

Example 1

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 5/17/2010 Impact Site Name: Tullay Creek Impact Cowardin or HGM type: riverine	Corps File No.: SPL-2010-XYZ ORM Resource Type: Tullay Creek establishment stream Impact area: 0.3 acres	Project Manager: John Doe stream 0.3 acres	Hydrology: intermittent Impact distance: 870 linear feet
	Column A Mitigation Site Name: Tullay Creek Mitigation Type: establishment ORM Resource Type: stream Cowardin/HGM type: riverine Hydrology: intermittent	Column B Mitigation Site Name: Juniper Wetland Bank Mitigation Type: enhancement ORM Resource Type: non-tidal wetland Cowardin/HGM type: palustrine Hydrology: saturated	Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	
2.a	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: 0.0 Baseline ratio: 1.00 : 1.00 PM justification: see Table 1	Starting ratio: 1.0 : 1.0 Ratio adjustment: 3.0 Baseline ratio: 4.00 : 1.00 PM justification: see Table 1	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see Table 1	
2.b	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	
2.c	Preservation (Table 2, step A) Baseline ratio: : 1.00	Baseline ratio: : 1.00	Baseline ratio: : 1.00	
3	Preservation (Table 2, step E) Ratio adjustment:	Ratio adjustment:	Ratio adjustment:	
4	Mitigation site location: Ratio adjustment: 0 PM justification: impact and mitigation would be within the same watershed	Ratio adjustment: 0 PM justification: impact and mitigation would be within the same watershed	Ratio adjustment: PM justification:	
5	Net loss of aquatic resource surface area: Ratio adjustment: 0 PM justification: establishment	Ratio adjustment: 1 PM justification: enhancement	Ratio adjustment: PM justification:	
6	Type conversion: Ratio adjustment: 0 PM justification: n,n: no difference between impact and mitigation types	Ratio adjustment: 0 PM justification: intermittent riparian (willow woodland) and depositional wetlands not substantially different in terms of relative value.	Ratio adjustment: PM justification:	
7	Risk and uncertainty: Ratio adjustment: 0.3 PM justification: +0.1 for permittee-responsible mitigation, +0.2 as mitigation site did not formerly support target aquatic resource.	Ratio adjustment: 0 PM justification: mitigation bank, uncertainty factors generally not applicable.	Ratio adjustment: PM justification:	
8	Temporal loss: Ratio adjustment: 3 PM justification: a: No planned delay, impact and mitigation constructed simultaneously. b: Both include mature willow canopy, +3 to account for time to achieve full functions.	Ratio adjustment: 0 PM justification: bank, generally no delay	Ratio adjustment: PM justification:	
9	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 3.30 Final ratio: 4.30 : 1.00 Proposed impact (total): 0.3 acres 870 linear feet to Resource type: stream Cowardin or HGM: riverine intermittent Hydrology: t Required Mitigation*: 1.29 acres 3741.0 linear feet of Resource type: stream Cowardin or HGM: riverine Hydrology: intermittent Proposed Mitigation**: 0.30 acres 870 linear feet Impact Unmitigated: 77% 0.23 acres Additional PM comments: *Applicant proposed alternate, off-site mitigation to account for difference between proposed (0.3 acre establishment, 1:1) and Corps assessment using checklist (1.29 acre establishment, 4.3:1). 0.99 acre of Corps assessment not met = $\frac{0.99}{1.29} \times 100 = 77\%$. 77% of impact unmitigated = 0.23	Baseline ratio from 2.a, b or c: 4.00 : 1.00 Total adjustments (3-8): 1.00 Final ratio: 5.00 : 1.00 Remaining impact: 0.23 acres 668 linear feet to Resource type: stream Cowardin or HGM: riverine Hydrology: intermittent Required Mitigation*: 1.15 acres 3338.4 linear feet of Resource type: non-tidal wetland Cowardin or HGM: palustrine Hydrology: saturated Proposed Mitigation**: acres linear feet Impact Unmitigated: % acres Additional PM comments: Applicant originally proposed 0.6 acre of off-site enhancement via bank. Through checklist, I've determined requirement should be 1.15 acre. Applicant has agreed to provide 1.15 acre of wetland enhancement credit at Juniper bank.	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact (acres): acres Remaining impact (linear feet): #VALUE! linear feet to Resource type: stream Cowardin or HGM: riverine Hydrology: intermittent Required Mitigation: #VALUE! acres #VALUE! linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: acres linear feet Impact Unmitigated: % acres Additional PM comments:	
10	Final compensatory mitigation requirements: Cur	Final requirement is for 0.3 acre (900 linear feet) of on-site riverine-intermittent stream (realignment of Tullay Creek, mature willow woodland) and 1.15 acre of off-site enhancement of depositional wetland through the XYZ mitigation bank.		

Table 1: Qualitative comparison of functions (functional loss vs. gain) (instructions at bottom).

Functions (Column A)	Impact site	Mitigation site
Short- or long-term surface water storage	moderate	moderate
Subsurface water storage	moderate	moderate
Moderation of groundwater flow or discharge	moderate	moderate
Dissipation of energy	moderate	moderate
Cycling of nutrients	moderate	moderate
Removal of elements and compounds	low	low
Retention of particulates	low	low
Export of organic carbon	moderate	moderate
Maintenance of plant and animal communities	moderate	moderate

Adjustment: 0

PM Justification: impact and mitigation are within the same water body, habitat type, etc., so functional gain and loss would be equal.

Function (Column B)	Impact site	Mitigation site
Short- or long-term surface water storage	moderate	no gain
Subsurface water storage	moderate	no gain
Moderation of groundwater flow or discharge	moderate	no gain
Dissipation of energy	moderate	no gain
Cycling of nutrients	moderate	no gain
Removal of elements and compounds	low	no gain
Retention of particulates	low	no gain
Export of organic carbon	moderate	low
Maintenance of plant and animal communities	moderate	low

Adjustment:

PM Justification: Functional loss is greater than functional gain since in this case, there is total functional loss and only gain of selected functions via enhancement (invasive vegetation removal).

Function (Column C)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Instructions:

1. Describe amount of functional loss (impact) and gain (mitigation) in each respective column. Gain and loss can be
2. Note: alternate lists of functions may be used.
3. Note: a single adjustment should be used to account for all functions combined (see example 7 in attachment 12501.3)

Example 2

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20100524 Impact Site Name: Placer 530 Impact Cowardin or HGM type: depressional	Corps File No.: SPL-2010-XYZ ORM Resource Type: non-tidal wetland Impact area : 2.25 (combined) acres	Project Manager: John Doe Hydrology: seasonally flooded Impact distance: N/A	0 linear feet	
	Column A Mitigation Site Name: Limnanthes Ranch Mitigation Type: re-establishment ORM Resource Type: non-tidal wetland Cowardin/HGM type: depressional Hydrology: seasonally flooded	Direct Impact - 1.5 ac	Column B Mitigation Site Name: Limnanthes Ranch Mitigation Type: re-establishment ORM Resource Type: wetlands adj to non-RPWs Cowardin/HGM type: depressional Hydrology: seasonally-flooded	Indirect Impact - 0.75 ac	
2.a	Qualitative impact-mitigation comparison:	Starting ratio: 1.0 : 1.0 Ratio adjustment: 0.2 Baseline ratio: 1.20 : 1.00 PM justification: see Table	Starting ratio: 1.0 : 1.0 Ratio adjustment: 0.3 Baseline ratio: 1.30 : 1.00 PM justification: see Table	Starting ratio: 1.0 : 1.0 Ratio adjustment: 1.00 : 1.00 Baseline ratio: 1.00 : 1.00 PM justification: see Table 1	
2.b	Quantitative impact-mitigation comparison:	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	
2.c	Preservation (Table 2, step A)	Baseline ratio: 1.00	Baseline ratio: 1.00	Baseline ratio: 1.00	
3	Preservation (Table 2, step E)	Ratio adjustment:	Ratio adjustment:	Ratio adjustment:	
4	Mitigation site location:	Ratio adjustment: 1 PM justification: Mitigation will occur outside of the watershed	Ratio adjustment: 1 PM justification: Mitigation will occur outside of the watershed	Ratio adjustment:	
5	Net loss of aquatic resource surface area:	Ratio adjustment: 0 PM justification: re-establishment	Ratio adjustment: 0 PM justification: re-establishment	Ratio adjustment:	
6	Type conversion:	Ratio adjustment: 0 PM justification: mitigation will be in-kind	Ratio adjustment: 0 PM justification: mitigation will be in-kind	Ratio adjustment:	
7	Risk and uncertainty:	Ratio adjustment: 0.4 PM justification: +0.2 for permittee-responsible mitigation, +0.2 for difficult to replace resources	Ratio adjustment: 0.4 PM justification: +0.2 for permittee-responsible mitigation, +0.2 for difficult to replace resources	Ratio adjustment:	
8	Temporal loss:	Ratio adjustment: 1 PM justification: mitigation will occur at time of impact, herbaceous species	Ratio adjustment: 1 PM justification: mitigation will occur at time of impact, herbaceous species	Ratio adjustment:	
9	Final mitigation ratio(s):	Baseline ratio from 2.a, b or c: 1.20 : 1.00 Total adjustments (3-8): 2.40 Final ratio: 3.60 : 1.00 Proposed impact (total): 1.5 acres 0 linear feet to Resource type: non-tidal wetland Cowardin or HGM: depressional Hydrology: seasonally flooded Required Mitigation*: 5.40 acres 0.0 linear feet of Resource type: non-tidal wetland Cowardin or HGM: depressional Hydrology: seasonally flooded Proposed Mitigation**: 5.40 acres 0 linear feet Impact Unmitigated: 0 % 0.00 acres	Baseline ratio from 2.a, b or c: 1.30 : 1.00 Total adjustments (3-8): 2.40 Final ratio: 3.70 : 1.00 Remaining impact: 0.75 acres 0 linear feet to Resource type: non-tidal wetland Cowardin or HGM: depressional Hydrology: seasonally Required Mitigation*: 2.78 acres 0.0 linear feet of Resource type: wetlands adj to non-RPWs Cowardin or HGM: depressional Hydrology: seasonally-flooded Proposed Mitigation**: 2.78 acres 0 linear feet Impact Unmitigated: 0 % 0.00 acres	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact (acres): 0.00 acres Remaining impact (linear feet): 0 linear feet to Resource type: non-tidal wetland Cowardin or HGM: depressional Hydrology: seasonally Required Mitigation: 0.00 acres 0.0 linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: 0 acres 0 linear feet Impact Unmitigated: 0 % 0.00 acres	Additional PM comments: Total direct impacts
10	Final compensatory mitigation requirements:	Final compensatory mitigation requirement for this impact site is 8.18 acres of vernal pool habitat at the proposed off-site location. The applicant proposed to mitigate direct impacts at a 1.3:1 ratio and indirect impacts at a 1:1 ratio through permittee-responsible re-establishment in the adjacent watershed (2.7 acres of mitigation). The applicant underestimated the mitigation ratio. The required mitigation is an increase of 5.48 acres over the 2.7 acres proposed.			

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.

**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 1: Qualitative comparison of functions (functional loss vs. gain) (instructions at bottom).

Functions (Column A)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment: 0.2

PM Justification: Due to differences between vernal pool inoculum in the different locations, the mitigation site is not expected to maintain the range of plant and animal communities (habitat functions) provided by the pre-project impact site.

Function (Column B)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment: 0.3

PM Justification: Indirectly impacted vernal pools are expected to have an approximately 50% decline in functions. Due to differences between vernal pool inoculum in the different locations, the mitigation site is not expected to attain the range of plant and animal communities provided by the pre-project impact site (less than 50% gain in habitat functions expected).

Function (Column C)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Instructions:

1. Describe amount of functional loss (impact) and gain (mitigation) in each respective column. Gain and loss can be
2. Note: alternate lists of functions may be used.
3. Note: a single adjustment should be used to account for all functions combined (see example 7 in attachment 12501.3)

Example 3

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20100517 Impact Site Name: Impact Cowardin or HGM type:	Corps File No.: SF Impacted Wetland palustrine - emergent	SPL-2010-XYZ ORM Resource Type: Impact area :	Project Manager: John Doe non-tidal wetland 0.4 acres	Hydrology: seasonally flooded Impact distance: N/A 0 linear feet
		Column A Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Permittee-Responsible Project site establishment non-tidal wetland palustrine - emergent seasonally flooded	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Mitigation Bank SF Bank establishment non-tidal wetland palustrine - emergent seasonally flooded
2.a	Qualitative impact-mitigation comparison:	Starting ratio: 1.0 : 1.0 Ratio adjustment: 0.0 Baseline ratio: 1.00 : 1.00 PM justification: see Table	Starting ratio: 1.0 : 1.0 Ratio adjustment: 0.0 Baseline ratio: 1.00 : 1.00 PM justification: see Table	Starting ratio: 1.0 : 1.0 Ratio adjustment: 1.00 : 1.00 Baseline ratio: 1.00 : 1.00 PM justification: see Table 1	
2.b	Quantitative impact-mitigation comparison:	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	
2.c	Preservation (Table 2, step A)	Baseline ratio: : 1.00	Baseline ratio: : 1.00	Baseline ratio: : 1.00	
3	Preservation (Table 2, step E)	Ratio adjustment: 0.0	Ratio adjustment: 0.0	Ratio adjustment:	
4	Mitigation site location:	Ratio adjustment: 0 PM justification: impact and mitigation would be within the same watershed	Ratio adjustment: 0 PM justification: impact and mitigation would be within the same watershed	Ratio adjustment:	
5	Net loss of aquatic resource surface area:	Ratio adjustment: 0 PM justification: establishment	Ratio adjustment: 0 PM justification: establishment	Ratio adjustment:	
6	Type conversion:	Ratio adjustment: 0 PM justification: no difference between impact and mitigation types	Ratio adjustment: 0 PM justification: no difference between impact and mitigation types	Ratio adjustment:	
7	Risk and uncertainty:	Ratio adjustment: 0.4 PM justification: +0.1 for permittee-responsible mitigation, +0.2 as mitigation site did not formerly support target aquatic resource, +0.1 for planned vegetation	Ratio adjustment: 0 PM justification: mitigation bank, uncertainty factors not applicable.	Ratio adjustment:	
8	Temporal loss:	Ratio adjustment: 1.25 PM justification: Delay of 5 months between impact and mitigation construction, mitigation = herbaceous.	Ratio adjustment: 0 PM justification: bank, no delay	Ratio adjustment:	
9	Final mitigation ratio(s):	Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 1.65 Final ratio: 2.65 : 1.00 Proposed impact (total): 0.4 acres 0 linear feet to Resource type: non-tidal wetland Cowardin or HGM: palustrine - emergent seasonally Hydrology: flooded Required Mitigation*: 1.06 acres 0.0 linear feet of Resource type: non-tidal wetland Cowardin or HGM: palustrine - emergent Hydrology: seasonally flooded Proposed Mitigation**: 0.00 acres 0 linear feet Impact Unmitigated: % acres Additional PM comments: Proposed 0.4 acres of mitigation leaves 0.25 acres of impact unmitigated.	Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 1.00 : 1.00 Proposed impact (total): 0.40 acres #VALUE! linear feet to Resource type: non-tidal wetland Cowardin or HGM: palustrine - emergent seasonally Hydrology: flooded Required Mitigation*: 0.40 acres #VALUE! linear feet of Resource type: non-tidal wetland Cowardin or HGM: palustrine - emergent Hydrology: seasonally flooded Proposed Mitigation**: 0.40 acres linear feet Impact Unmitigated: 0 % 0.00 acres Additional PM comments: Mitigation bank (as an alternative mitigation option).	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact (acres): 0.00 acres Remaining impact (linear feet): #VALUE! linear feet to Resource type: non-tidal wetland Cowardin or HGM: palustrine - emergent seasonally Hydrology: flooded Required Mitigation: 0.00 acres #VALUE! linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: linear feet Impact Unmitigated: % acres Additional PM comments:	
10	Final compensatory mitigation requirements:	The impact to 0.4 acre of fill in a shallow seasonal wetland can be mitigated by either on-site wetland establishment, OR by purchasing credits in a wetland establishment bank in the same watershed/service area. The final requirement for permittee-responsible on-site mitigation would be 1.06 acres. The final requirement for off-site wetland bank credits is 0.4 acre of establishment credits. After further communication with applicant, the final requirement will be for 0.4 acre of off-site establishment through a mitigation bank.			

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.
**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 1: Qualitative comparison of functions (functional loss vs. gain) (instructions at bottom).

Functions (Column A)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment: 0

PM Justification: impacts and mitigation sites are the same habitat type, so functional gain and loss would be equal.

Function (Column B)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment: 0

PM Justification: impacts and mitigation sites are the same habitat type, so functional gain and loss would be equal.

Function (Column C)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Instructions:

1. Describe amount of functional loss (impact) and gain (mitigation) in each respective column. Gain and loss can be
2. Note: alternate lists of functions may be used.
3. Note: a single adjustment should be used to account for all functions combined (see example 7 in attachment 12501.3)

Example 4

Table 1: Qualitative comparison of functions (functional loss vs. gain) (instructions at bottom).

Functions (Column A)	Impact site	Mitigation site
Short- or long-term surface water storage	low	high
Subsurface water storage	low	high
Moderation of groundwater flow or discharge	low	high
Dissipation of energy	low	moderate
Cycling of nutrients	low	high
Removal of elements and compounds	low	moderate
Retention of particulates	low	moderate
Export of organic carbon	low	high
Maintenance of plant and animal communities	low	high

Adjustment: -0.5

PM Justification: Mitigation site is a riparian gallery with cottonwood, willows and adjacent wetlands (re-established from uplands). The mitigation site would provide more functional lift than the expected functional loss at the impact site (total loss of ephemeral wash). Therefore the adjustment was set at -0.5.

Function (Column B)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Function (Column C)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Instructions:

1. Describe amount of functional loss (impact) and gain (mitigation) in each respective column. Gain and loss can be
2. Note: alternate lists of functions may be used.
3. Note: a single adjustment should be used to account for all functions combined (see example 7 in attachment 12501.3)

Example 5

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20100617 Impact Site Name: Impact Cowardin or HGM type:	Corps File No.: Yowza Fen palustrine	SPL-2010-123-JBD ORM Resource Type: Impact area :	Project Manager: Jane B. Doe non-tidal wetland 0.26	Hydrology: saturated acres Impact distance: N/A 0	linear feet	
	Column A Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Ski Area Filled Fen rehabilitation non-tidal wetland palustrine saturated	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:		Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:		
2.a	Qualitative impact-mitigation comparison:	Starting ratio: Ratio adjustment: Baseline ratio: PM justification:	1.0 : 1.0 2.0 3.00 : 1.00 see Table	Starting ratio: Ratio adjustment: Baseline ratio: PM justification:	1.0 : 1.0 1.00 : 1.00 1.00 : 1.00 see Table 1	Starting ratio: Ratio adjustment: Baseline ratio: PM justification:	1.0 : 1.0 1.00 : 1.00 1.00 : 1.00 see Table 1
2.b	Quantitative impact-mitigation comparison:	Ratio adjustment from BAMI procedure (attached):	:	Ratio adjustment from BAMI procedure (attached):	:	Ratio adjustment from BAMI procedure (attached):	:
2.c	Preservation (Table 2, step A)	Baseline ratio:	: 1.00	Baseline ratio:	: 1.00	Baseline ratio:	: 1.00
3	Preservation (Table 2, step E)	Ratio adjustment:		Ratio adjustment:		Ratio adjustment:	
4	Mitigation site location:	Ratio adjustment: PM justification: impact and mitigation would be within the same watershed	0	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:	
5	Net loss of aquatic resource surface area:	Ratio adjustment: PM justification: rehabilitation	1	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:	
6	Type conversion:	Ratio adjustment: PM justification: no difference between impact and mitigation types	0	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:	
7	Risk and uncertainty:	Ratio adjustment: PM justification: +0.1 for permittee-responsible mitigation, +0.3 mitigation site difficult-to-replace resource.	0.4	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:	
8	Temporal loss:	Ratio adjustment: PM justification: Delay of 8 months +0.4, herbaceous, +1.	1.4	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:	
9	Final mitigation ratio(s):	Baseline ratio from 2.a, b or c: Total adjustments (3-8): Final ratio: Proposed impact (total): to Resource type: Cowardin or HGM: Hydrology: Required Mitigation*: of Resource type: Cowardin or HGM: Hydrology: Proposed Mitigation**: Impact Unmitigated: Additional PM comments:	3.00 : 1.00 2.80 5.80 : 1.00 0.26 acres 0 linear feet non-tidal wetland palustrine saturated 1.51 acres 0.0 linear feet non-tidal wetland palustrine saturated 0.26 acres linear feet 83 % 0.22 acres	Baseline ratio from 2.a, b or c: Total adjustments (3-8): Final ratio: Remaining impact: to Resource type: Cowardin or HGM: Hydrology: Required Mitigation*: of Resource type: Cowardin or HGM: Hydrology: Proposed Mitigation**: Impact Unmitigated: Additional PM comments:	0.00 : 1.00 0.00 0.00 : 1.00 0.22 acres 0 linear feet non-tidal wetland palustrine saturated 0.00 acres 0.0 linear feet 0 0 0 acres linear feet % acres	Baseline ratio from 2.a, b or c: Total adjustments (3-8): Final ratio: Remaining impact (acres): Remaining impact (linear feet): to Resource type: Cowardin or HGM: Hydrology: Required Mitigation: of Resource type: Cowardin or HGM: Hydrology: Proposed Mitigation**: Impact Unmitigated: Additional PM comments:	0.00 : 1.00 0.00 0.00 : 1.00 acres linear feet non-tidal wetland palustrine saturated #VALUE! acres linear feet 0 0 0 acres linear feet % acres
10	Final compensatory mitigation requirements:	Final requirement is for compensatory mitigation for this impact site is 1.51 acres. Applicant will rehabilitate 1.51 acres of fen wetland previously filled within the resort area. After completing the checklist and after discussing the results with the applicant, the project manager has determined the final mitigation ratio to be 5.8:1 for the fen impacts. After consultation with the applicant, the applicant agreed to rehabilitate an additional 0.91 acre of fen wetland for a total of 1.51 acres of rehabilitation within the ski resort area to offset impacts.					

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.

**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 1: Qualitative comparison of functions (functional loss vs. gain) (instructions at bottom).

Functions (Column A)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment: 2

PM Justification: impact and mitigation are within the same watershed, habitat type, etc., but rehabilitation would result in partial functional gain compared with total functional loss at impact site, so functional loss would be greater than functional gain.

Function (Column B)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Function (Column C)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Instructions:

1. Describe amount of functional loss (impact) and gain (mitigation) in each respective column. Gain and loss can be
2. Note: alternate lists of functions may be used.
3. Note: a single adjustment should be used to account for all functions combined (see example 7 in attachment 12501.3)

Example 6

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20120604 Impact Site Name: <u>Haunted Wash</u> Impact Cowardin or HGM type: <u>riverine</u>	Corps File No.: <u>SPL-2012-345-LJ</u> ORM Resource Type: <u>riverine</u> Impact area : <u>0.46</u>	Project Manager: <u>Indiana Jones</u> River/stream: <u>0.46</u> acres Hydrology: <u>ephemeral</u>	Impact distance: <u>13,579</u> linear feet
	Column A Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	<u>Realigned Ditch establishment</u> <u>River/stream</u> <u>riverine</u> <u>ephemeral</u>	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:
2.a	Qualitative impact-mitigation comparison:	Starting ratio: <u>1.0 : 1.0</u> Ratio adjustment: Baseline ratio: <u>1.00 : 1.00</u> PM justification: see Table	Starting ratio: <u>1.0 : 1.0</u> Ratio adjustment: Baseline ratio: <u>1.00 : 1.00</u> PM justification: see Table	Starting ratio: <u>1.0 : 1.0</u> Ratio adjustment: Baseline ratio: <u>1.00 : 1.00</u> PM justification: see Table 1
2.b	Quantitative impact-mitigation comparison:	Ratio adjustment from BAMI procedure (attached): <u>2.4 : 1.0</u>	Ratio adjustment from BAMI procedure (attached): <u>:</u>	Ratio adjustment from BAMI procedure (attached): <u>:</u>
2.c	Preservation (Table 2, step A)	Baseline ratio: <u>: 1.00</u>	Baseline ratio: <u>: 1.00</u>	Baseline ratio: <u>: 1.00</u>
3	Preservation (Table 2, step E)	Ratio adjustment:	Ratio adjustment:	Ratio adjustment:
4	Mitigation site location:	Ratio adjustment: <u>0</u> PM justification: impact and mitigation would be within the same watershed	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
5	Net loss of aquatic resource surface area:	Ratio adjustment: <u>0</u> PM justification: establishment	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
6	Type conversion:	Ratio adjustment: <u>0</u> PM justification: no difference between impact and mitigation types	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
7	Risk and uncertainty:	Ratio adjustment: <u>0.3</u> PM justification: +0.1 permittee responsible; +0.2 mitigation site did not support aquatic resource	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
8	Temporal loss:	Ratio adjustment: <u>0</u> PM justification: no temporal loss, as mitigation site would be built before impacts and all functions aside from biotic would be replaced.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
9	Final mitigation ratio(s):	Baseline ratio from 2.a, b or c: <u>2.35 : 1.00</u> Total adjustments (3-8): <u>0.30</u> Final ratio: <u>2.65 : 1.00</u> Proposed impact (total): <u>0.46</u> acres <u>13579</u> linear feet to Resource type: <u>River/stream</u> Cowardin or HGM: <u>riverine</u> Hydrology: <u>ephemeral</u> Required Mitigation*: <u>1.22</u> acres <u>35984.4</u> linear feet of Resource type: <u>River/stream</u> Cowardin or HGM: <u>riverine</u> Hydrology: <u>ephemeral</u> Proposed Mitigation**: <u>1.22</u> acres <u>linear feet</u> Impact Unmitigated: <u>0</u> % <u>0.00</u> acres	Baseline ratio from 2.a, b or c: <u>0.00 : 1.00</u> Total adjustments (3-8): <u>0.00</u> Final ratio: <u>0.00 : 1.00</u> Remaining impact: <u>0.00</u> acres <u>-11</u> linear feet to Resource type: <u>River/stream</u> Cowardin or HGM: <u>riverine</u> Hydrology: <u>ephemeral</u> Required Mitigation*: <u>0.00</u> acres <u>0.0</u> linear feet of Resource type: <u>0</u> Cowardin or HGM: <u>0</u> Hydrology: <u>0</u> Proposed Mitigation**: <u>linear feet</u> Impact Unmitigated: <u>acres</u>	Baseline ratio from 2.a, b or c: <u>0.00 : 1.00</u> Total adjustments (3-8): <u>0.00</u> Final ratio: <u>0.00 : 1.00</u> Remaining impact (acres): <u>acres</u> Remaining impact (linear feet): <u>#VALUE!</u> linear feet to Resource type: <u>River/stream</u> Cowardin or HGM: <u>riverine</u> Hydrology: <u>ephemeral</u> Required Mitigation: <u>#VALUE!</u> acres <u>#VALUE!</u> linear feet of Resource type: <u>0</u> Cowardin or HGM: <u>0</u> Hydrology: <u>0</u> Proposed Mitigation**: <u>acres</u> <u>linear feet</u> Impact Unmitigated: <u>acres</u>
10	Final compensatory mitigation requirements:	Final requirement is for this impact site is 1.22 acres. Applicant will establish 1.22 acre of ephemeral streambed.		

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.

**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Step 3: Before-After-Mitigation-Impact (BAMI) procedure

(CRAM example)

Functions/conditions	Impact _{Before}	Impact _{After}	Impact _{delta}	Mitigation _{Before}	Mitigation _{After}	Mitigation _{delta}
4.1 Buffer and Landscape Context						
4.1.1 Landscape Connectivity	3	0	-3	3	3	0
4.1.2 Percent of AA with Buffer	9	0	-9	9	9	0
4.1.3 Average Buffer Width	6	0	-6	6	6	0
4.1.4 Buffer Condition	12	0	-12	12	12	0
RAW SCORE	12.4	0.0	-12	12.4	12.4	0
FINAL SCORE	51.7	0.0	-52	51.7	51.7	0
4.2 Attribute 2: Hydrology						
4.2.1 Water Source	9	0	-9	0	9	9
4.2.2 Hydroperiod or Channel Stability	12	0	-12	0	3	3
4.2.3 Hydrologic Connectivity	12	0	-12	0	12	12
RAW SCORE	33.0	0.0	-33	0.0	24.0	24
FINAL SCORE	91.7	0.0	-92	0.0	66.7	67
4.3 Attribute 3: Physical Structure						
4.3.1 Structural Patch Richness	3	0	-3	0	3	3
4.3.2 Topographic Complexity	3	0	-3	0	3	3
RAW SCORE	6.0	0.0	-6	0.0	6.0	6
FINAL SCORE	25.0	0.0	-25	0.0	25.0	25
4.4 Attribute 4: Biotic Structure						
4.4.1 Number of Plant Layers	6	0	-6	0	0	0
4.4.2 Co-Dominant Species	3	0	-3	0	0	0
4.4.3 Percent Invasion	12	0	-12	0	0	0
4.4.4 Interspersion/Zonation	6	0	-6	0	0	0
4.4.5 Vertical Structure	3	0	-3	0	0	0
RAW SCORE	16	0	-16	0	0	0
FINAL SCORE	44.5	0.0	-45	0.0	0.0	0
OVERALL SCORE	54.0	0.0	-54	13.0	36.0	23

Quotient=ABS(M/I) _{deltas}	23/54
Baseline ratio:	2.35 : 1.0

Instructions:

1. Choose functional method. Acceptable functional assessment methods must be aquatic resource-based, standardized, comparable from site to site, peer-reviewed, and must be approved by the applicable Corps District.
2. List functions/condition categories in leftmost column.
3. Utilize Before-After-Mitigation-Impact (BAMI) procedure above to calculate function deltas.
4. Obtain absolute value (ABS*) of quotient of mitigation-delta over impact-delta for overall score (if method has no overall score, use median of quotients for function categories or individual functions). *Absolute value is the nonnegative number for any real number, so if your quotient is negative, simply drop the negative sign to get the ABS. For example: the ABS of -9/3 = 3.
5. To get baseline ratio: If quotient (Q) is less than 1, baseline ratio = 1/Q : 1; if quotient is greater than 1, baseline ratio = 1 : Q.
6. Input Step 2.b baseline ratio into the checklist document.

Example 7

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20120531 Impact Site Name: Highland Stormdrain Impact Cowardin or HGM type: riverine	Corps File No.: SPL-2012-TK ORM Resource Type: river/stream Impact area : 2.46	Project Manager: Takeshi Kitano Hydrology: intermittent Impact distance: 3814 0 linear feet	
	Column A Mitigation Site Name: San Ramon Bank Mitigation Type: re-establishment ORM Resource Type: river/stream Cowardin/HGM type: riverine Hydrology: intermittent	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	
2.a	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: -2.0 Baseline ratio: 1.00 : 3.00 PM justification: Functional gain would be substantially more than the expected functional loss (see table 1).	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see Table 1	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see Table 1	
2.b	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	
2.c	Preservation (Table 2, step A) Baseline ratio: : 1.00	Baseline ratio: : 1.00	Baseline ratio: : 1.00	
3	Preservation (Table 2, step E) Ratio adjustment:	Ratio adjustment:	Ratio adjustment:	
4	Mitigation site location: Ratio adjustment: 0 PM justification: impact and mitigation would be within the same watershed	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
5	Net loss of aquatic resource surface area: Ratio adjustment: 0 PM justification: re-establishment	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
6	Type conversion: Ratio adjustment: 0 PM justification: mitigation is in-kind	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
7	Risk and uncertainty: Ratio adjustment: 0 PM justification: mitigation bank, uncertainty factors not applicable.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
8	Temporal loss: Ratio adjustment: 0 PM justification: mitigation bank with most credits released and performance standards met, assuming no delay.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
9	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 1.00 : 3.00 Total adjustments (3-8): 0.00 Final ratio: 0.33 : 1.00 Proposed impact (total): 2.46 acres 0 linear feet to Resource type: river/stream Cowardin or HGM: riverine intermittent Hydrology: t Required Mitigation*: 2.46 acres 0.0 linear feet of Resource type: river/stream Cowardin or HGM: riverine Hydrology: intermittent Proposed Mitigation**: 2.46 acres linear feet Impact Unmitigated: 0 % 0.00 acres Additional PM comments: *Calculated ratio is 1:3 (or 0.33:1), but without functional assessment, 1:1 is min ratio allowed under 2008 mitigation rule	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact: 0.00 acres 0 linear feet to Resource type: river/stream Cowardin or HGM: riverine Hydrology: intermittent Required Mitigation*: 0.00 acres 0.0 linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: linear feet Impact Unmitigated: % acres Additional PM comments:	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact (acres): #VALUE! Remaining impact (linear feet): #VALUE! to Resource type: river/stream Cowardin or HGM: riverine Hydrology: intermittent Required Mitigation: #VALUE! #VALUE! of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: linear feet Impact Unmitigated: % acres Additional PM comments:	
10	Final compensatory mitigation requirements: Final requirement is for this impact site is the purchase of mitigation bank credit for the re-establishment of 2.46 acres of riparian stream habitat (1:1 ratio).			

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.

**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 1: Qualitative comparison of functions (functional loss vs. gain) (instructions at bottom).

Functions (Column A)	Impact site	Mitigation site
Short- or long-term surface water storage	small loss	large gain
Subsurface water storage	small loss	large gain
Moderation of groundwater flow or discharge	small loss	large gain
Dissipation of energy	small loss	large gain
Cycling of nutrients	small loss	large gain
Removal of elements and compounds	no loss	large gain
Retention of particulates	no loss	large gain
Export of organic carbon	moderate loss	large gain
Maintenance of plant and animal communities	small loss	large gain

Adjustment: -2

PM Justification: Functional gain would be substantially more than the expected functional loss

Function (Column B)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Function (Column C)	Impact site	Mitigation site
Short- or long-term surface water storage		
Subsurface water storage		
Moderation of groundwater flow or discharge		
Dissipation of energy		
Cycling of nutrients		
Removal of elements and compounds		
Retention of particulates		
Export of organic carbon		
Maintenance of plant and animal communities		

Adjustment:

PM Justification:

Instructions:

1. Describe amount of functional loss (impact) and gain (mitigation) in each respective column. Gain and loss can be
2. Note: alternate lists of functions may be used.
3. Note: a single adjustment should be used to account for all functions combined (see example 7 in attachment 12501.3)

Example 8

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20120531 Impact Site Name: Highland Stormdrain Impact Cowardin or HGM type: riverine	Corps File No.: SPL-2012-TK ORM Resource Type: river/stream Impact area : 2.46	Project Manager: Takeshi Kitano Hydrology: intermittent Impact distance: N/A 0 linear feet
	Column A Mitigation Site Name: San Ramon Bank Mitigation Type: re-establishment ORM Resource Type: river/stream Cowardin/HGM type: riverine Hydrology: intermittent	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:
2.a	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification:	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see Table 1	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see Table 1
2.b	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached): 1.0 : 4.4	Ratio adjustment from BAMI procedure (attached): :	Ratio adjustment from BAMI procedure (attached): :
2.c	Preservation (Table 2, step A) Baseline ratio: : 1.00	Baseline ratio: : 1.00	Baseline ratio: : 1.00
3	Preservation (Table 2, step E) Ratio adjustment:	Ratio adjustment:	Ratio adjustment:
4	Mitigation site location: Ratio adjustment: 0 PM justification: impact and mitigation would be within the same watershed	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
5	Net loss of aquatic resource surface area: Ratio adjustment: 0 PM justification: re-establishment	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
6	Type conversion: Ratio adjustment: 0 PM justification: mitigation is in-kind	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
7	Risk and uncertainty: Ratio adjustment: 0 PM justification: mitigation bank, uncertainty factors not applicable.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
8	Temporal loss: Ratio adjustment: 0 PM justification: mitigation bank with most credits released and performance standards met, assuming no delay.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:
9	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 1.00 : 4.40 Total adjustments (3-8): 0.00 Final ratio: 0.23 : 1.00 Proposed impact (total): 2.46 acres 0 linear feet to Resource type: river/stream Cowardin or HGM: riverine intermittent Hydrology: intermittent Required Mitigation*: 0.56 acres 0.0 linear feet of Resource type: river/stream Cowardin or HGM: riverine Hydrology: intermittent Proposed Mitigation**: 0.00 acres linear feet Impact Unmitigated: 0 % 0.00 acres Additional PM comments:	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact: 0.00 acres 0 linear feet to Resource type: river/stream Cowardin or HGM: riverine Hydrology: intermittent Required Mitigation*: 0.00 acres 0.0 linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: acres linear feet Impact Unmitigated: % acres Additional PM comments:	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact (acres): #VALUE! acres Remaining impact (linear feet): #VALUE! linear feet to Resource type: river/stream Cowardin or HGM: riverine Hydrology: intermittent Required Mitigation: #VALUE! acres #VALUE! linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: acres linear feet Impact Unmitigated: % acres Additional PM comments:
10	Final compensatory mitigation requirements: Final requirement is for this impact site is the purchase of mitigation bank credit for the re-establishment of 0.56 acres of riparian stream habitat.		

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.

**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Step 3: Before-After-Mitigation-Impact (BAMI) procedure

(CRAM example)

Functions/conditions	Impact _{Before}	Impact _{After}	Impact _{delta}	Mitigation _{Before}	Mitigation _{After}	Mitigation _{delta}
4.1 Buffer and Landscape Context						
4.1.1 Landscape Connectivity	3	3	0	9	9	0
4.1.2 Percent of AA with Buffer	3	3	0	9	9	0
4.1.3 Average Buffer Width	3	3	0	9	9	0
4.1.4 Buffer Condition	3	3	0	9	9	0
RAW SCORE	6.0	6.0	0	18.0	18.0	0
FINAL SCORE	25.0	25.0	0	75.0	75.0	0
4.2 Attribute 2: Hydrology						
4.2.1 Water Source	6	6	0	9	9	0
4.2.2 Hydroperiod or Channel Stability	6	6	0	9	9	0
4.2.3 Hydrologic Connectivity	3	3	0	3	9	6
RAW SCORE	15.0	15.0	0	21.0	27.0	6
FINAL SCORE	41.7	41.7	0	58.4	75.0	17
4.3 Attribute 3: Physical Structure						
4.3.1 Structural Patch Richness	6	3	-3	0	9	9
4.3.2 Topographic Complexity	3	3	0	0	12	12
RAW SCORE	9.0	6.0	-3	0.0	21.0	21
FINAL SCORE	37.5	25.0	-13	0.0	87.5	88
4.4 Attribute 4: Biotic Structure						
4.4.1 Number of Plant Layers	6	3	-3	9	9	0
4.4.2 Co-Dominant Species	6	3	-3	12	12	0
4.4.3 Percent Invasion	6	3	-3	9	9	0
4.4.4 Interspersion/Zonation	6	3	-3	6	12	6
4.4.5 Vertical Structure	3	3	0	6	12	6
RAW SCORE	15	9	-6	22	34	12
FINAL SCORE	41.7	25.0	-17	61.2	94.5	33
OVERALL SCORE	37.0	30.0	-8	49.0	83.0	35

Quotient=ABS(M/I) _{deltas}
4 3/8
Baseline ratio:
1 : 4.4

Instructions:

1. Choose functional method. Acceptable functional assessment methods must be aquatic resource-based, standardized, comparable from site to site, peer-reviewed, and must be approved by the applicable Corps District.
2. List functions/condition categories in leftmost column.
3. Utilize Before-After-Mitigation-Impact (BAMI) procedure above to calculate function deltas.
4. Obtain absolute value (ABS*) of quotient of mitigation-delta over impact-delta for overall score (if method has no overall score, use median of quotients for function categories or individual functions). *Absolute value is the nonnegative number for any real number, so if your quotient is negative, simply drop the negative sign to get the ABS. For example: the ABS of -9/3 = 3.
5. To get baseline ratio: If quotient (Q) is less than 1, baseline ratio = 1/Q : 1; if quotient is greater than 1, baseline ratio = 1 : Q.
6. Input Step 2.b baseline ratio into the checklist document.

Example 9

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20160607 Impact Site Name: Impact Cowardin or HGM type:	Corps File No.: Unnamed road crossing riverine	SPL-2013-NNN ORM Resource Type: Impact area :	Project Manager: stream 0.35	Joe Regulator acres Impact distance:	Hydrology: ephemeral 275 linear feet
	Column A Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Golden Valley Preservation Stream Riverine Ephemeral	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Golden Valley Preservation Upland buffer Riverine Ephemeral buffer	Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	
2.a	Qualitative impact-mitigation comparison:	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2 or 3		
2.b	Quantitative impact-mitigation comparison:	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):		
2.c	Preservation (Table 2, step A)	Baseline ratio: 1.00 : 1.00	Baseline ratio: 1.00 : 1.00	Baseline ratio: 1.00 : 1.00		
3	Preservation (Table 2, step E)	Ratio adjustment: 9.0	Ratio adjustment: 11.0	Ratio adjustment:		
4	Mitigation site location:	Ratio adjustment: 0 PM justification: Same 8-digit HUC watershed	Ratio adjustment: 0 PM justification: Same 8-digit HUC watershed	Ratio adjustment: PM justification:		
5	Net loss of aquatic resource surface area:	Ratio adjustment: 1 PM justification: Preservation results in net loss.	Ratio adjustment: 1 PM justification: Preservation results in net loss.	Ratio adjustment: PM justification:		
6	Type conversion:	Ratio adjustment: 0 PM justification: Same stream types.	Ratio adjustment: 1 PM justification: Impacted ephemeral stream more valuable than preserved upland buffer.	Ratio adjustment: PM justification:		
7	Risk and uncertainty:	Ratio adjustment: 0 PM justification: n/a since preservation.	Ratio adjustment: 0 PM justification: n/a since preservation.	Ratio adjustment: PM justification:		
8	Temporal loss:	Ratio adjustment: 0 PM justification: n/a since preservation.	Ratio adjustment: 0 PM justification: n/a since preservation.	Ratio adjustment: PM justification:		
9	Final mitigation ratio(s):	Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 10.00 Final ratio: 11.00 : 1.00 Proposed impact (total): 0.35 acres 275 linear feet to Resource type: stream Cowardin or HGM: riverine Hydrology: ephemeral Required Mitigation*: 3.85 acres 3025.0 linear feet of Resource type: Stream Cowardin or HGM: Riverine Hydrology: Ephemeral Proposed Mitigation**: 1.75 acres 2200 linear feet Impact Unmitigated: 55 % 0.19 acres	Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 13.00 Final ratio: 14.00 : 1.00 Remaining impact: 0.19 acres 150 linear feet to Resource type: stream Cowardin or HGM: riverine Hydrology: ephemeral Required Mitigation*: 2.67 acres 2100.0 linear feet of Resource type: Upland buffer Cowardin or HGM: Riverine Hydrology: Ephemeral buffer Proposed Mitigation**: 2.67 acres linear feet Impact Unmitigated: 0 % 0.00 acres	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact (acres): 0.00 acres Remaining impact (linear feet): 0 linear feet to Resource type: stream Cowardin or HGM: riverine Hydrology: ephemeral Required Mitigation: 0.00 acres 0.0 linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: linear feet Impact Unmitigated: linear feet acres		
10	Final compensatory mitigation requirements:	Final requirement is for preservation of 1.75 acre of ephemeral stream and 2.67 acre of ephemeral stream buffer.				

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.
 **Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 2: Starting and base ratio determination for preservation (instructions at bottom).

Steps (Column A)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):	1:1	Impacts to low-functioning aquatic resource
B.	Functions adjustment (5, 3, or 1):	3	Moderately high aquatic resource functions, high quality ephemeral
C.	Threat adjustment (5, 3, or 1):	3	Medium due to maintenance costs
D.	Degree of protection adjustment (5, 3, or 1):	3	Restrictive covenant
E. (for step 3)	Total adjustment (add steps B-D):	9	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column B)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):	1:1	Impacts to low-functioning aquatic resource
B.	Functions adjustment (5, 3, or 1):	5	Least high aquatic resource functions, upland buffer to high quality ephemeral
C.	Threat adjustment (5, 3, or 1):	3	Medium due to maintenance costs
D.	Degree of protection adjustment (5, 3, or 1):	3	Restrictive covenant
E. (for step 3)	Total adjustment (add steps B-D):	11	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column C)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):		
B.	Functions adjustment (5, 3, or 1):		
C.	Threat adjustment (5, 3, or 1):		
D.	Degree of protection adjustment (5, 3, or 1):		
E. (for step 3)	Total adjustment (add steps B-D):	0	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Example 10

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20160607 Impact Site Name: Bay wetland 1 Impact Cowardin or HGM type: paulstrine	Corps File No.: SPL-2013-NNN ORM Resource Type: paulstrine Impact area : 1.27	Project Manager: Jane Regulator non-tidal wetland acres	Hydrology: seasonally flooded Impact distance: linear feet
	Column A Mitigation Site Name: Hatty Smith Marsh Mitigation Type: preservation ORM Resource Type: tidal marsh Cowardin/HGM type: estuarine Hydrology: permanently flooded	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	
2.a	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2	Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2 or 3	
2.b	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	Ratio adjustment from BAMI procedure (attached):	
2.c	Preservation (Table 2, step A) Baseline ratio: 3.00 : 1.00	Baseline ratio: : 1.00	Baseline ratio: : 1.00	
3	Preservation (Table 2, step E) Ratio adjustment: 7.0	Ratio adjustment:	Ratio adjustment:	
4	Mitigation site location: Ratio adjustment: 0 PM justification: Same 8-digit HUC watershed	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
5	Net loss of aquatic resource surface area: Ratio adjustment: 1 PM justification: Preservation results in net loss.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
6	Type conversion: Ratio adjustment: -2 PM justification: Tidal wetlands more rare in watershed than seasonal wetlands.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
7	Risk and uncertainty: Ratio adjustment: 0 PM justification: n/a since preservation.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
8	Temporal loss: Ratio adjustment: 0 PM justification: n/a since preservation.	Ratio adjustment: PM justification:	Ratio adjustment: PM justification:	
9	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 3.00 : 1.00 Total adjustments (3-8): 6.00 Final ratio: 9.00 : 1.00 Proposed impact (total): 1.27 acres 0 linear feet to Resource type: non-tidal wetland Cowardin or HGM: paulstrine seasonally flooded Hydrology: Required Mitigation*: 11.43 acres 0.0 linear feet of Resource type: tidal marsh Cowardin or HGM: estuarine Hydrology: permanently flooded Proposed Mitigation**: acres linear feet Impact Unmitigated: % acres Additional PM comments:	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact: acres #VALUE! linear feet to Resource type: non-tidal wetland Cowardin or HGM: paulstrine seasonally flooded Hydrology: Required Mitigation*: #VALUE! acres #VALUE! linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: acres linear feet Impact Unmitigated: % acres Additional PM comments:	Baseline ratio from 2.a, b or c: 0.00 : 1.00 Total adjustments (3-8): 0.00 Final ratio: 0.00 : 1.00 Remaining impact (acres): acres Remaining impact (linear feet): #VALUE! linear feet to Resource type: non-tidal wetland Cowardin or HGM: paulstrine seasonally flooded Hydrology: Required Mitigation: #VALUE! acres #VALUE! linear feet of Resource type: 0 Cowardin or HGM: 0 Hydrology: 0 Proposed Mitigation**: acres linear feet Impact Unmitigated: % acres Additional PM comments:	
10	Final compensatory mitigation requirements: Final requirement is for preservation of 11.43 acres of tidal marsh.			

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.

**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 2: Starting and base ratio determination for preservation (instructions at bottom).

Steps (Column A)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):	3:1	Impact to moderate quality seasonal wetlands
B.	Functions adjustment (5, 3, or 1):	1	high quality tidal marsh
C.	Threat adjustment (5, 3, or 1):	5	low threat
D.	Degree of protection adjustment (5, 3, or 1):	1	conservation easement
E. (for step 3)	Total adjustment (add steps B-D):	7	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column B)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):		
B.	Functions adjustment (5, 3, or 1):		
C.	Threat adjustment (5, 3, or 1):		
D.	Degree of protection adjustment (5, 3, or 1):		
E. (for step 3)	Total adjustment (add steps B-D):	0	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column C)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):		
B.	Functions adjustment (5, 3, or 1):		
C.	Threat adjustment (5, 3, or 1):		
D.	Degree of protection adjustment (5, 3, or 1):		
E. (for step 3)	Total adjustment (add steps B-D):	0	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Table 2 (Steps 2.c and 3) instructions:

A. Baseline ratio based on expected functional loss at impact site (1:1 low; 3:1 Moderate; 5:1 high). Copy to step 2.c in checklist.

Example 11

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20160607 Impact Site Name: Impact Cowardin or HGM type:	g Vernal Pool A palustrine	SPL-2013-NNN ORM Resource Type: Impact area :	Project Manager: non-tidal wetland 0.74	Joe Regulator acres	Hydrology: Impact distance: seasonally-flooded linear feet
		Column A Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Williams Meadow Preservation Non-tidal wetland Palustrine Seasonally flooded	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:		Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:
2.a	Qualitative impact-mitigation comparison:	Starting ratio: Ratio adjustment: Baseline ratio: PM justification:	1.0 : 1.0 1.00 : 1.00 1.00 : 1.00 see tab 2	Starting ratio: Ratio adjustment: Baseline ratio: PM justification:	1.0 : 1.0 1.00 : 1.00 1.00 : 1.00 see tab 2	Starting ratio: Ratio adjustment: Baseline ratio: PM justification:
2.b	Quantitative impact-mitigation comparison:	Ratio adjustment from BAMI procedure (attached):	:	Ratio adjustment from BAMI procedure (attached):	:	Ratio adjustment from BAMI procedure (attached):
2.c	Preservation (Table 2, step A)	Baseline ratio:	5.00 : 1.00	Baseline ratio:	: 1.00	Baseline ratio:
3	Preservation (Table 2, step E)	Ratio adjustment:	7.0	Ratio adjustment:		Ratio adjustment:
4	Mitigation site location:	Ratio adjustment: PM justification:	0 Same 8-digit HUC watershed	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:
5	Net loss of aquatic resource surface area:	Ratio adjustment: PM justification:	1 Preservation results in net loss.	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:
6	Type conversion:	Ratio adjustment: PM justification:	0 Impact and mitigation sites both high quality vernal pools.	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:
7	Risk and uncertainty:	Ratio adjustment: PM justification:	0 n/a since preservation.	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:
8	Temporal loss:	Ratio adjustment: PM justification:	0 n/a since preservation.	Ratio adjustment: PM justification:		Ratio adjustment: PM justification:
9	Final mitigation ratio(s):	Baseline ratio from 2.a, b or c: Total adjustments (3-8): Final ratio: Proposed impact (total): to Resource type: Cowardin or HGM: Hydrology: Required Mitigation*: of Resource type: Cowardin or HGM: Hydrology: Proposed Mitigation**: Impact Unmitigated: Additional PM comments:	5.00 : 1.00 8.00 13.00 : 1.00 0.74 acres 0 linear feet non-tidal wetland palustrine seasonally-flooded 9.62 acres 0.0 linear feet Non-tidal wetland Palustrine Seasonally flooded 9.62 acres 0 linear feet 0 % 0.00 acres	Baseline ratio from 2.a, b or c: Total adjustments (3-8): Final ratio: Remaining impact: to Resource type: Cowardin or HGM: Hydrology: Required Mitigation*: of Resource type: Cowardin or HGM: Hydrology: Proposed Mitigation**: Impact Unmitigated: Additional PM comments:	0.00 : 1.00 0.00 0.00 : 1.00 0.00 acres 0 linear feet non-tidal wetland palustrine seasonally-flooded 0.00 acres 0.0 linear feet 0 0 0 0 0 acres 0 linear feet 0 % 0.00 acres	Baseline ratio from 2.a, b or c: Total adjustments (3-8): Final ratio: Remaining impact (acres): Remaining impact (linear feet): to Resource type: Cowardin or HGM: Hydrology: Required Mitigation: of Resource type: Cowardin or HGM: Hydrology: Proposed Mitigation**: Impact Unmitigated: Additional PM comments:
10	Final compensatory mitigation requirements:	Applicant initially proposed lesser amount, then agreed to higher ratio. Final requirement is for preservation of 9.62 acres of high quality vernal pool.				

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.

**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 2: Starting and base ratio determination for preservation (instructions at bottom).

Steps (Column A)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):	5:1	Impact to high quality vernal pool
B.	Functions adjustment (5, 3, or 1):	1	high quality vernal pool
C.	Threat adjustment (5, 3, or 1):	5	low threat
D.	Degree of protection adjustment (5, 3, or 1):	1	conservation easement
E. (for step 3)	Total adjustment (add steps B-D):	7	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column B)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):		
B.	Functions adjustment (5, 3, or 1):		
C.	Threat adjustment (5, 3, or 1):		
D.	Degree of protection adjustment (5, 3, or 1):		
E. (for step 3)	Total adjustment (add steps B-D):	0	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column C)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):		
B.	Functions adjustment (5, 3, or 1):		
C.	Threat adjustment (5, 3, or 1):		
D.	Degree of protection adjustment (5, 3, or 1):		
E. (for step 3)	Total adjustment (add steps B-D):	0	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Table 2 (Steps 2.c and 3) instructions:

A. Baseline ratio based on expected functional loss at impact site (1:1 low; 3:1 Moderate; 5:1 high). Copy to step 2.c in checklist.

Example 12

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20160607 Impact Site Name: Impact Cowardin or HGM type:	Corps File No.: <u>Badlands Stream</u> <u>riverine</u>	<u>SPL-2013-NNN</u> ORM Resource Type: Impact area :	Project Manager: <u>Jane Regulator</u> stream 4.2 acres	Hydrology: <u>ephemeral</u> Impact distance: <u>11,200</u> linear feet
		Column A Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Charate Wash Preservation stream riverine perennial	Column B Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:	Column C Mitigation Site Name: Mitigation Type: ORM Resource Type: Cowardin/HGM type: Hydrology:
2.a	Qualitative impact-mitigation comparison:	Starting ratio: Ratio adjustment: Baseline ratio: PM justification:	1.0 : 1.0 1.00 : 1.00 see tab 2	Starting ratio: Ratio adjustment: Baseline ratio: PM justification:	1.0 : 1.0 1.00 : 1.00 see tab 2
2.b	Quantitative impact-mitigation comparison:	Ratio adjustment from BAMI procedure (attached):	:	Ratio adjustment from BAMI procedure (attached):	:
2.c	Preservation (Table 2, step A)	Baseline ratio:	3.00 : 1.00	Baseline ratio:	: 1.00
3	Preservation (Table 2, step E)	Ratio adjustment:	9.0	Ratio adjustment:	
4	Mitigation site location:	Ratio adjustment: PM justification:	0 Same 8-digit HUC watershed	Ratio adjustment: PM justification:	
5	Net loss of aquatic resource surface area:	Ratio adjustment: PM justification:	1 Preservation results in net loss.	Ratio adjustment: PM justification:	
6	Type conversion:	Ratio adjustment: PM justification:	-3.5 Perennial stream mitigation site higher value than ephemeral unvegetated stream to be	Ratio adjustment: PM justification:	
7	Risk and uncertainty:	Ratio adjustment: PM justification:	0 n/a since preservation.	Ratio adjustment: PM justification:	
8	Temporal loss:	Ratio adjustment: PM justification:	0 n/a since preservation.	Ratio adjustment: PM justification:	
9	Final mitigation ratio(s):	Baseline ratio from 2.a, b or c: Total adjustments (3-8): Final ratio: Proposed impact (total): to Resource type: Cowardin or HGM: Hydrology: Required Mitigation*: of Resource type: Cowardin or HGM: Hydrology: Proposed Mitigation**: Impact Unmitigated:	3.00 : 1.00 6.50 9.50 : 1.00 4.2 acres 11200 linear feet stream riverine ephemeral 39.90 acres 106400.0 linear feet stream riverine perennial 39.90 acres linear feet 0 % 0.00 acres	Baseline ratio from 2.a, b or c: Total adjustments (3-8): Final ratio: Remaining impact: to Resource type: Cowardin or HGM: Hydrology: Required Mitigation*: of Resource type: Cowardin or HGM: Hydrology: Proposed Mitigation**: Impact Unmitigated:	0.00 : 1.00 0.00 0.00 : 1.00 0.00 acres 0 linear feet stream riverine ephemeral 0.00 acres 0.0 linear feet 0 0 0 0 acres linear feet % acres
10	Final compensatory mitigation requirements:	Applicant agreed to higher ratio. Final requirement is for preservation of 58.8 acres of high quality vernal pool.			

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.
**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 2: Starting and base ratio determination for preservation (instructions at bottom).

Steps (Column A)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):	3:1	Impact: Ephemeral badland streams, either no or upland vegetation only
B.	Functions adjustment (5, 3, or 1):	3	Preservation: Moderately high-functioning perennial wash with riparian vegetation
C.	Threat adjustment (5, 3, or 1):	3	moderate threat
D.	Degree of protection adjustment (5, 3, or 1):	3	restrictive covenant
E. (for step 3)	Total adjustment (add steps B-D):	9	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column B)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):		
B.	Functions adjustment (5, 3, or 1):		
C.	Threat adjustment (5, 3, or 1):		
D.	Degree of protection adjustment (5, 3, or 1):		
E. (for step 3)	Total adjustment (add steps B-D):	0	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column C)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):		
B.	Functions adjustment (5, 3, or 1):		
C.	Threat adjustment (5, 3, or 1):		
D.	Degree of protection adjustment (5, 3, or 1):		
E. (for step 3)	Total adjustment (add steps B-D):	0	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Example 13

Attachment 12501.6 - SPD Mitigation Ratio Setting Checklist (See 12501-SPD for Revisions Sheet)

1	Date: 20160607 Impact Site Name: Hollybell Creek Impact Cowardin or HGM type: riverine	Corps File No.: SPL-2013-NNN ORM Resource Type: stream Impact area : 1.66 acres	Project Manager: Jane Regulator	Hydrology: ephemeral Impact distance: 1,560 linear feet
	Column A Mitigation Site Name: Skyway Ranch Mitigation Type: preservation ORM Resource Type: stream Cowardin/HGM type: riverine Hydrology: ephemeral	Column B Mitigation Site Name: Skyway Ranch Mitigation Type: preservation ORM Resource Type: upland stream buffer Cowardin/HGM type: uplands Hydrology: n/a	Column C Mitigation Site Name: Skyway (vernal pool) Mitigation Type: Preservation ORM Resource Type: non-tidal wetland Cowardin/HGM type: palustrine Hydrology: seasonally flooded	
2.a	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2	Qualitative impact-mitigation comparison: Starting ratio: 1.0 : 1.0 Ratio adjustment: Baseline ratio: 1.00 : 1.00 PM justification: see tab 2 or 3	
2.b	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	Quantitative impact-mitigation comparison: Ratio adjustment from BAMI procedure (attached):	
2.c	Preservation (Table 2, step A) Baseline ratio: 1.00 : 1.00	Preservation (Table 2, step A) Baseline ratio: 1.00 : 1.00	Preservation (Table 2, step A) Baseline ratio: 1.00 : 1.00	
3	Preservation (Table 2, step E) Ratio adjustment: 11.0	Preservation (Table 2, step E) Ratio adjustment: 11.0	Preservation (Table 2, step E) Ratio adjustment: 7.0	
4	Mitigation site location: Ratio adjustment: 0 PM justification: Same 8-digit HUC watershed	Mitigation site location: Ratio adjustment: 0 PM justification: Same 8-digit HUC watershed	Mitigation site location: Ratio adjustment: 0 PM justification: Same 8-digit HUC watershed	
5	Net loss of aquatic resource surface area: Ratio adjustment: 1 PM justification: Preservation results in net loss.	Net loss of aquatic resource surface area: Ratio adjustment: 1 PM justification: Preservation results in net loss.	Net loss of aquatic resource surface area: Ratio adjustment: 1 PM justification: Preservation results in net loss.	
6	Type conversion: Ratio adjustment: 0 PM justification: Impact and mitigation sites both ephemeral streams.	Type conversion: Ratio adjustment: 1.5 PM justification: Impacted ephemeral stream more valuable than preserved upland buffer.	Type conversion: Ratio adjustment: -3 PM justification: Impacted ephemeral stream much less valuable than preserved vernal pool.	
7	Risk and uncertainty: Ratio adjustment: 0 PM justification: n/a since preservation.	Risk and uncertainty: Ratio adjustment: 0 PM justification: n/a since preservation.	Risk and uncertainty: Ratio adjustment: 0 PM justification: n/a since preservation.	
8	Temporal loss: Ratio adjustment: 0 PM justification: n/a since preservation.	Temporal loss: Ratio adjustment: 0 PM justification: n/a since preservation.	Temporal loss: Ratio adjustment: 0 PM justification: n/a since preservation.	
9	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 12.00 Final ratio: 13.00 : 1.00 Proposed impact (total): 1.66 acres 1560 linear feet to Resource type: stream Cowardin or HGM: riverine Hydrology: ephemeral Required Mitigation*: 21.58 acres 20280.0 linear feet of Resource type: stream Cowardin or HGM: riverine Hydrology: ephemeral Proposed Mitigation**: 2.50 acres linear feet Impact Unmitigated: 88 % 1.47 acres	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 13.50 Final ratio: 14.50 : 1.00 Remaining impact: 1.47 acres 1379 linear feet to Resource type: stream Cowardin or HGM: riverine Hydrology: ephemeral Required Mitigation*: 21.28 acres 19999.5 linear feet of Resource type: upland stream buffer Cowardin or HGM: uplands Hydrology: n/a Proposed Mitigation**: 11.40 acres linear feet Impact Unmitigated: 46 % 0.68 acres	Final mitigation ratio(s): Baseline ratio from 2.a, b or c: 1.00 : 1.00 Total adjustments (3-8): 5.00 Final ratio: 6.00 : 1.00 Remaining impact (acres): 0.68 acres Remaining impact (linear feet): 640 linear feet to Resource type: stream Cowardin or HGM: riverine Hydrology: ephemeral Required Mitigation*: 4.09 acres 3842.6 linear feet of Resource type: non-tidal wetland Cowardin or HGM: palustrine Hydrology: seasonally flooded Proposed Mitigation**: 4.09 acres linear feet Impact Unmitigated: 0 % 0.00 acres	
10	Final compensatory mitigation requirements: Final requirement is for Applicant initially proposed only preservation of ephemeral stream and buffer. Supplemented proposal with additional preservation of vernal pool. Final requirement is for preservation of 2.5 acres of ephemeral stream, 11.4 acres of upland buffer (of ephemeral stream), and 4.09 acres of vernal pool.			

*At PM's discretion, if applicant's proposed mitigation is less than checklist requirement and additional mitigation type(s) proposed, complete additional columns as needed.
**Only enter proposed mitigation into spreadsheet if accepting applicant's lower (than required ratio) proposal.

Table 2: Starting and base ratio determination for preservation (instructions at bottom).

Steps (Column A)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):	1:1	Impact: Ephemeral stream, unvegetated
B.	Functions adjustment (5, 3, or 1):	5	Preservation: ephemeral stream, unvegetated, within high quality habitat parcel
C.	Threat adjustment (5, 3, or 1):	3	moderate threat
D.	Degree of protection adjustment (5, 3, or 1):	3	restrictive covenant
E. (for step 3)	Total adjustment (add steps B-D):	11	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column B)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):	1:1	Impact: Ephemeral stream, unvegetated
B.	Functions adjustment (5, 3, or 1):	5	Preservation: upland buffer of ephemeral stream
C.	Threat adjustment (5, 3, or 1):	3	moderate threat
D.	Degree of protection adjustment (5, 3, or 1):	3	restrictive covenant
E. (for step 3)	Total adjustment (add steps B-D):	11	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			

Steps (Column C)	Criteria	Results	PM Justification
A. (for step 2.c)	Baseline ratio (5:1, 3:1, or 1:1):	1:1	Impact: Ephemeral stream, unvegetated
B.	Functions adjustment (5, 3, or 1):	1	Preservation: high quality vernal pool (high aquatic resource functions)
C.	Threat adjustment (5, 3, or 1):	3	moderate threat
D.	Degree of protection adjustment (5, 3, or 1):	3	restrictive covenant
E. (for step 3)	Total adjustment (add steps B-D):	7	
Supporting information:			
Impacted aquatic resource(s):			
Preserved aquatic resource(s)/site(s):			
Threat:			
Protection type:			