Development Accommodation Realignment Study – Riverton City

CEEn-2016CPST-01 **April 7, 2017**

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Executive Summary

Riverton City recently purchased the last, undeveloped plot of land in their city. The current location has issues with erosion as Rose Creek is pushing towards its original location. The current capacity of Rose Creek is insufficient for the flow and during the peak times of the year, it floods the nearby intersection. In order to accommodate the new developments and to mitigate the problems currently facing that area, Riverton needs to realign Rose Creek back to its original flow path. Rose Creek was first realigned in the 1960's to accommodate central pivot irrigation methods. The proposed stream realignment given by our team has an even slope of about two percent through the site. The proposed channel has a floodplain to better imitate a natural channel that has been designed to withstand a flow of 500 cfs. The proposed layout and design will reduce the amount erosion, create space for new development, and reduce flooding.

The design process used Watershed Modeling Systems (WMS) to calculate the runoff into Rose Creek. Hydraulic Toolbox was used to analyze the existing cross sections and the proposed cross sections. ArcGIS was used to get slope profiles of the existing and proposed streams. Lastly, HEC-RAS will be used to analyze the existing cross sections and flow of the proposed realignment.

Table of Contents

Table of Figures

Table of Tables

Introduction

The City of Riverton, Utah has embarked on a project to realign 2500 feet of a natural stream to support future development as part of an agreement with landowners. This land has been recently acquired by Riverton City from the Church of Jesus Christ of Latter-Day Saints and has Rose Creek running through the property. For the Development Accommodation Realignment Study, our team has analyzed Rose Creek that runs through the city of Riverton and determined the best possible path to realign the stream in order to accommodate the future development. The section of Rose Creek that was analyzed lies just south 13400 S and east of the Mountain View Corridor in Riverton, Utah. It is proposed that this section of the creek be aligned to its natural path before it had been averted to the current position it now occupies. This realignment would create space needed for development and offer a design that would reduce erosion and flooding in the area.

To determine the design parameters needed in the new stream path, the following measures were taken. Current 100 and 200 year peak flows were calculated using the U.S. Geological Survey (USGS) regression equations for Utah. This analysis was performed to know the design capacity for new cross sections. The team also visited the current site. Coordinates, channel shapes, and measurements of the current creek path were taken in order to create existing cross sections and elevation profiles. With the existing elevations and cross sections, the existing conditions of the creek were determined.

As part of the objectives of the realignment study, a preliminary layout of the proposed stream was presented as the path of the new stream. Preliminary cross sections were designed to withstand a 500 cfs flow and analyzed using the hydraulic tool box and the stream bed slope from the elevation data collected. Other features such as a natural soil base or concrete base were recommended in the realignment as well. It was determined that a natural soil base with a small floodplain was the best design in the realignment plan.

The state of Utah requires different levels of authorization to alter a natural stream. The requirements to obtain authorization vary depending on the type of alteration. The entities responsible for authorizing the realignment of Rose Creek are the US Army Corps of Engineers, the State of Utah, and Salt Lake County. A detailed outline of the requirements to obtain authorization from these entities is provided in the report.

Process

Current Conditions at Realignment Site

Current Path

Current conditions of Rose Creek have been observed on two separate occasions. The initial observation occurred October 13, 2016 with Trace Robinson from Riverton City. Upon walking the stream line, it was observed that large amounts of erosion had occurred despite the stream being currently dry. Rose Creek was visited again February 15, 2017 to observe the creek and also take various measurements of the channel. Further erosion had taken place as snow runoff had been flowing through the creek during the winter months. The heaviest amount of erosion has been taking place on the south side of the creek which is in the direction of the original stream path. It appears that the creek is trying to push its way back to its original path. Small puddles were sighted in different parts of the creek bed which indicates that the creek bed is not constant in its downward slope, creating areas of standing water.

Figure 1. Image of erosion taken in October, 2016

Site Conditions

The site is currently being used for agricultural purposes by the church of Jesus Christ of Latter-Day Saints. Research and analysis indicate that Rose Creek was originally diverted in the 1960s to accommodate the circle irrigation used for farming. The current condition of Rose Creek is an ephemeral stream which remains completely dry for most parts of the year with the exception of flowing after heavy rains or melted snow runoff.

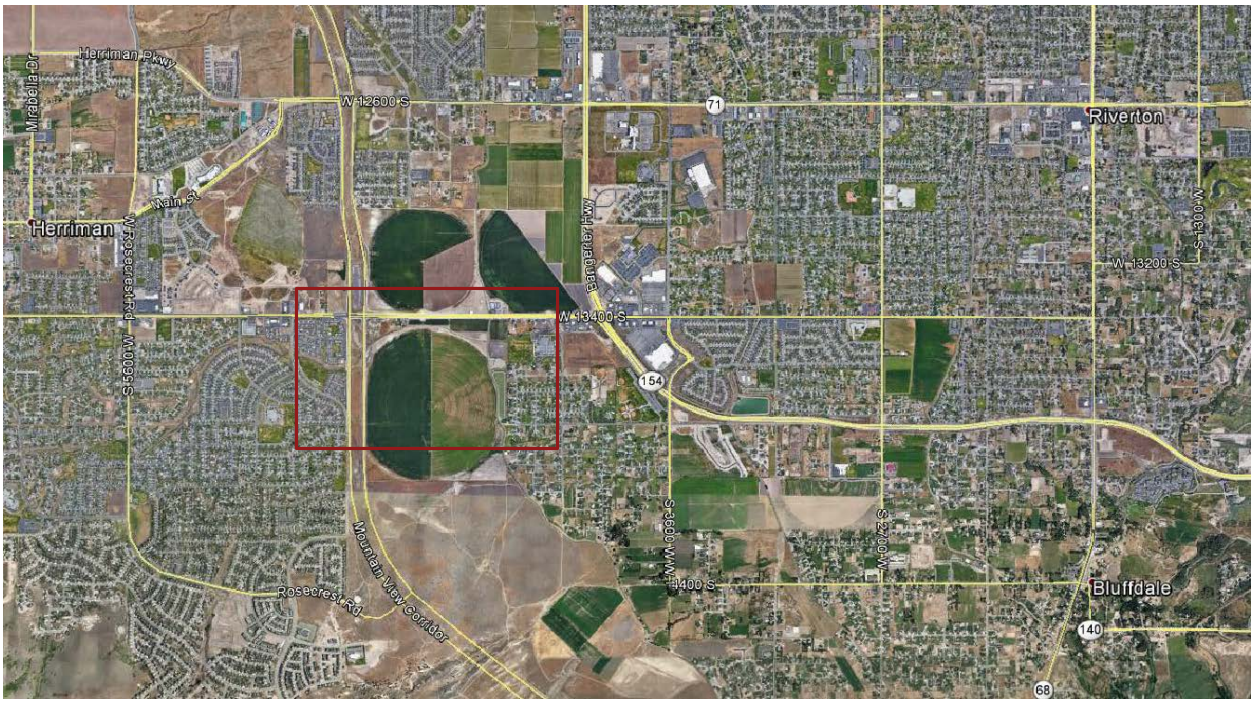

Figure 2. Site Location

Existing Cross Sections/Flow Rate

Three separate cross sections were taken of the creek in its current state to analyze the current state assuming 500 cfs flow rate (as requested by the city of Riverton). The assumed design flow rates will be later examined by creating watershed models in WMS to ensure a sufficient design for Rose Creek. The cross sections were analyzed using the hydraulic tool box and two of the three cross sections were found to have super critical flow based on the Froude number. Based on observations, the creek width was consistently 18-20 feet wide at the top and 8-10 feet deep, while the cross sections of the stream matches that of cross section 2 for more than two-thirds of the channel distance (see Appendix pg. 1 for hydraulic tool box analysis of cross-sections). The design flow given from Riverton City was 500 cfs. Watershed modeling to verify that number will be explained in the following sections.

Figure 3. Locations of original cross sections for analysis

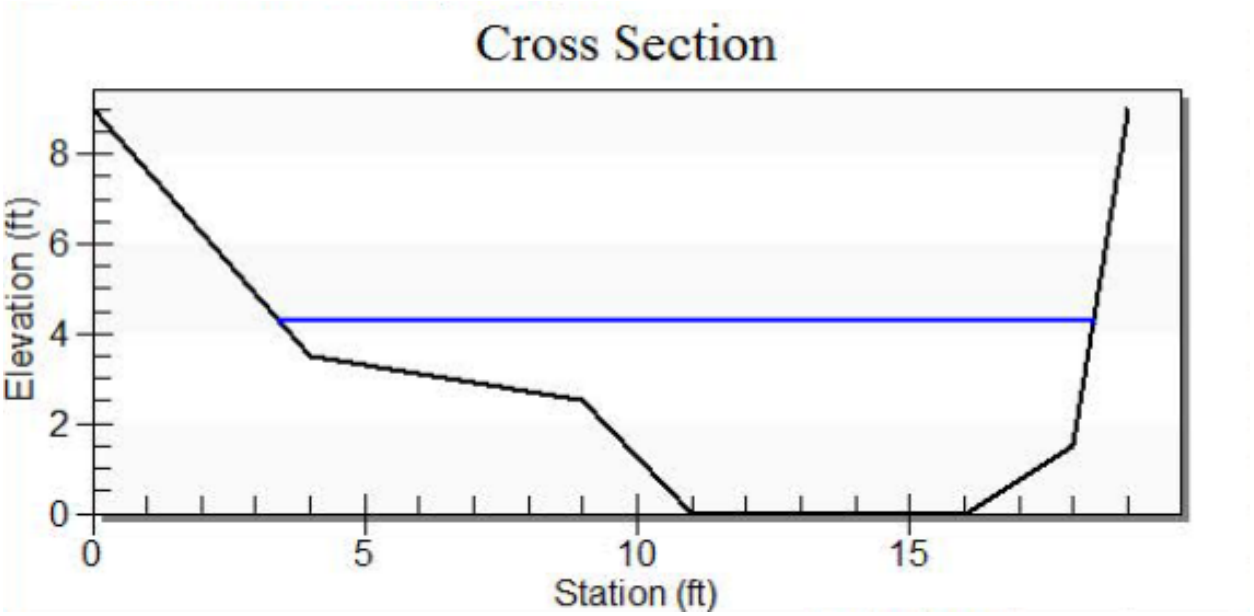

Figure 4. Cross Section 2

WMS Watershed Model

Methodology

WMS watershed modeling and NSS (National Streamflow Statistics Program) regression equations were used to verify the design flow rate of 500 cfs for Rose Creek. The watershed was found to be 14.97 square miles for an output point at the end of the culvert on the west side of the lot. The watershed is a large area since the output point under analysis is far downstream of rose creek. Much of the lower part of the watershed is observed to be urbanized with rural areas further up in the mountains. The flow rate was first determined with the help of WMS through regression equation, then applied to the national urban regression equation.

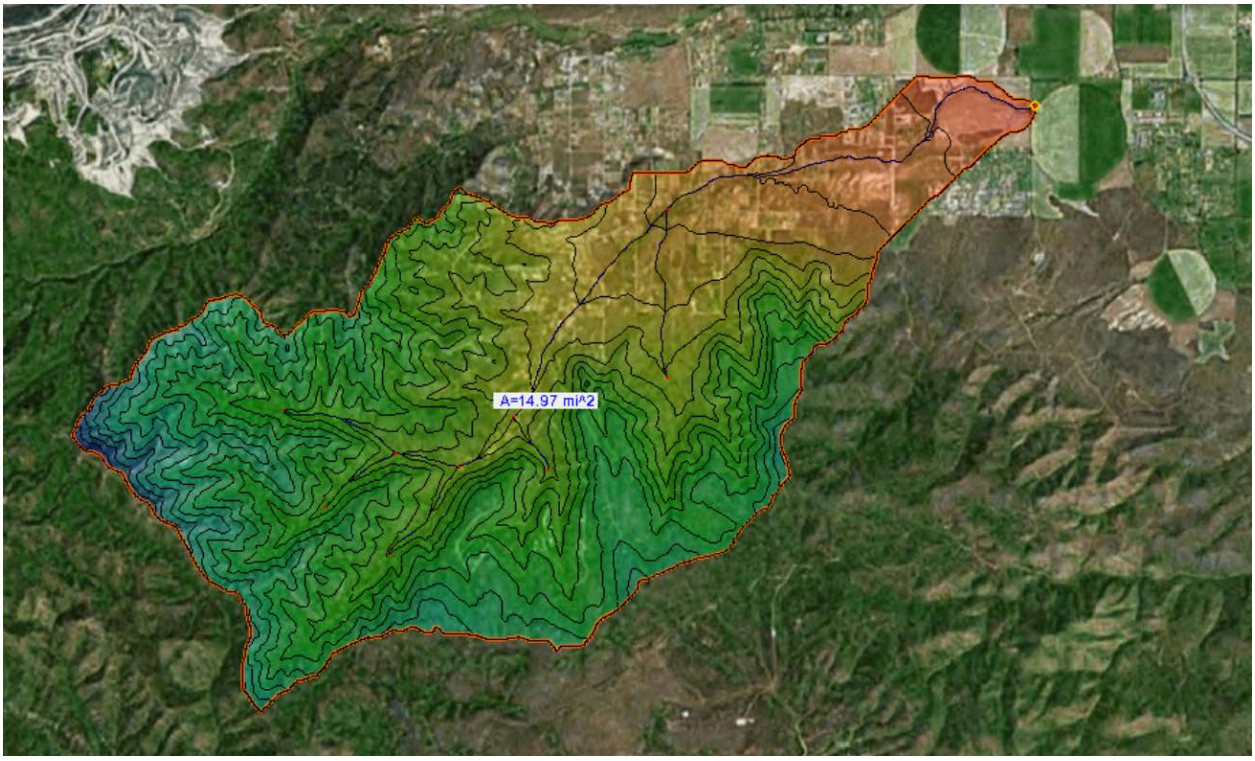

Figure 5. Watershed for Rose Creek

Computing Flow Rate

Preliminary flow rates were determined by delineating the watershed model obtained in WMS, and using the regression equations provided in the program. The Riverton site is in region 2 (rural) of Utah and that equation (region 2) was used to find flows for the 2, 5, 10, 25, 50, 100, 200, and 500-year recurrences. As seen in Table 1, the flow requirements are well below 500 cfs for a rural situation. Since a portion of the watershed is an urbanized area, an urban regression equation is needed to more accurately determine the flow.

Table 1. Values based on regression equation for Utah region 2 with an area of 14.9 sq. miles and 24 in. annual precipitation, and the national urban regression equation

Recurrence [years]	Rural Peak [cfs]	Urban Peak [cfs]
2	32	106
5	56	175
10	75	232
25	95	300
50	118	364
100	138	413
200	158	N/A
500	190	547

An urban equation was selected from page 8 of "Nationwide Summary of U.S. Geological Survey Regional Regression Equations for Estimating Magnitude and Frequency of Floods for Ungauged Sites, 1993." Below is the national urban regression equation for a 2-year recurrence interval. See appendix pages 4 and 5 for precise values used in the national urban regression equation for all return periods.

$$UQ2 = 2.35A^{.41}SL^{.17}(RI2+3)^{2.04}(ST+8)^{-.65}(13-BDF)^{-.32}IA^{.15}RQ2^{.47}$$

A is the contributing drainage area which was found to be 14.97 sq. miles in WMS. **SL** is the main channel slope in ft/mi. Since the exact number for this project is not known, the maximum value of 70 ft/mi was used as a conservative value. **RI2** is the 2-hour, 2-year recurrence interval for rainfall in inches. This was found in a table provided by NOAA for the Bingham Canyon station. The value for RI2 is .674 inches (Appendix pg. 4). **ST** is the basin storage, being a percentage of the area which is covered by lakes, reservoirs, wetlands, etc. A conservative value of .02 was used since a large portion of the watershed is mountainous and there are no bodies of water. **BDF** is the basin development factor (0 to 12). Since a majority of the watershed is rural and mountainous, 8 was found to be conservative. **IA** is the percentage of impervious area in the watershed such as houses, buildings, and streets. A conservative value of .0825 was used for IA. **RQT** refers to the recurrence flow found using the rural equation for Utah in WMS (Table 1).

Based on the values in Table 1, a design flow of 500 cfs was determined to be adequate and was used throughout the design process.

Proposed Realignment Path

New Design Path

The new design path was chosen to match the original path of Rose Creek before it was diverted. To accurately place the proposed path, old maps were found in the Harold B. Lee Library that show where Rose Creek was originally located before diversion. Riverton City also hired surveyors to design a proposed path with elevations as close as possible to the original path. Topographic maps were studied as well which indicate where the original path most likely was. Using Google Earth and ArcGIS, the team mapped out the new proposed path and created an elevation profile for the new layout. The new elevation data provided shows that a constant downward slope between 1.4-2.2% is achieved (Appendix pg. 3).

Figure 6: Proposed Rose Creek Alignment

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Design Cross Sections

New design cross sections were designed to withstand a peak flow of 500 cfs as discussed in the watershed flow rate and recurrence flow rate sections. In the new design, the team decided to keep the channel as natural as possible. The base of the channel was made to be a natural soil base and the cross section was made to resemble the current channels main cross section. This includes the flood basin that exists in the middle of the channel. (See Figure 1) As seen in the figure below there were some slight modifications made in the design cross section from the existing cross section. The design cross section was designed symmetrically to handle channel flow evenly. The current cross section was no longer symmetric due to the creek eroding the south bank as it attempted to push back to its original location. The channel flood basin in the design was also made to reach a height of four feet, which is slightly higher than the natural flood basin. The reasoning for this was so that the basin could completely hold a 200-year peak flow recurrence. The new channel design along with the new path slope allowed for the Froude number to be below one and not be a supercritical flow. Creek velocity also decreased to about 10 feet/sec and flow height never passes six feet. All of the stream data can be seen In the Appendix on page 2.

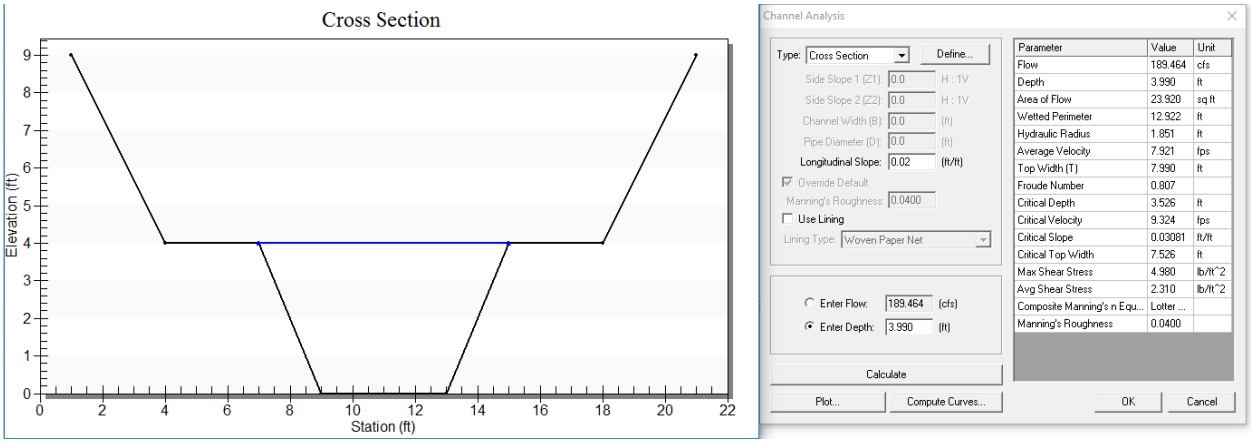


Figure 7: New Cross Section

Creating Model in HEC-RAS

The team sat in on two classes about HEC-RAS taught by Dr. Rollin Hotchkiss. The first class covered the theory behind HEC-RAS and about the Army Corps of Engineers that runs the program. The second class went through the steps of using HEC-RAS in a hands-on learning experience. During the class a sample stream was mapped and cross sections were added. HEC-RAS was used to layout the new path for Rose Creek. The designed cross section was placed along the path, and a model was created to determine how the new stream works. After the cross section was placed, steady flow analysis was performed with a 500 cfs flow. The cross section with the height of the water matches the cross sections designed in Hydraulic toolbox. HEC-RAS confirms the theory that this cross section will be sufficient for the 500 cfs design flow.

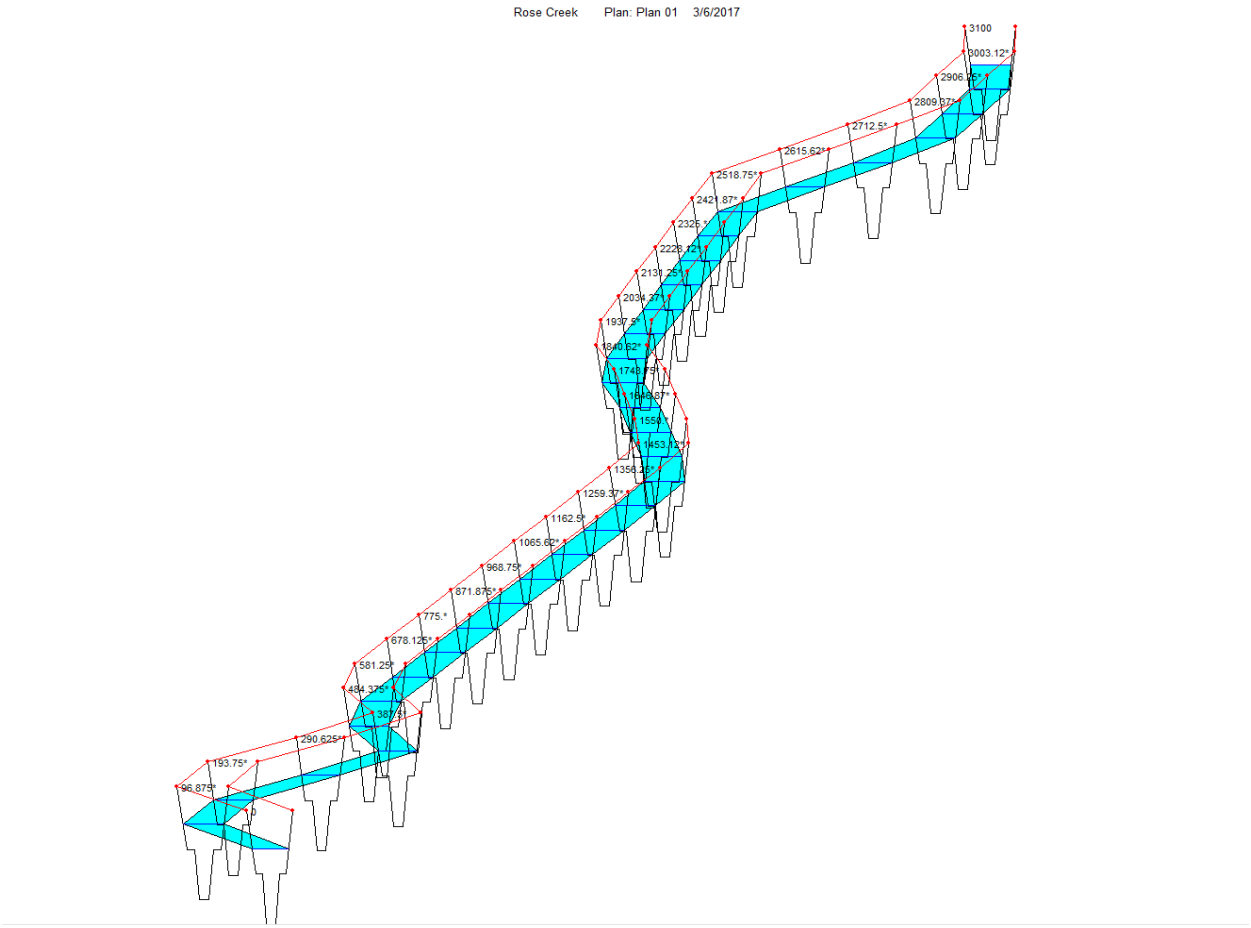


Figure 8. HEC-RAS Model

Permitting Requirements

In order to begin the work of realigning Rose Creek, proper permitting must first be awarded to the City of Riverton. First, Riverton City must hire a consultant or an in house worker that can perform an Aquatic Resource Delineation report. The main purpose of this report is to first classify the stream, and second to determine whether Rose Creek falls under the Jurisdiction of the Army Corps of Engineers. Research done by the group confirms that Rose Creek is an ephemeral stream, and it falls under Army Corps Jurisdiction because Rose Creek flows directly into the Jordan River. This report must be sent into the Army Corps requesting an approved determination before permitting can begin. The minimum standards for acceptance of Aquatic Resource Delineation Reports can be found attached in the Appendix on page 6.

Once a delineation report has been completed, it is recommended that a preliminary meeting be scheduled with the Army Corps of Engineers office in Bountiful, Utah. This meeting is held on the 3rd Tuesday of every month, and is intended to help applicants develop their project plans prior to submitting a formal permit application. Instructions to schedule this meeting can be found in the Appendix on page 26.

Once the preliminary meeting and delineation reports have been completed, the applicant will

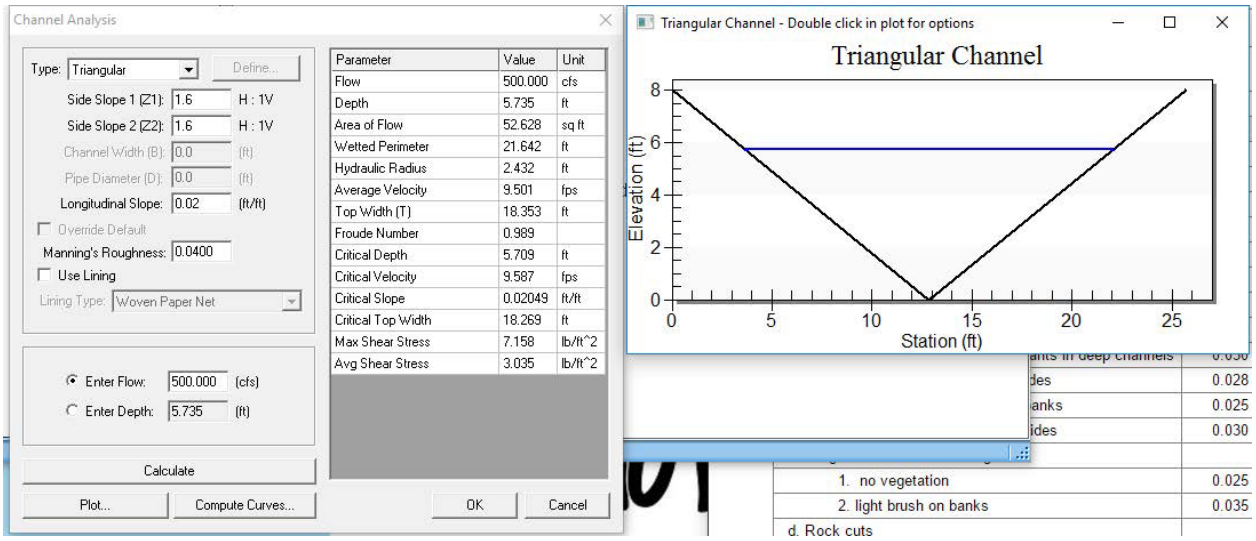
fill out and submit a permit application form. For the parameters of this specific project, there are two possible options to pursue in filing for permits. The first and most common form is to apply for an individual permit using an ENG Form 4345. The 4345 form can be found on the website for the Sacramento District of the US Army Corps of Engineers. Form 4345 applies to large scale stream alterations over 300 linear feet. This process can be rigorous and time consuming. For the purposes of this project, it has been determined that applying for a Nationwide Permit 27 (NWP 27) is the better path to pursue. The NWP 27 is issued under the premise that the restoration project is enhancing stream quality, and minimally affecting the environment. This specific NWP form does not have a linear footage threshold. The requirements for a NWP 27 can be seen in the Appendix on page 27. The Rose Creek relocation appears to fulfill all of the requirements found in the Nationwide Permit Summary, and can be seen in the statistical analysis performed throughout the report in the design cross sections, proposed elevations, and recurrence model numbers as compared to the existing cross sections and slope elevations. More research needs to be conducted to ensure all of the environmental requirements are met, but as the creek is an uninhabited ephemeral stream, these criteria are likely met. This research would likely be completed in the aquatic delineation report. The application for an NWP 27 can also be found on the US Army Corps of Engineers website, and it is titled Nationwide Permit Pre-Construction Notification Form. Once this form has been completed and all the needed requirements are fulfilled, the Army Corps of Engineers has 45 days to approve or deny the application.

Conclusions

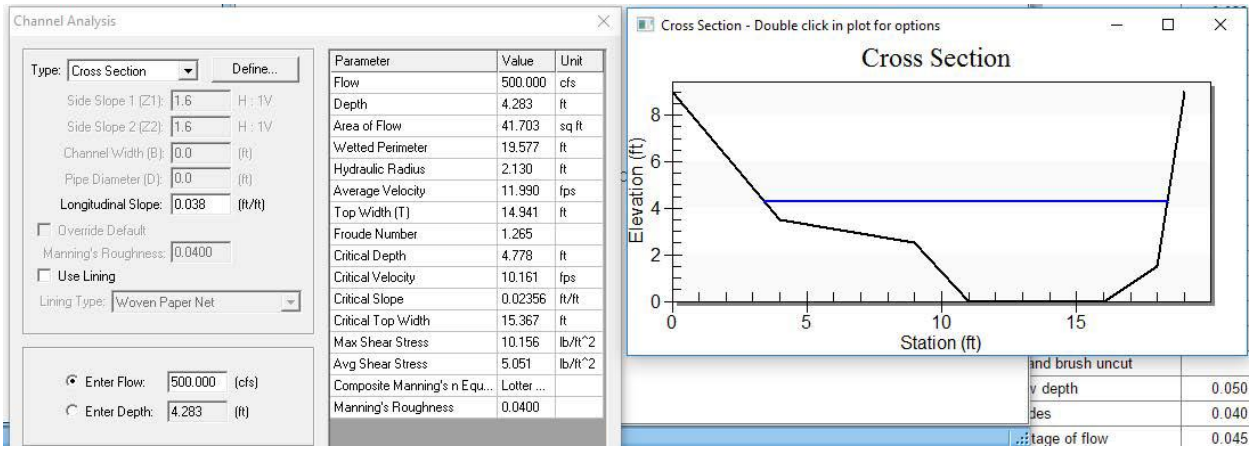
Data was collected and analysis was performed to design a new realignment for Rose Creek. It was determined from WMS and regression equations that the 500 cfs flow will be more than adequate for the design flowrate of the new Rose Creek. The design reflects an effort to bring the stream back to its original state by finding the natural course of the creek and designing the stream with floodplains. From the analysis performed, the NWP 27 is the best route to obtain the relocation permit needed to properly move Rose Creek. This realignment will not only create space for future development, but will also improve current stream conditions and accommodate future stream demands.

Appendices

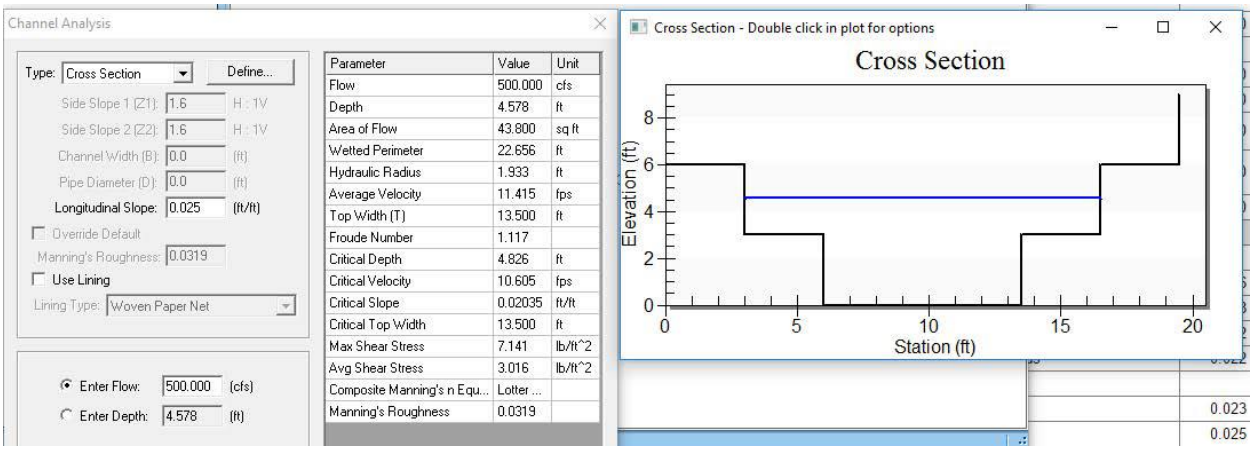
Original cross section 1



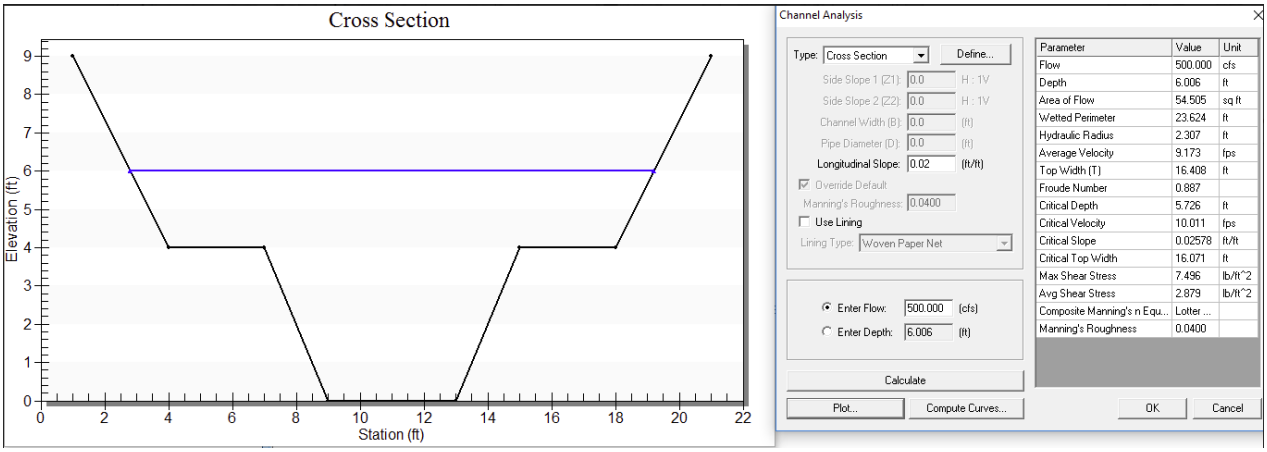
Original cross section 2



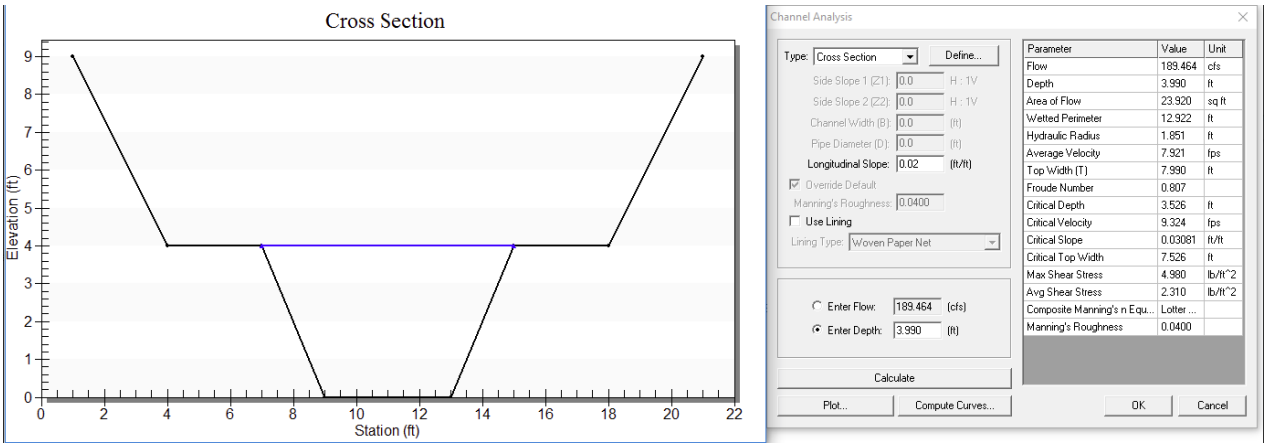
Original cross section 3



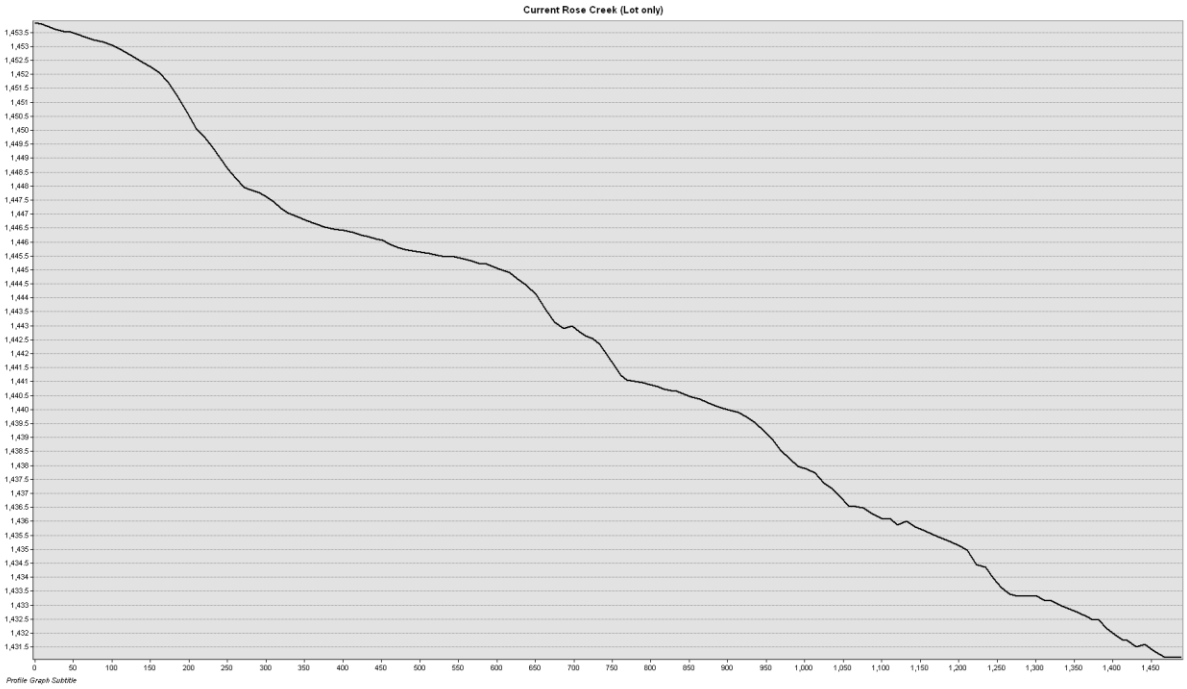
New cross sections with 500 cfs flow



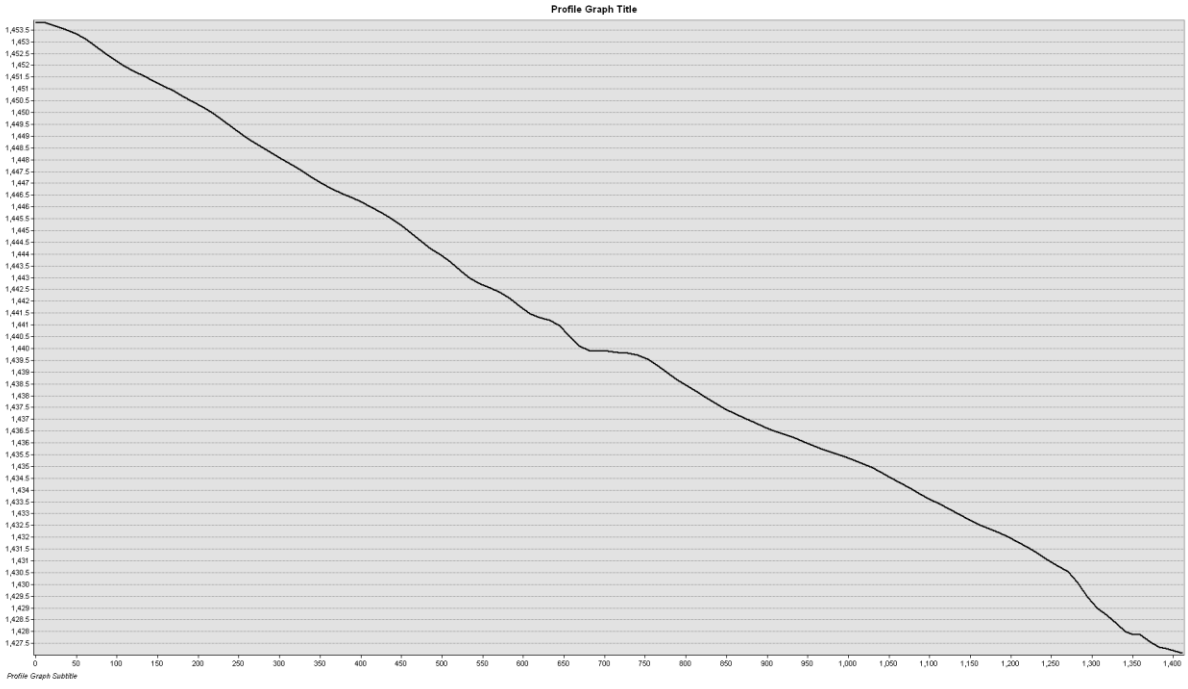
New cross sections capacity for base channel



Current elevation profile of rose creek



Elevation profile of new proposed path



National Urban Regression Equation

	A (mi^2)	SL (ft/mi)	RI2 (in)	ST	BDF	IA	RQT
	14.971321	70	0.672	0.02	8	0.054	From rural eq.
	(cfs)						
UQ2=	105.90						
UQ5=	175.02						
UQ10=	232.00						
UQ25=	300.11						
UQ50=	363.60						
UQ100=	412.99						
UQ500=	547.07						

For more information about the national urban regression equations see "Nationwide Summary of U.S. Geological Survey Regional Regression Equations for Estimating Magnitude and Frequency of Floods for Ungaged Sites, 1993", page 8. Precipitation data used was found on the NOAA website using the Bingham Canyon station. The table obtained is seen below.

Websites:

https://pubs.usgs.gov/wri/1994/4002/report.pdf (USGS Publication with national urban regression equation)

http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ut (Precipitation Table)

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.134** (0.118-0.156)	**0.171** (0.150-0.199)	**0.234** (0.205-0.273)	**0.291** (0.251-0.340)	**0.382** (0.322-0.447)	**0.465** (0.381-0.549)	**0.562** (0.447-0.672)	**0.675** (0.518-0.822)	**0.857** (0.625-1.07)	**1.03** (0.714-1.31)
10-min	**0.204** (0.179-0.238)	**0.260** (0.229-0.303)	**0.357** (0.312-0.415)	**0.444** (0.383-0.517)	**0.581** (0.490-0.681)	**0.708** (0.581-0.836)	**0.855** (0.680-1.02)	**1.03** (0.788-1.25)	**1.31** (0.951-1.63)	**1.56** (1.09-1.99)
15-min	**0.253** (0.222-0.295)	**0.323** (0.284-0.375)	**0.443** (0.387-0.515)	**0.550** (0.475-0.641)	**0.720** (0.608-0.845)	**0.877** (0.720-1.04)	**1.06** (0.843-1.27)	**1.27** (0.977-1.55)	**1.62** (1.18-2.02)	**1.94** (1.35-2.47)
30-min	**0.342** (0.299-0.397)	**0.435** (0.382-0.506)	**0.596** (0.521-0.693)	**0.741** (0.640-0.863)	**0.971** (0.819-1.14)	**1.18** (0.969-1.40)	**1.43** (1.14-1.71)	**1.72** (1.32-2.09)	**2.18** (1.59-2.72)	**2.61** (1.82-3.33)
60-min	**0.423** (0.370-0.492)	**0.539** (0.473-0.626)	**0.738** (0.645-0.858)	**0.917** (0.792-1.07)	**1.20** (1.01-1.41)	**1.46** (1.20-1.73)	**1.77** (1.41-2.11)	**2.12** (1.63-2.59)	**2.70** (1.96-3.37)	**3.23** (2.25-4.12)
2-hr	**0.537** (0.484-0.609)	**0.672** (0.605-0.763)	**0.878** (0.784-0.996)	**1.07** (0.942-1.21)	**1.37** (1.18-1.57)	**1.65** (1.39-1.90)	**1.97** (1.61-2.31)	**2.35** (1.85-2.81)	**2.96** (2.21-3.63)	**3.53** (2.52-4.42)
3-hr	**0.636** (0.579-0.708)	**0.786** (0.715-0.874)	**0.990** (0.897-1.10)	**1.18** (1.06-1.31)	**1.47** (1.30-1.65)	**1.73** (1.50-1.96)	**2.05** (1.73-2.36)	**2.43** (1.98-2.84)	**3.05** (2.38-3.65)	**3.61** (2.71-4.42)
6-hr	**0.860** (0.796-0.936)	**1.06** (0.976-1.15)	**1.28** (1.18-1.39)	**1.48** (1.35-1.61)	**1.77** (1.60-1.94)	**2.01** (1.79-2.22)	**2.30** (2.01-2.57)	**2.64** (2.26-2.99)	**3.26** (2.71-3.77)	**3.80** (3.08-4.49)
12-hr	**1.12** (1.04-1.22)	**1.37** (1.27-1.50)	**1.66** (1.53-1.81)	**1.90** (1.74-2.08)	**2.26** (2.04-2.48)	**2.54** (2.27-2.82)	**2.84** (2.50-3.19)	**3.20** (2.76-3.63)	**3.76** (3.16-4.36)	**4.21** (3.47-4.97)
24-hr	**1.37** (1.26-1.50)	**1.70** (1.55-1.85)	**2.04** (1.87-2.22)	**2.32** (2.12-2.53)	**2.70** (2.47-2.95)	**2.99** (2.72-3.26)	**3.29** (2.98-3.59)	**3.59** (3.24-3.92)	**3.99** (3.57-4.39)	**4.29** (3.82-5.02)
2-day	**1.59** (1.45-1.75)	**1.96** (1.78-2.16)	**2.38** (2.16-2.61)	**2.72** (2.46-2.98)	**3.19** (2.88-3.50)	**3.57** (3.20-3.91)	**3.96** (3.54-4.35)	**4.36** (3.88-4.80)	**4.91** (4.33-5.42)	**5.33** (4.65-5.92)
3-day	**1.74** (1.59-1.92)	**2.15** (1.96-2.36)	**2.62** (2.39-2.88)	**3.01** (2.74-3.30)	**3.56** (3.22-3.90)	**3.99** (3.61-4.37)	**4.45** (4.00-4.88)	**4.93** (4.39-5.42)	**5.58** (4.93-6.16)	**6.10** (5.33-6.76)
4-day	**1.89** (1.74-2.08)	**2.33** (2.14-2.57)	**2.86** (2.62-3.14)	**3.31** (3.01-3.63)	**3.93** (3.57-4.30)	**4.42** (4.01-4.84)	**4.95** (4.45-5.41)	**5.50** (4.91-6.03)	**6.26** (5.52-6.90)	**6.87** (6.01-7.60)
7-day	**2.31** (2.11-2.54)	**2.85** (2.60-3.14)	**3.48** (3.17-3.83)	**4.01** (3.65-4.40)	**4.73** (4.29-5.19)	**5.30** (4.78-5.82)	**5.90** (5.30-6.47)	**6.51** (5.80-7.14)	**7.35** (6.48-8.09)	**8.01** (7.00-8.84)
10-day	**2.67** (2.44-2.91)	**3.29** (3.01-3.59)	**3.99** (3.65-4.35)	**4.56** (4.16-4.97)	**5.32** (4.84-5.81)	**5.91** (5.36-6.46)	**6.51** (5.88-7.13)	**7.12** (6.40-7.80)	**7.94** (7.07-8.73)	**8.57** (7.56-9.44)
20-day	**3.57** (3.30-3.85)	**4.40** (4.08-4.76)	**5.28** (4.88-5.72)	**5.96** (5.51-6.46)	**6.85** (6.31-7.42)	**7.52** (6.90-8.15)	**8.19** (7.48-8.87)	**8.83** (8.03-9.58)	**9.67** (8.73-10.5)	**10.3** (9.24-11.3)
30-day	**4.34** (4.05-4.63)	**5.35** (4.99-5.72)	**6.42** (5.98-6.86)	**7.28** (6.77-7.77)	**8.42** (7.81-9.00)	**9.28** (8.57-9.94)	**10.2** (9.34-10.9)	**11.0** (10.1-11.9)	**12.1** (11.0-13.1)	**13.0** (11.7-14.1)
45-day	**5.48** (5.13-5.85)	**6.74** (6.31-7.20)	**8.02** (7.50-8.58)	**9.04** (8.45-9.66)	**10.4** (9.67-11.1)	**11.4** (10.6-12.2)	**12.3** (11.4-13.3)	**13.3** (12.3-14.3)	**14.6** (13.4-15.8)	**15.6** (14.1-16.9)
60-day	**6.57** (6.14-7.05)	**8.10** (7.58-8.70)	**9.62** (9.01-10.3)	**10.8** (10.1-11.6)	**12.3** (11.5-13.2)	**13.4** (12.5-14.4)	**14.5** (13.4-15.6)	**15.5** (14.3-16.8)	**16.9** (15.5-18.4)	**17.9** (16.3-19.5)

Rural Regression equations for Utah, Region 2 of Rose Creek

Input Parameters:

State:	Utah
Crippen and Bue Region:	Region 2

Region:	Region 2

Variable values:

Variable Name	Abbreviation	Value	Units	Minimum	Maximum
Drainage Area	DRNAREA	14.971321	square miles	2.14	84.1
Mean Annual Precipitation	PRECIP	24	inches	16.5	53.7

Output:

Type	Peak [cfs]	Recurrence [years]	Equivalent Years	Error [%]
Rural	32	2	0.9	71
Rural	56	5	1.6	58
Rural	75	10	2.5	53
Rural	95	25	3.7	51
Rural	118	50	4.6	50
Rural	138	100	5.4	50
Rural	158	200	6.1	51
Rural	190	500	6.8	52

National Urban Regression Equations

$$UQ2 = 2.35\ A^{.41}\ SL^{.17}\ (RI2+3)^{2.04}\ (ST+8)^{-.65}\ (13-BDF)^{-.32}\ IA^{.15}\ RQ2^{.47}$$

standard error of estimate is 38 percent

$$UQ5 = 2.70\ A^{.35}\ SL^{.16}\ (RI2+3)^{1.86}\ (ST+8)^{-.59}\ (13-BDF)^{-.31}\ IA^{.11}\ RQ5^{.54}$$

standard error of estimate is 37 percent

$$UQ10 = 2.99\ A^{.32}\ SL^{.15}\ (RI2+3)^{1.75}\ (ST+8)^{-.57}\ (13-BDF)^{-.30}\ IA^{.09}\ RQ10^{.58}$$

standard error of estimate is 38 percent

$$UQ25 = 2.78\ A^{.31}\ SL^{.15}\ (RI2+3)^{1.76}\ (ST+8)^{-.55}\ (13-BDF)^{-.29}\ IA^{.07}\ RQ25^{.60}$$

standard error of estimate is 40 percent

$$UQ50 = 2.67\ A^{.29}\ SL^{.15}\ (RI2+3)^{1.74}\ (ST+8)^{-.53}\ (13-BDF)^{-.28}\ IA^{.06}\ RQ50^{.62}$$

standard error of estimate is 42 percent

$$UQ100 = 2.50\ A^{.29}\ SL^{.15}\ (RI2+3)^{1.76}\ (ST+8)^{-.52}\ (13-BDF)^{-.28}\ IA^{.06}\ RQ100^{.63}$$

standard error of estimate is 44 percent

$$UQ500 = 2.27\ A^{.29}\ SL^{.16}\ (RI2+3)^{1.86}\ (ST+8)^{-.54}\ (13-BDF)^{-.27}\ IA^{.05}\ RQ500^{.63}$$

standard error of estimate is 49 percent

MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

January 2016

The U.S Army Corps of Engineers, through its Regulatory Program, regulates certain activities in waters of the United States. Waters of the U.S. are defined under 33 CFR Part 328. In order for the Corps to determine the amount and extent of waters of the United States at a site, aquatic resources must first be delineated in accordance with established regulatory standards, guidance and protocol, such as the 1987 Corps of Engineers Wetlands Delineation Manual and appropriate regional supplements. Before making any permit decision, the Corps is responsible for conducting or verifying the delineation and determining which of the aquatic resources have the potential to fall under federal jurisdiction.

Due to limited staffing and resources, the Corps' Sacramento District recommends permit applicants employ the services of individuals experienced in delineating aquatic resources. Permit applicants are further encouraged early in the project planning stages to submit the delineation, along with a request for a preliminary or approved jurisdictional determination, and engage in a pre-application consultation with their local District office. Early consultation may help identify potential concerns and result in a quicker permit decision.

The District has established minimum standards for delineation reports to insure consistency and accuracy in the delineation of aquatic resources, which will minimize potential delays. The standards are based on years of experience conducting and verifying delineations, as well as the best practices of environmental consultants. Delineations submitted for verification must follow the standards, unless determined to not be practical on a case-by-case basis. Situations where adherence to the standards may not be practical include activities with small permanent or temporary impacts to aquatic resources (under 0.10 acre), applicants with limited financial resources, and emergencies. The District will notify the requestor for delineation submittals that do not contain sufficient information to accurately identify the limits of waters of the U.S.

Aquatic resources delineation reports submitted to the District must include the following:

☐ A cover letter requesting a jurisdictional determination. The letter must specify whether a preliminary or approved jurisdiction determination is requested.

☐ A signed statement from the property owner(s) allowing Corps personnel to enter the property and to collect samples during normal business hours. If the property is land-locked, the owner or proponent must obtain permission from the adjacent property owner(s) to provide access for Corps personnel.

☐ A statement that the delineation has been conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and appropriate regional supplement(s). The regional supplement(s) used must be identified. For ordinary high water mark (OHWM) delineations, a statement indentifying the use of the OHWM field guide must be included.

☐ Directions to the survey area.

☐ Contact information for the applicant(s), property owner(s), and agent(s).

☐ A narrative describing all aquatic resources at the site and an explanation for the mapped boundaries, especially for resources containing complex transition zones. If the site contains resources that meet one or two wetland criteria or do not exhibit a clear OHWM, describe the rationale for not delineating these features. Examples include erosional features, upland swales, and other upland areas that appear “wet” on satellite or aerial imagery.

☐ The total acreage of the survey area.

☐ Date(s) field work was completed.

☐ A table listing all aquatic resources. The table will include the name of each aquatic resource, its Cowardin type, acreage, and location (latitude/longitude). For linear features, the table must show both acreage and linear feet.

☐ A description of existing field conditions. The field condition description may include current land use, flood/drought conditions, irrigation practices, modifications to the site, and any characteristics considered atypical.

☐ A discussion of the hydrology at the site, including all known surface or subsurface sources, drainage gradients, surface water connections to the nearest traditional navigable waterway or interstate water, and any potential influence for manmade water sources, such as irrigation. The discussion should also identify the nearest “blue-line” waterway or other feature found on the most recent USGS map.

☐ If remote sensing was used in the delineation, provide an explanation of how it was used and include the name, date and source of the tools used and copies of applicable maps/photographs.

☐ A discussion of plant communities and habitat types present at the site and a list of the scientific name, common name, and wetland indicator status of all plants.

☐ Soil descriptions, soil map(s), and a discussion of hydric soils or soils with hydric inclusions at the site.

☐ Any observed or documented interstate or foreign commerce associated with aquatic resources found on the site, specifically recreation or other use by interstate or foreign travelers, sale of fish or shellfish in interstate or foreign commerce, and use by industries operating in interstate or foreign commerce.

☐ A site location map on a 7.5-minute USGS quadrangle. The map must provide the name of the USGS quadrangle, Section, Township, Range, the UTM or latitude and longitude.

☐ A completed copy of the *Aquatic Resources Excel* spreadsheet must be submitted. The current version of the spreadsheet can be found at the following website: *www.spk.usace.army.mil/Missions/Regulatory/Jurisdiction/WetlandDelineations.aspx*

☐ A map of all delineated aquatic resources ("Aquatic Resouces Delineation Map") in accordance with the *Final Map and Drawing Standards for the South Pacific Division Regulatory Program* (Mapping Standards) and showing the following:

> ☐ All aquatic resources delineated must be clearly shown on the map. Because only the Corps determines the regulatory status of each aquatic resource, the map must not include any labeling about jurisdiction. If the requestor believes one or more aquatic resources are not jurisdictional, the rationale should be included in the delineation report and the resource(s) should be identified on the map.
> ☐ At least one set of paired data points, documented in data forms, for each aquatic resource or complex. The paired data points must be located close to the delineated boundary. Additional data points may be necessary, and should be shown on the map, depending on various factors including the size and shape of the aquatic resource, changes in vegetation communities, and slope.
> ☐ A reference block that identifies the site or project name, individual(s) who conducted the delineation, date of the map, and date(s) of any revisions.

☐ Completed data forms including all essential information to make a decision.

☐ A description of the methods used to survey the aquatic resource boundaries. For most delineations, the Sacramento District requires GPS equipment for the collection of data. At a minimum the GPS equipment must have the capability of sub-meter (<=1 meter) level accuracy. If other methods are used, the report must contain a rationale for this deviation.

☐ Digital data for the site, aquatic resource boundaries, and data point locations must be provided in a geographic information system (GIS) format, with ESRI Shape-files being the preferred format. Each GIS data file must be accompanied by a metadata file containing the appropriate geographic coordinate system, projection, and datum. If GIS data is unavailable or otherwise cannot be produced and the Corps determines a site visit is necessary, the aquatic resource boundaries must be physically marked with numbered flags or stakes before the Sacramento District can complete a delineation verification.

Often, additional information can expedite the verification of a delineation. Particularly helpful data includes site specific topographic maps, National Wetland Inventory (NWI), Light Detection and Ranging (LIDAR), satellite, aerial and ground photographs, floodplain maps, and related reports.

The Corps' Sacramento District developed a suggested format for aquatic resources delineation reports, which is attached to this document. This format is not required but rather is intended to assist requestors with the preparation of a delineation report in accordance with these minimum standards.

More information regarding aquatic resource delineations, including reference materials, the *Aquatic Resources Excel* spreadsheet, and the suggested format for the aquatic resources delineation report can be found on our website at: *www.spk.usace.army.mil/Missions/Regulatory/Jurisdiction/WetlandDelineations.aspx*.

DRAFT/FINAL AQUATIC RESOURCE DELINEATION REPORT

Survey Name
Date

Prepared By:

Author's Name, Title
Consulting Company /Region/Cooperating Agency Name
Address
Phone Number
email

Prepared For:

Name (Role)
Company
Address
Phone Number
email

Executive Summary

Provide the following information:

- A statement that the delineation has been conducted in accordance with the 1987 "Corps of Engineers Wetland Delineation Manual" and appropriate regional supplement(s), with the identification of what supplement was used.

AND/OR

- A statement that the delineation has been conducted in accordance with the 2008 “A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States”

- One paragraph summary of aquatic resource findings including:
  - Number and total area of aquatic resources within project area.
  - Total acreage of the survey area
  - Dominant aquatic resource classifications and general condition of aquatic resources.

Table of Contents

Tables

Appendices

Acronyms and Abbreviations

BMP	best management practice
cfs	cubic feet per second
LIDAR	Light Detection and Ranging
LWD	large woody debris
MP	Mile Post
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OHWM	ordinary high water mark
PEM	palustrine emergent
PFO	palustrine forested
PSS	palustrine scrub-shrub
ROW	right-of-way
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UTM	Universal Transverse Mercator coordinate system
WRIA	Water Resource Inventory Area

[add or delete acronyms and abbreviations as needed]

Chapter 1. Introduction

- Identify contact information for the applicant(s), property owner(s), and agent(s).
- Survey area description
- The purpose of this report is to identify and describe aquatic resources and, to identify known possible sensitive plant, fish, wildlife species, and cultural/historic properties in the survey area. This report facilitates efforts to:
    1. Avoid or minimize impacts to aquatic resources during the design process.
    2. Document aquatic resource boundary determinations for review by regulatory authorities.
    3. Provide early indications of known sensitive species and historic/cultural properties within the survey area.
    4. Provide background information.

Chapter 2. Location

Identify the county and state where the project is located. Also include nearest town, as well as the street address or nearest intersection, and the Section, Township and Range the UTM or latitude and longitude. Provide driving directions to the survey area.

Chapter 3. Methods

- Describe all methods used to delineate and survey aquatic resources.
- Include any deviations from standard methods. Make sure methods comply with appropriate U.S. Army Corps of Engineers Guidelines.
- If remote sensing tools were used to aid in delineation, list what tools were used and provide a copy of the maps if possible.

Chapter 4. Existing Conditions

4.1 Landscape Setting

Describe in 1-2 paragraphs the topography, geological features, major water bodies, surface water flow, community types, existing vegetation, current land use, and major recent or historical disturbances – such as logging, mining, and farming.

Include:

- The total acreage of the survey area.
- A description of existing field conditions including current land use, time of season the site visit(s) were conducted, flood/drought conditions, irrigation practices, modifications to the site, and any characteristics considered atypical.
- A discussion of whether the entire survey area was field verified. If entire survey area was not visited, identify which areas were visited and a rationale for why the entire site was not visited.

4.2 Aquatic Resources

4.2.1 Overview

Provide brief overview of the existing aquatic resource conditions:

Include the following information:

- Describe all aquatic resources depicted on the Aquatic Resources Delineation Map within the survey site (Appendix A). Provide an explanation for the mapped boundaries, especially for resources containing complex transition zones. If the site contains resources that meet one or two wetland criteria or do not exhibit a clear OHWM, describe the rationale for not delineating these features. Examples include erosional features, upland swales, and other upland areas that appear "wet" on satellite or aerial imagery.
- Provide a table listing all Aquatic Resources (Table 1). The table will include the name of each aquatic resource, its Cowardin type, acreage and location (latitude/longitude). For linear features, such as stream channels and ditches, the table must show both acreage and linear feet.
- Discuss site hydrology, including any surface or subsurface sources, drainage gradients, surface water connections to the nearest traditional navigable waterway or interstate water, and any potential influence for manmade water sources, such as irrigation. The discussion should also identify the nearest "blue-line" waterway or other feature found on the most recent USGS map.
- Describe soils including a discussion of hydric soils and soils with hydric inclusions (Appendix B).
- Provide a general discussion of plant communities and habitat types, including both scientific and common names, and the wetland indicator status of all plants (Appendix D).
- Describe any observed or documented interstate or foreign commerce associated with aquatic resources found on the site, specifically recreation or other use by

interstate or foreign travelers, sale of fish or shellfish in interstate or foreign commerce, and use by industries operating in interstate or foreign commerce.

Table 1. Aquatic Resources within the Survey Area

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acre) Required for all resources	Aquatic Resource Size (linear feet) Required for only stream channels
	Cowardin	Location (lat/long)		
Total				

Chapter 5. References

Books, Journal Articles, Reports: [Author(s). YEAR Title. Publisher/Source. Volume: Page begin-Page end].

Correspondence: [Author(s). Date. Subject. Agency/Company. Pp. (pages)].

Phone: [Contact Name. Date. Subject. Agency/Company. Phone Number. Result/Action].

E-mail: [Contact Name. Date. Subject. Agency/Company. E-mail address. Result/Action].

Appendix A - Aquatic Resource Delineation Maps

A map of all delineated aquatic resources ("Aquatic Resources Delineation Map") in accordance with the *Final Map and Drawing Standards for the South Pacific Division Regulatory Program* (Mapping Standards) and showing the following:

- All aquatic resources delineated must be clearly shown on the map. Because only the Corps determines the regulatory status of each aquatic resource, the map must not include any labeling about jurisdiction. If the requestor believes one or more aquatic resources are not jurisdictional, the rationale should be included in the delineation report and the resource(s) should be identified on the map.
- Location of all data and photo points.
- A reference block that identifies the site or project name, individual(s) who conducted the delineation, date of the map, and date(s) of any revisions.

Appendix B - Supporting Maps

This appendix must include a 7.5 USGS quadrangle location map and a soil survey map. Other helpful data should be included, such as a NWI map, site specific topographic maps, LIDAR map, satellite/aerial/ground photographs, floodplain maps, and other related maps. The survey area should be identified on all maps.

Appendix C - Photographs

All photographs should be referenced with the location and the direction the photograph was taken, along with identifying the resources present within the photograph.

Appendix D - Plant List

Plant species found within the survey area.

Use USDA Plants Database and National Wetland Plant List for the most up-to-date scientific name and Wetland Indicator Status.

Genus	Species	Common Name	WIS*

* Wetland Indicator Status (WIS):

OBL	=	occurs in aquatic resources > 99% of time
FACW	=	occurs in aquatic resources 67-99% of time
FAC	=	occurs in aquatic resources 34-66% of time
FACU	=	occurs in aquatic resources 1-33% of time
UPL	=	occurs in uplands > 99% of time
NI	=	indicator status not known in this region
~	=	unsure as to FAC or FACU

Appendix E - Wetland Data Sheets

This appendix must contain at least one set of paired data points, documented in data forms, for each aquatic resource or complex. The paired data points must be located close to the delineated boundary. Additional data points may be necessary, and should be shown on the map, depending on various factors including the size and shape of the aquatic resource, changes in vegetation communities, and slope.

Data forms may be modified from the Corps' standard form but must contain all essential information to make a decision.

Appendix F - OHWM Data Sheets

This appendix includes the OHWM data sheets. Please insure to include a map identifying the location of the data points. Data forms may be modified from the Corps' standard form but must contain all essential information to make a decision.

Appendix G - A signed statement from the property owner(s) allowing access

This appendix must contain a signed statement from the property owner(s) allowing Corps personnel to enter the property and collect samples during normal business hours. If the property is land-locked, the owner or proponent must obtain permission from the adjacent property owner(s) in order to provide access.

Appendix H — Aquatic Resource Excel Sheet

The completion and submittal of the *Aquatic Resources Excel* spreadsheet is a required component to Sacramento District's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports. This spreadsheet will assist the Corps' in efficient and accurate data entry of the aquatic resources into the Corps' database. The current version of the spreadsheet can be found at the following website:
www.spk.usace.army.mil/Missions/Regulatory/Jurisdiction/WetlandDelineations.aspx

The *Aquatic Resources Excel* spreadsheet contains a validation tool to ensure accuracy of the data. To run the validation tool, first enter all data in the appropriate columns and tabs. Once you have completed entering the data and have saved the document in a .csv format, click the gold shield at the top of the workbook window. The tool has a tooltip showing "Validate Worksheets." After clicking this button, validation of data is performed and any possible errors are added to the Validation tab. This tab is opened after the process is complete to allow the user to see the output. The validation output includes the tab (data type), column, and cell for where the possible error was found and a brief explanation of the issue.

Appendix I — Aquatic Resource Functional Assessment Forms (If Applicable)

If a functional assessment was completed, this appendix includes the aquatic resources functional assessment form of each aquatic resource delineated along with a description of the results of the assessment.

Pre-Application Meeting for the Bountiful Utah Regulatory Field Office

The U.S. Army Corps of Engineers-Sacramento District, Bountiful Utah Regulatory Field Office is initiating a monthly Agency Coordination/Pre-Application Meeting for projects that may require a Section 404 Clean Water Act (CWA) and/or Section 10 Rivers and Harbors Act (RHA) Standard Individual Permit.

This process is designed to help applicants develop their project plans prior to submitting a formal permit application.

This would provide the Corps and other state and Federal agencies the opportunity to review preliminary project plans and maps to facilitate feedback to applicants.

This process seeks to create the opportunity for applicants to address issues relative to their preliminary plans, and to afford them the opportunity to consider revisions to the plans prior to submitting a permit application for the proposed project.

This process will help to reduce the potential for unexpected design changes that sometimes occur after the public comment period. It will also help reduce the potential for project delays and increased costs associated with lengthy permitting processes or implementation of changes required to meet CWA and/or RHA Regulations.

MEETING SCHEDULE:

The 3rd Tuesday of each month.

APPLICABLE COUNTIES:

Box Elder, Cache, Carbon, Davis, Duchesne, Emery, Juab, Millard, Morgan, Rich, Salt Lake, Sanpete, Sevier, Summit, Tooele, Utah, Wasatch and Weber Counties.

REQUIREMENTS:

To participate in the Agency Coordination/Pre-Application Meeting for Individual Permits, the applicant must submit the following information electronically to the Corps office 2 weeks prior to the monthly meeting date.

1. Contact Information
2. Corps verified wetland/waters of the U.S. delineation map
3. Preliminary plans and maps overlaid on the delineation map
4. Alternatives to wetlands/waters impacts
5. Discussion of avoidance, minimization, and mitigation measures

LOCATION:

The pre-application meetings will occur at the Bountiful Regulatory Field Office: 533 West 2600 South, Suite 150, Bountiful, Utah 84010

All pre-application information shall be submitted electronically to the attention of Kathleen Anderson, email kathleen.anderson@usace.army.mil. If you have questions or need additional information please contact Kathleen Anderson at the Corps' Bountiful Utah Regulatory Office by telephone at 801-295-8380, ext.10.

27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services.

To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms, are removed; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches to restore wetland hydrology; the installation of structures or fills necessary to establish or re-establish wetland or stream hydrology; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; re-establishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.

Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted:

(1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies;

(2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or

(3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities).

The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the

determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of:

(1) The binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map;

(2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or

(3) the SMCRA permit issued by OSMRE or the applicable state agency. The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats.

These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 31), except for the following activities:

(1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the U.S. FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;

(2) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or

(3) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency. However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement. (Sections 10 and 404)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

A. **Regional Conditions**

1. **Regional Conditions for California, excluding the Tahoe Basin**

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-CA.pdf

2. **Regional Conditions for Nevada, including the Tahoe Basin**

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-NV.pdf

3. **Regional Conditions for Utah**

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-UT.pdf

4. **Regional Conditions for Colorado**.

http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps//2012-NWP-RC-CO.pdf

B. **Nationwide Permit General Conditions**

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

☐ 1. **Navigation**.

☐ (a) No activity may cause more than a minimal adverse effect on navigation.

☐ (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

☐ (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable

obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

☐ 2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

☐ 3. **Spawning Areas**. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

☐ 4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

☐ 5. **Shellfish Beds**. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

☐ 6. **Suitable Material**. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

☐ 7. **Water Supply Intakes**. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

☐ 8. **Adverse Effects From Impoundments**. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

☐ 9. **Management of Water Flows**. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

☐ 10. **Fills Within 100-Year Floodplains**. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

☐ 11. **Equipment**. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

☐ 12. **Soil Erosion and Sediment Controls**. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

☐ 13. **Removal of Temporary Fills**. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

☐ 14. **Proper Maintenance**. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

☐ 15. **Single and Complete Project**. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

☐ 16. **Wild and Scenic Rivers**. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

☐ 17. **Tribal Rights**. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

☐ 18. **Endangered Species**.

☐ (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

☐ (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to

demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

☐ (e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

☐ (f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

☐ 19. **Migratory Birds and Bald and Golden Eagles**. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

☐ 20. **Historic Properties**.

☐ (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

☐ (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has

no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

☐ (d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non- Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

☐ 21. **Discovery of Previously Unknown Remains and Artifacts**. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

☐ **22. Designated Critical Resource Waters**. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

☐ (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

☐ (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

☐ **23. Mitigation**. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

☐ (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

☐ (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

☐ (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

☐ (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

☐ (2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

☐ (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan

that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

☐ (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

☐ (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

☐ (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

☐ (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

☐ (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

☐ (g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

☐ **24. Safety of Impoundment Structures**. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

☐ **25. Water Quality**. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

☐ **26. Coastal Zone Management**. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

☐ **27. Regional and Case-By-Case Conditions**. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

☐ **28. Use of Multiple Nationwide Permits**. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

☐ **29. Transfer of Nationwide Permit Verifications**. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

☐ **30. Compliance Certification**. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

☐ (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

☐ (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

☐ (c) The signature of the permittee certifying the completion of the work and mitigation.

☐ **31. Pre-Construction Notification**.

☐ (a) **Timing**. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

☐ (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

☐ (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2)..

☐ (b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

☐ (1) Name, address and telephone numbers of the prospective permittee;

☐ (2) Location of the proposed project;

☐ (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

☐ (4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

☐ (5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

☐ (6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

☐ (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

☐ (c) Form of Pre-Construction Notification: he standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

☐ (d) Agency Coordination:

☐ (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

☐ (2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where

there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

☐ (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

☐ (4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. District Engineer's Decision

☐ 1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

☐ 2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10- acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

☐ 3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. **Further Information**

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

E. **Definitions**

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

I**ntermittent stream**: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

Application documents are protected and cannot be attached. See Army Corps of Engineers website for documents.

http://www.spk.usace.army.mil/Missions/Regulatory.aspx