thru B.1.C.**

Eliminate this step by step procedure. This is irrelevant with the advent of computer programs which accommodate all of the scenarios advocated by the method described.

#### **Response**

*This appendix contains "Recommended Design Procedures", not requirements. It may be useful to some designers.*

#### **Appendix B, B.2.B thru B.2.E.**

Remove for most engineers compute the storm collection system electronically.

**Response**

*This appendix contains "Recommended Design Procedures", not requirements. It may be useful to some designers.*

**Appendix B, B.3**

Is this Section recommended or required? Is this applicable to individual lot plot plans or large developments? The main subject title is "recommendations" while the subtext uses language such as "minimum", "maximum", etc. Please explain the purpose of this section.

**Response**

*This appendix contains "Recommended Design Procedures". The minimums and maximums generally related to criteria found elsewhere in the manual.*

## Comments from Brooks and Amaden

### 1.2.4

We believe there is a conflict between several of the provisions within this manual and the objective stated herein of providing a cost-effective stormwater management system design. Some of the provisions contained within this manual do not appreciably increase protections to public safety and welfare, yet do significantly increase the cost of construction of the stormwater management system. Examples of particular sections illustrating this are provided below.

#### Response

*The stated intent to provide a cost- effective stormwater management system is one among many of the objectives that were considered in the development of the manual.*

### 1.4.B

Section specifies that the Site Designer is responsible for determining and proposing a 100-year flood elevation, yet does not provide for whom will be responsible for determining it's acceptability, nor a time frame for that determination. How will differences between Site Designers computed flood elevations and those proposed by the County be resolved? Who will be the ultimate decider? What time frames are set out for resolution?

#### Response

*This section states that the site designer is to propose a 100 year flood elevation. The County, as the agent for the FEMA, will review the proposed elevation and respond within the normal review period.*

### 1.4.F

Can the County responsibility for clearing and maintaining ditches to protect the public right-of-way from flooding be extrapolated to assure Site Designers that manning's 'n' values for said ditches will be maintained at a reasonable 0.035, and thus utilize that value for computing design flood stages?

#### Response

*The County's ditch maintenance program is intended to remove shoaling, growth and debris to the extent necessary to protect public roadways, not to facilitate new development.*

### Chapter 3

The requirement of a Master Stormwater Management Plan for phased developments, for a developers contiguous land holdings places an undo burden upon the Developer considering the variable nature of the housing and development markets. Contiguous land holdings may be substantial in regards to the

initially proposed phase. Requirement should be optional. If required, and/or prepared and accepted by the County, should also “lock in” the regulations in effect at the time in the same manner a conceptual permit with the Water Management District “locks in” current regulations. i.e. future development would be subject to those regulations alone, no additional constraints placed.

**Response**

*Agree, will add appropriate language that allow the overall master plan for the phases to be locked-in provided that the entire system is constructed according to the plan submitted prior to the first phase of development.*

**3.1**

Hydroperiod appears to be used out of context and is not defined. Hydroperiod is a subjective term which is regularly utilized to describe a property associated with wetlands. The Southwest Florida Water Management District and the Hillsborough County Environmental Protection Agency both are well involved in the regulation of wetlands. The inclusion of this term appears to suggest that public works (and or PGMD) are also going to apply some controls on wetland function. Additionally, no other information throughout the manual speaks to the maintenance of hydroperiod.

**Response**

*This criteria mirrors SWFWM criteria and is needed to evaluate potential impacts to off-site properties.*

**4.1.A.3**

Site Designers do not dictate means and methods to site contractors. Provisions included in the site development construction plans are the initial controls for erosion and sedimentation only. The contractor is responsible for controlling the same during construction and until sufficient vegetated cover exists. This wording is also in direct conflict with 13.1.B.1 which states that the construction plans must specify that the contractor is responsible for successfully controlling erosion and sediment runoff.

**Response**

*There is no conflict between this criteria and 13.1.B.1. This criteria refers to notes concerning erosion and sediment control that should be included in the construction plans.*

**4.1.D.1**

The specifics of this section appear to imply that side slopes of filled areas will not be allowed to drain off site according to natural patterns, even when the existing condition drained to that off-site location. This would appear to preclude anything but Type

A grading on exterior lots, which would also then require rear yard swales, and all the associated rules which accompany those. This is a good example of a regulation which does not provide any benefit to public safety and welfare, but significantly increases the cost of development while effectively reducing the potential yield of the property. Pond and yard and property side slopes should be allowed to drain off-site, provided existing conditions flows in those directions are not exceeded.

### **Response**

*This criteria actually states that “runoff drains in a manner no worse than that which occurred during the predevelopment condition...”*

Additionally, there are circumstances where increasing off-site discharges (or allowing increased off-site discharges) would actually be beneficial to those upstream properties. If those circumstances can be achieved by demonstrating no adverse impact, why restrict the practice?

*If this is the proven case and if it can be demonstrated that there will be no adverse impacts, a design exception should be quickly approved .*

- 4.1.D.2.a** This modification effectively increases the inside top of bank dimension from the property line to a minimum of 25'. This change will effectively reduce the potential yield from development properties, increasing the per-unit cost for development while not providing additional benefits to public safety and welfare. What is the deficiency of a 20' maintenance berm from the property line to the inside top of bank? Are there particular concerns the County is attempting to remedy?

### **Response**

*This criteria only applies to elevated ponds. The 5' setback is needed so that the toe is not on the property line. If the elevated embankment blocks or increases flow, then there is at least 5' into which to construct a swale or underdrain.*

Are maximum proposed slopes intended to be regardless of existing slopes? There are numerous existing areas where slopes exceed the maximums noted in the manual.

*This refers to constructed slopes, not slopes that are the result of a natural condition.*

**4.1.D.2.c** A large majority of existing County Roadways do not meet the current Transportation standards of Hillsborough County and especially do not contain sufficient right-of-way to accommodate the side slope requirements contained in this section. Other regulations can also require the developer to make improvements within County ROW which will also exacerbate this problem. Steeper side slopes, with adequate public safety protections, should be allowed when circumstances dictate the constraints.

**Response**

*This criteria is intended for new construction. If steeper sides slopes with “adequate public safety protections” can be demonstrated, then it can be requested through a design exception.*

**4.1.E.1** Please provide an on-line source for the “Stormwater Management Program Red Line Properties”

**Response**

*The listing will be posted once it is developed.*

**4.1.E.2** Please provide an on-line source for the “special stormwater management requirement basins”

**Response**

*Currently includes only peak and volume sensitive areas.*

**4.1.E.4** The wording of this section appears to imply that there will continue to be two sets of floodplain maps to refer to from here to eternity. The current system of two sets of floodplain maps leaves substantial room for confusion and contradiction between best available information during design conditions and then changes at time of review. The “current floodplain maps” are likely to be continually fluctuating. Forcing development to continually adjust their designs to a moving target seems counterproductive. Should the intent be to have two sets of data, we would suggest that the conditions which exist at the time of the preliminary plan stage be those utilized throughout design. Also, stormwater modeling, such as that referred to in 1.4.B, can be utilized to modify the “existing” floodplain.

**Response**

*Staff is working towards final acceptance of the redefined flood plain maps. We will also add the language from 4.1.P.1.C.1 that allows a timing analysis.*

End of first paragraph appears to categorically state that changes in storage capacity will always relocate a flooding

problem, when there are numerous methods for controlling said flooding, suggest rewording or removal.

*The word “will” will be changed to “may”.*

- 4.1.E.4.a-b** Restricting the manner of addressing floodplain encroachment to requiring an equivalent volume of compensation to the volume of encroachment for earthen fill and structure construction precludes the application of numerous engineering techniques for design of systems which do not adversely affect adjacent, upstream, and downstream properties and conflicts with previously established and acceptable methods. If public safety and welfare are not infringed upon, this requirement does not provide for a “cost-effective” design. An example of a federally accepted technique for construction within the floodplain/floodway is the performance of a “No-Rise Certification” which demonstrates through stormwater modeling no adverse impacts to flood stages. The Water Management Districts also accepts methods beyond the “cup for cup” methodology proposed on a case by case basis. This proposed restriction appears to severely limit the engineer’s options to address adverse impacts at the expense of the developer, with no direct influence on public safety and welfare.

**Response**

*We will add the language from 4.1.P.1.C.1 that allows a timing analysis.*

- 4.1.F** This section, as written, appears to be in direct conflict with a substantial number of the rules contained within this STM. For example, refer to discussion for Section 4.1.D.1 where proposed County rule precludes drainage from side slopes in fill areas to drain offsite.

The simple act of even performing minor grading could not be performed if this section were interpreted literally. Suggest removal of entire section.

**Response**

*The purpose of this section is to not allow changes that will adversely impact neighboring properties.*

- 4.1.K.7** Please clarify this section. Appears to indicate two separate submittals will be required. One to PGMD and one to Public Works. How should transmittals to public works be addressed? How will PGMD verify said transmittal has been completed? (Intake concerns) What forms of digital drawing files are acceptable?

What protections is the County providing to the Engineer of Record that proprietary digital information will be safeguarded? Considering that the layering/color/linetype schemes can vary widely between firms, is the County now proscribing a digital drafting standard? Does the County need all information, or can the request be limited to possibly the site grading plan?

### **Response**

*These discs can be PDF or "read only" files. They are needed by the Public Works Department in order to update the stormwater inventory. PGMD requires file copies. Discs can be delivered to the PGMD.*

#### **4.1.L.2**

Considering that the County does not own the entire length of the watercourses within its boundaries, it would seem certain that most ditches within the County carry stormwater runoff from a public right-of-way. How is the County handling this issue as it pertains to private property owners who refuse the County access to their property to inspect the watercourse? How does this apply to agricultural properties?

This section appears to assert a right of the County to dictate the handling of stormwater runoff flows on private property. If the County does assert this right, it seems logical that the County would then have the obligation to perform maintenance services on those properties to protect the same public rights-of-way from flooding. Can any property owner insist that the County provide said services to ensure that the drainage conditions on his property are at the appropriate levels which assure no flooding of the public streets in the vicinity of his property?

### **Response**

*All land alterations, including the construction of culverts, requires a permit from the County. Types of permits may include a Natural Resources and Land Alteration permit, subdivision or commercial site permit. The County only maintains drainage systems serving a public purpose, such as for the protection of County rights-of-ways.*

#### **4.1.O.2**

Taken literally, this section would appear to require a minimum right of way width of 164', without accounting for any flow capacity of a ditch for any 2 lane rural roadway within the County. (24' pavement, 50' from eop to tob both sides, 20' maint berm both sides).

When is a ditch not a ditch?

This is confusing and conflicting, some definitions are needed. Non parallel descriptions are also confusing, perhaps a typical section could be provided which visually indicates the intent of the rule.

### **Response**

*The 20' maintenance berm may be within the required minimum distance between the edge of pavement and the top of bank. The cited portion of the section actually refers to "...a proposed canal which will not be constructed parallel to an adjacent roadway..."*

**4.1.P.1.a** Please clarify. This section appears to require a Letter of Map Change submittal to FEMA by the Engineer of Record for all designs. This includes those areas which are not included on FEMA maps, or are noted as flood zone C, where no flooding exists, but the Designer must compute a 100-year floodstage.

Please be note that any changes to the 100-year flood zone which are determined by a detailed study will not be resolved by a Letter of Map Amendment submittal to FEMA, only by Map Change and can involve a lengthy process review, as the County itself has learned with its own map update program.

Submitting a Letter of Map Change should be at the discretion of the developer/property owner.

### **Response**

*The LOMC is only needed if there are proposed "changes in flood zone designation".*

**4.1.P.1.b** Please clarify. Is the County including restrictions on development within the floodplain that are in addition to those already required by FEMA? This seems to be in direct conflict with the "No-Rise Certification" already required by FEMA, as the conveyance portion of the system is being defined as the Floodway and is already regulated. Where is the information which defines the "conveyance" for all freshwater streams, channels, lakes and waterways within the County? What specific provisions is the County requiring? Who within the County will be reviewing the submittals for this requirement, and what timeframes are set out for this review?

This requirement also appears to be in addition to the previously described “Cup-for-cup requirement for storage volume.

### **Response**

*This criteria supports the FEMA “No Rise Certification” and refers to conveyance, not storage. The PGMD review team will review the submittals within the normal review period.*

- 4.1.P.1.C.1** This section appears to allow computer modeling to demonstrate timing is sufficient to handle attenuation and compensation volumes, yet insists that full recovery of required attenuation volume is required by gravity flow within 72 hours after the storm event. If we utilize the Alafia River as an example, downstream reaches of the river do not peak until 72 hours after the storm event. Does this section imply that the site designer, in addition to providing the timing analysis which demonstrates no adverse impact, must also prove that the entire attenuation volume has discharged from the control structure prior to any inflow to the pond from a flood wave?

A more realistic requirement could be to demonstrate that recovery of the attenuation volume can happen within 72 hours of the recovery of the receiving water body to a normal level. Otherwise, this appears to attempt to regulate multiple storm events in lieu of the single design storm event. Please clarify.

### **Response**

*In some areas a timing analysis that demonstrates that a storage area can achieve a dual purpose for flood plain compensation and for attenuation may not be achievable. The greatest vulnerability of the timing analysis would be if a significant storm followed a rainfall event which caused the dual attenuation/compensation storage area to be full. The requirement for a 72 hour recovery is found throughout the manual and in this case is particularly important.*

- 4.1.P.1.C.2** See previous discussions of alternative methods to strict cup-for-cup compensation. Other examples of acceptable techniques include raising the floodstage on ones own property to a level equivalent to that encroachment volume. In other words, one could “detain” on ones own property a volume of water equal to the encroachment volume and bleed it down through the pond control structure in a manner which does not increase the off-site

floodstages. This section strictly prohibits any method other than cup-for-cup.

Section contains the statement “controlled seasonal high groundwater elevations”. Does that imply that the Site Designer must place controls on groundwater elevations? Does that imply the ability to lower groundwater elevations through controls and then subsequently claim credit for compensating volume created by said control?

### **Response**

*The text will be changed to allow for a timing analysis, as found in 4.1.P.1.C.1. “controlled seasonal high groundwater elevation” refers to underdrains utilized in pond and mitigation area embankments that has the effect of lowering the SHGWT within the immediate area. In some cases this may result in a lower pond or mitigation bottom elevation.*

4.1.P.1.e Development within the regulatory floodway is currently regulated via the preparation of a “No-Rise Certification” through submittals to the Hazard Mitigation Department (Eugene Henry) which are reviewed by his staff and forwarded to Rick Cabrera within PGMD for technical review of the modeling information. As Hillsborough County currently reviews “No-Rise Certifications” and has the right to ask for FEMA review of said certifications, this section appears to be backwards in indicating that FEMA approval must be obtained prior to acceptance by Hillsborough County. Please clarify this section. What is the County intent behind this requirement?

### **Response**

*The text will be changed to remove “subsequently”.*

4.1.S.f Please explain.

### **Response**

*This allows an additional half foot of storage within an area, such as a parking lot, outside of the exfiltration system. In other words, 1/2’ foot of the required freeboard may be located in the basin (inlet) and 1/2 ‘ foot above but within the site, if there is a positive outfall.*

4.2.A.1.d Are flow paths required for proposed conditions?

**Response**

*Yes, unless it is evident.*

- 4.2.A.1.f Please provide an on-line source for highwater data. Also, what is the purpose of providing this information in the Stormwater Report, as highwater information most likely does not correspond to any particular design storm event?

**Response**

*Agreed, will remove from text.*

- 4.2.A.1.h Why is the developer required to provide horizontal controls?

**Response**

*To aid in the review and to insure that the site is constructed properly.*

- 4.2.A.1.1.1 All references to signing and sealing are unnecessary, EOR already signs and seals calculations.

**Response**

*In case there is a question and It's useful as a reminder.*

- 4.2.A.1.1.2 Why is a separate review required prior to processing project review? How will PGMD keep track of this review? (Intake problems) Couldn't the master plan be reviewed in conjunction with the plans? How would that affect the "locked in" rules.

**Response**

*This criteria is intended for revisions.*

- 4.2.A.1.1.3 Would a portion of the master plan (an outparcel) having a lower curve number than that originally projected in the master plan, require a revision? Would that same scenario be able to be utilized to increase the curve number on another parcel within the master plan? Would any of these instances inviolate the "locked in" rules?

**Response**

*If the curve number utilized in the original master plan was incorrect or if changes are proposed that will change the curve number then a revision should be submitted.*

- 4.2.A.1.1.4 Again, all references to signing and sealing are unnecessary. The EOR already certifies.

**Response**

*We believe that it is important that the EOR certify that he has followed the previously approved MP.*

- 4.2.A.2.a. Please provide an acceptable methodology for performing a build-out groundwater table analysis which demonstrates no adverse impact to down gradient properties for design storms up to and including a 100-year storm. Groundwater flows occur over time periods which are much longer than those used as “design” storm events.

The simple act of shaping the ground surface will cause a change in groundwater conditions. Other regulations concerning pond control elevations impact the phreatic surface in the vicinity of every constructed pond.

How will adverse impact be judged? What should be compared against what? Requiring a 100-year DHW to be compared to a SHW elevation is not comparing apples to apples. If the stormwater pond is designed to recover within 72 hours after the design storm event, wouldn't that design criteria provide the reasonable assurance that no adverse impact to down gradient properties would occur?

Are groundwater withdrawals still allowed?

It would be useful for the County Engineer to dictate a step by step procedure for the STM that reasonably satisfies the County request for assurance that no adverse impact to the groundwater conditions is met.

**Response**

*In some cases a groundwater mounding analysis may be necessary to demonstrate no adverse impacts to adjoining properties as a result of the project. The design engineer should review the surrounding area for features that may be adversely impacted such as septic tank systems, vaults, wetlands and low-*

*lying areas. The design engineer should select a method acceptable to the County reviewer.*

- 4.2.A.3.a Please clarify this section. Appears to indicate two separate submittals will be required. One to PGMD and one to Public Works. How should transmittals to public works be addressed? How will PGMD verify said transmittal has been completed? (Intake concerns) What forms of digital drawing files are acceptable? What protections is the County providing to the Engineer of Record that proprietary digital information will be safeguarded? Considering that the layering/color/linetype schemes can vary widely between firms, is the County now proscribing a digital drafting standard? Does the County need all information, or can the request be limited to possibly the site grading plan?

#### **Response**

*This section refers to complete sets of As-Builts, which can be submitted to the PGMD for forwarding to Public Works. The digital files can be in "read only" or PDF format.*

- 5.1.A.3 In what manner will the engineer be allowed to provide a capacity adjustment? What criteria will be used to determine if an adjustment is warranted? What criteria will be used as a basis for review? If the County has the responsibility for providing flood free roadways (Section 1.4.F), can it be logically assumed that all County roadways are operating at a flood free capacity? If so, then there should be no need for a capacity restriction in the first place.

Acceptable capacity within a peak sensitive area should be the flood free capacity of the constriction (identified by the County upon request). If the flood free capacity of the constriction is the 10-year event, the design restriction should be the 10-year event. However, how is the County keeping track of the peak/volume sensitive designs which have been implemented? After each design is implemented, the peak/volume sensitive restriction should, technically, be decreased.

#### **Response**

*This section allows for an adjustment in allowable discharge provided that the EOR can demonstrate no negative impacts to the receiving waters. In part due to development containing inadequate stormwater management systems, the County is continually upgrading the system with the goal of meeting our LOS. Our Peak*

*and Volume Sensitive maps are continually updated based on improvements.*

- 5.1.B.1.a. There is a specific need to provide a definition of what constitutes “No-Improvement” for this use. We have been requesting determinations from the Southwest Florida Water Management District (SWFWMD) as to if a permit is required for these subdivisions. Can a provision be added to this section which accepts a “No Permit Required” letter from SWFWMD as demonstrating compliance? It seems counter productive to require a drainage analysis for “No-Improvement”.

**Response**

*No –Improvement Subdivisions refers to subdivisions built without roadways or new impervious surfaces (not including homes). Since these areas are regraded and new homes create new impervious areas, some, although it minimal, analysis is needed to limit adverse impacts to off-site properties.*

- 5.1.B.2.b.1 See above, can a “No Permit Required” letter from SWFWMD be accepted as having demonstrated compliance.

**Response**

*No.*

- 5.1.B.2.b.2. What is the definition of new roadway? Do easement access, flag lots, etc trigger this provision?

**Response**

*A new roadway should meet the requirements of the Transportation Technical Manual but any new impervious surfaces my require treatment and attenuation, as determined by the PGMD reviewer.*

- 5.1.C.1.a Stormwater treatment is normally provided for the entire contributing area to a pond. Requiring a 1/2” of additional treatment for an area which is already treated seems severe. The caveat contained within the 1<sup>st</sup> paragraph does not address this issue. The caveat only applies to attenuation volume, not treatment volume. If it can be shown that treatment volume exists within the stormwater pond for the area in question, no additional treatment volume should be required. Please revise.

**Response**

*The criteria allows for the treatment volume to be included in an existing site stormwater pond where it states "...unless the cumulative alteration area was appropriately included".*

- 5.1.C.1.b. Stormwater treatment is normally provided for the entire contributing area to a pond. Requiring 1" of additional treatment for an area which is already treated seems severe. The caveat contained within the 1<sup>st</sup> paragraph does not address this issue. The caveat only applies to attenuation volume, not treatment volume. If it can be shown that treatment volume exists within the stormwater pond for the area in question, no additional treatment volume should be required. Please revise.

**Response**

*The criteria allows for the treatment volume to be included in an existing site stormwater pond where it states "...unless the cumulative alteration area was appropriately included".*

- 5.1.C.2.a. Why are small site designs held to a higher standard than large sites? Shouldn't the system capacities dictate the design criteria?

**Response**

*Small commercial sites are typically located on County ROW with limited capacity.*

- 5.1.C.2.a. The second bullet states the pre-developed conditions cannot include shell or clay which existed as of 1988, yet Section 4.1.A.4.d-f defines shell and any other material either temporary or permanent which will shed over 70% of the water falling upon it as impervious. This appears to be a conflict.

**Response**

*This bullet simply defines redevelopment sites.*

- 5.1.C.2.b Draw down within a 72 hour period should be clarified as discussed above.

**Response**

*Do not understand the reference "as discussed above".*

- 5.1.C.8 References are made only to percolation tests. Are hydraulic conductivity tests (which are indicated to be more accurate) allowed?

**Response**

*The criteria allows a DRI.*

- 5.1.C.8.h. Please refer to previous discussion on seepage analysis for concerns. Does seepage analysis equate to build out groundwater table analysis?

**Response**

*Any analysis that leads the EOR to certify that off-site properties are not adversely impacted is acceptable, contingent on the PGMD's review.*

- Table 6.1 This change to 10-year design, like others, provides an increased cost of construction in the manner of larger pipes along with larger and more frequent inlets. Where are the increased instances of roadway flooding in new developments that have necessitated this change? This appears to be another example of an increased cost of design without a significant benefit to public safety and welfare.

**Response**

*This change was made at the request of the PGMD. With the more liberal spread of flow criteria, increasing collection systems to the 10 year event is needed in order to prevent the culverts from becoming the control.*

- 6.1.C.3 Please provide an on-line source of the peak sensitive areas including the specific constrictions by which the determination of peak sensitive was made.

**Response**

*Peak sensitive requirements are unique to the specific area, depending on the critical restriction. Also, as improvements are made peak sensitive areas are redefined. The designer should inquire with the Stormwater Masterplan team of the Public Works Department.*

- 6.1.C.3.b This requirement yields several concerns. First, where will downstream flooding be checked? Is this a requirement to take modeling from development all the way to the bay and identify all flooding areas? What will be the design storm event to measure flooding by? What is the definition of downstream flooding? Secondly, can it be inferred that by following the peak sensitive design limitation of effectively reducing the discharge rate from the developed site, that the requirements of this section have been

met? Otherwise, why not just set this as the condition for design and eliminate all other requirements? It would be useful for the STM to provide a step by step procedure that satisfies the County request for assurance that downstream flooding is not worsened.

**Response**

*This criteria simply states that downstream flooding should not be worsened in terms of stage and duration as a result of the development. This could include any property.*

- 6.1.C.3.d. Please clarify. Does this section mean that if I have a 300 acre development with a pre-developed peak discharge of 300 cfs in the 25-year, 24-hour design storm event, that I am limited to a maximum allowable discharge of 1cfs from my stormwater pond? Or does it mean that if my 25-year 24-hour pre-developed peak discharge is greater than 1 cfs, I can assume at least a 1 cfs discharge from my outfall? Please reword this section.

**Response**

*Will remove this option.*

- 6.1.D.5 Please define what no adverse impacts due to potential seepage, or from induced seepage slopes are. Please define a methodology for certification. Please refer to previous discussions for seepage analysis. Does a geotechnical analysis (this section) equate to a build out groundwater table analysis (4.2.A.2.a) and to a seepage analysis (5.1.C.8.h)? Considering the County reviewer may reject the analysis, please provide a methodology for which no arbitrary criteria may be applied.

**Response**

*The definition of adverse impact can be found in the glossary. Methods must be acceptable to the reviewer.*

- 6.1.D.6 Strict interpretation of this rule will impact many designs. Under current regulations, most designs require some fill now, with backslopes down to the property line. This requirement will preclude allowing minor sheet flow to be directed along the toe of slope at the property line to a collection point. Combining this with other previous revisions suggests a 49' easement would be required for a 6" deep ditch to carry negligible offsite sheetflow (5' setback, (2)-20' maintenance berms and 4' of ditch at 4:1 sideslopes). Can there be some clarification to this requirement to allow for minor flows to be conveyed along the property line to a particular cfs limit, or minor depth of sheet flow, prior to this requirement being enforced.

**Response**

*This criteria pertains to off-site flow. In many cases, the toe of the embankment described above can be graded to prevent discharge to off-site properties. Hence the need for the 5' setback.*

- 6.1.D.7 Does this requirement mean that the detention pond must store the entire 25-year 24-hour runoff volume prior to discharge? Also, most computer models utilized for routing stormwater do take into account the volume contained in ditches/swales if they are included in said model.

**Response**

*The text will be modified to state that the “retained storage volume required for the 25 year/24year...”. The requirement that volumetric capacity in ditches not be included in the routing analysis will also be removed.*

- 6.1.D.12 If a clay layer, or other physical constraint exists which would preclude the pond from being excavated to this 6' depth below normal water level, what governs?

**Response**

*Then a design exception or an alternative location for the pond may be needed.*

- 6.1.D.15 Does this section negate the ability to provide for B or C graded lots adjacent to ponds?

**Response**

*No, this section applies to concentrated or collected, point discharge.*

- 6.1.D.16 See previous discussions on recovery time.

**Response**

*This criteria is necessary to insure that storage volume is available for the next rainfall event.*

- 6.1.D.17-18 Please define residential commercial and commercial residential. Could an exception be made for vertical walled ponds in residential areas when this rule would force a conflict with natural resources or EPC (i.e. saving a tree or protecting a wetland)?

**Response**

*They are the same and one will be eliminated from the text. We will modify the prohibition for vertical walled ponds in commercial-residential area to allow up to 25% of the perimeter of a wet pond to have vertical walls and up to 50% of dry ponds.*

- 6.1.D.25 Please define unsuitable materials. Strippings, grubblings, muck are all items which could be beneficial to littoral shelves.

**Response**

*Suitable materials can be allowed in the littoral shelf, if approved by the PGM inspector.*

- 6.1.F.2.b.2 Borings 20 feet below pond bottom conflicts with 5.1.C.8.b which states 10 feet below the bottom. Please clarify.

**Response**

*5.1.C.8.b applies to commercial and small site criteria. 6.1.F.2.b.2 is found in the chapter relating to large site criteria.*

- 7.3 Are these plan requirements for plot plans of grading and drainage plans? Section is not specific.

**Response**

*These are lot grading plan requirements.*

- 7.4 This requirement appears to be much better suited to be contained within the building department requirements to receive a Certificate of Occupancy as it has nothing to do with the proposed design and is normally out of the control of the Engineer of Record. Suggest removing it from the Stormwater Technical Manual and placing it where it belongs.

**Response**

*This criteria is intended to insure that the constructed lot grading matches the lot grading design of the EOR. Improper lot grading has lead to numerous drainage problems in he past. This criteria is needed in the manual since it is not currently in the Building Code. We will suggest, however, including it in any future revision of the Building Code.*

- 9.2.L Will this special language now make manhole lids in Hillsborough County unusually expensive? Unique language

(particularly the part requiring reference to specific county ordinance) will limit demand for lids and therefore may only be available from one or two suppliers. Also, supply delays are likely.

**Response**

*The County has an obligation through our NPDES permit to educate the public to protect our waterways. This is a positive step towards that goal.*

10.1.A.5 What concerns have prompted the adjustment of underdrain location? Will underdrain be allowed under inverted crown roadways?

**Response**

*The underdrain location has actually not changed but has been clarified by the sketch. Underdrains constructed closer to the roadway are difficult to maintain and often require removal of the curb to replace. Underdrains are allowed under privately owned inverted crown driveways or alleyways only, within commercial or commercial residential development, provided that the Certification of Townhome Subdivision Underdrain Design documents has been signed by the EOR.*

Table 12-1 Have a significant number of roadways constructed under the existing regulations failed? Another example of adding cost to design without a significant benefit to public safety and welfare.

**Response**

*Road repair has been an issue. Modifications to this section were made at the request of our Transportation Maintenance Department and of roadway designers in our Design and Engineering Support Section.*

13.1.A.1 If a SWFWMD permit for a site is sufficient to demonstrate reasonable stormwater treatment provisions will be provided, and a SWFWMD permit is required prior to construction plan approval, why are there any references to required treatment capacities within the manual? (5.1.C.1 for example)

**Response**

*5.1.C.1.b. refers to redevelopment sites.*

13.1.A.2 Please provide specific standards for design.

**Response**

*Each pond design is unique. This section only points out potential problems that may be encountered by the designer. It is the responsibility of the designer to meet Class III water quality standards.*

Section 4.1.D.1.a. (Setback) (Page 4-4) – Please consider allowing the setback to be from the outside edge of the maintenance berm. That would allow the berm outside slope to be included in the setback. Not including any part of the berm within the setback could significantly increase the amount of property required for stormwater management areas. Please also consider allowing 4:1 slopes within the setback. Four to one slopes are generally considered safe and maintainable with a mower.

**Response**

*This criteria only applies to elevated ponds. The 5' setback is needed so that the toe is not on the property line. If the elevated embankment blocks or increases flow, then there is at least 5' into which to construct a swale or underdrain.*

2. Table 6-1 (Page 6-3) – Under the Roadway Stormwater items, add a line item (under Arterial and Collector/Local) for roadway ditches (for rural sections). Section 12.5 (Page 12-1) references this table. If the Canals/Ditches line item is more appropriate (under Other Structures for Conveyance of Stormwater Off-Site Improvements) please clarify roadway ditches are included. It is important that the design storm frequency (10 year or 25 year) for roadway ditches is clear.

**Response**

*Table 6-1 refers to the design frequency for that particular type of roadway. Ditches designed for conveyance for these roadways should meet the stated design criteria, along with freeboard.*

3. Section 6.1.D.4.13. (Page 6-12) – Please clarify freeboard requirements for ponds where the outside edge of the maintenance area slopes downward. It states the freeboard above design high water shall be included at the inside edge of the maintenance area. Then it states all points within the maintenance area should be at or above the top of bank elevation. If a maintenance berm slopes downward (at 1:20 max.), the maintenance berm would be below the top of bank elevation. If that is not acceptable, the freeboard should be from the outside (or lower edge) of the maintenance berm.

**Response**

*The fourth sentence of this criteria will be eliminated.*

. Section 6.1.E.2.d.2. (Page 6-17) – Please consider including provisions for allowing an orifice less than 3 inches. Pollution abatement volume which is bled down within 36hours should also be considered for peak flow attenuation. Most smaller basins cannot meet treatment volume requirements with a 3 inch orifice. Maintenance requirements are outlined in Section 4.1.N (Page 4-12). In addition, SWFWMD requires regular stormwater management area inspections.

**Response**

*Orifices that are smaller than 3" in diameter are prone to becoming blocked with debris.*

5. Section 10.1.A.1 (Page 10-1) – This section states arterial and collector roadways shall be designed so that the SHGWT is at least 3 feet below the low edge of pavement. This section should include a statement that the Public Works Dept. will provide a determination upon request of which project roads are collector or arterial. Or, a definition of a collector road could be provided. If there will be different criteria for different types of roads, there should be a way to quickly and simply determine design criteria for all project roadways.

**Response**

*The reviewer with the Planning and Growth Management Department can answer questions regarding a particular roadways designation.*

The following comments were received from Nicki McKenzi of McKenzi Engineering:

Pg. 6-5...3.a.b. left out 'flow' in revision 'terms of flow, stage and duration.'

**Response**

*"Flow" was omitted intentionally.*

Pg. 9-5...P. left out 'from each inlet approach' in revision for Section 9.2.P, 9-5.

**Response**

*Noted, changes will be made to the text.*

Pg. 12-3 Cross Reference to Tables 10-1 and 10-2 in Section B., C.2, and C.3 should be corrected to read 11-1 and 11-2.

**Response**

*Noted, changes will be made to the text.*

Pg. 13-4 Revision 13.1.B.3 Reduced from 30 to 7 days.....thirty' needs to be changed to 'seven'.

**Response**

*Noted, changes will be made to the text.*

Pg 12-4 12.10.A.2 with the spread of flow being 4"/hour. ....The last line is contradictory and should be deleted.....'The time of concentration for spread of flow calculations shall be equal to the appropriate overland flow travel time.'

**Response**

*The first sentence actually states that the "rainfall intensity for calculating spread of flow shall be 4" per hour."*

The following comments were received from Frank Hanzlik of Paradigm Engineering:

1). The draft states (page 1-7 sect. J) that construction projects over 5 acres are subject to NPDES permitting. In 1999 phase 2 of the NPDES permitting program was rolled out to include all projects over 1 acre.

**Response**

*Noted, the text will be changed to 1 acre.*

2). A PPP (pollution prevention plan) is mentioned once in the draft (page 1-7, sect.J). I feel the difference between an erosion and sediment control plan and a PPP needs to be stressed and chapter 12 should outline a few of the requirements - NOI, NOT, delegation letters, cert pages, posted notices, etc. Many builders do not understand the importance nor difference between the two and are putting themselves and the environment at risk.

**Response**

*Noted, a section stressing a pollution prevention plan will be considered for the next STM update.*

The follow question was posed by Cole Lane from Land Design Inc.

Message: Per the Memorandum dated March 28, 2006; Hillsborough County Type I, II & III inlets are once again allowed for use. Per the Draft STM Section 9.2.L still requires FDOT inlets be used. Should this be revised to allow the Hillsborough County inlets?

**Response**

*The manual states that inlets are allowed that are included in the Hillsborough County Transportation Technical Manual, which is being updated to include Hillsborough County Type I, II & III inlets. Although the revised manual has yet to be approved, a permissive revision was approved last year that permits the County inlets.*

The following request was made by Steven Gran, Manager, Agriculture Industry Development:

I would like to propose a revision for the Stormwater Technical Manual that would give Farm worker Housing the same exceptions from attenuation requirements that Affordable Housing receives.

The justification for this is the following:

When farm worker housing proposals go through site development review they are required to meet the same stormwater requirements as other permanent commercial development. These requirements are difficult for a farmer to justify.

Farmer worker Housing is permitted as a Conditional Use or a Special Use and is only granted a two year permit. When the agricultural use ceases to exist the Farm Worker Housing must cease to exist. This indicates that farm worker housing is considered as a "less-than-permanent" use. Other types of development are permitted on a permanent basis.

The site development requirements, in particular the current stormwater requirements, seem to be excessive for a type of development that is assumed to be non-permanent.

Some level of allowances or exceptions seem reasonable since this type of development is not viewed or permitted as a permanent use.

In addition to the review and permitting justification, farm worker housing could also, by its very nature, be considered "Affordable Housing".

So I would propose that Farm worker housing be included in the exceptions from attenuation requirements that Affordable Housing receives.

**Response**

*Text will be added to 5.1.B.2. to extend the Affordable Housing exemption to include Farm worker Housing.*