

November 6, 2019
File No. 01219114.00

MEMORANDUM

TO: Christine Cameron, City of Flagstaff

FROM: Daniel V. Sola and Brad Johnston

SUBJECT: **Rio De Flag Conceptual Remedy Evaluation,
Proposed Rio De Flag Flood Control Project Alignment Coincident with BNSF Owned
Parcels**

INTRODUCTION AND PURPOSE

A work plan was prepared for the City of Flagstaff (COF) to submit an access application to BNSF Railway (BNSF) as discussed in the June 4, 2019 meeting with COF, BNSF, Arizona Department of Environmental Quality (ADEQ), and SCS Engineers (SCS). A revised scope was prepared in response to comments received from the BNSF contractor, TRC Companies, via email on September 20, 2019. BNSF subsequently approved the work plan with comments addressed.

The objective of this scope of work is to determine the conceptual scope and cost of a remedy to prepare the proposed Rio De Flag Flood Control Project (Rio De Flag) alignment to satisfy the USACE environmental requirements, based on our current understanding of the USACE needs. The basis of the study are preliminary drawings of the proposed channel alignment and depths prepared by USACE. SCS has no further information on the proposed channel alignment.

The key factors in evaluating the remedy cost are the volume of required soil remediation (presumably excavation), and the cost for transportation and disposal. This work is being undertaken as a voluntary study and is not subject of a decree, consent order, or other regulatory requirements. This scope was not prepared to meet all of the US Army Corps of Engineers (USACE) needs or the likely investigation requirements of the ADEQ Voluntary Remediation Program (VRP).

SCOPE OF WORK

Following is brief summary of the scope of work described in the work plan.



Task 1: Point of Access, Outline of Areas to be Impacted, Sampling Locations

Sampling locations are proposed on both COF and BNSF parcels. SCS will walk the entire alignment and photo-log and geo-tag each proposed location and any visible stains and other evidence of contamination. SCS will also photograph and confirm access routes for drilling and test pit operations consistent with BNSF requirements. If locations or access change beyond minor adjustments, BNSF will be notified and approval sought.

Task 2: Health and Safety Measures for Applicant, Railroad Workers, and Training Requirements

SCS will prepare a health and safety plan (HASP) covering activities of all workers on the site consistent with the requirements of CFR 40 1910.120 (HAZWOPER). All on-site staff will be HAZWOPER certified with 40-hour training and current 8-hour refreshers. The HASP will be submitted to BNSF for review prior to starting work.

SCS and its contractors will also complete all required BNSF Contractor Orientation training and certification to work on the BNSF parcels.

Task 3: Paramount Area Test Trenches

- Five test trenches will be excavated with track-mounted equipment and hand tools across areas of visible tar in the ravine adjacent to the Paramount SCS will attempt to visually identify the vertical and lateral extent of tar at each location and follow any subsurface tar into the side slope as much as safety and equipment limitations allow.
- SCS will sample visibly clean soil at the base and sides of each trench to confirm the extent of contamination.
- If groundwater is encountered it will be sampled as quantity allows.

Task 4: Paramount Soil Borings

- Three soil borings will be drilled along the top of the embankment at the Paramount Site. Borings will extend to approximately 3 feet below the bottom of the proposed invert or auger refusal, whichever occurs first
- If groundwater is encountered it will be sampled as quantity allows.

Task 5: General Alignment Borings and Surface Samples

- Based on the field inspection and available data, twelve soil borings will be completed along the alignment. These borings will extend to approximately three feet below the bottom of proposed invert.
- Grab samples of surface soil will be collected in areas of potential contamination identified in Task 1 within an estimated 50 feet on either side of the centerline.

- If groundwater is encountered in the borings it will be sampled as quantity allows using a temporary screen or sampling probe.

Task 6: Monitoring Well Installation

The USACE has specifically discussed a concern with groundwater quality at the former Route 66 Creosote Pit site. This is not on BNSF property.

- A soil boring and monitoring well will be installed at the source area at the location of the former preservative vat. This location will provide a “worst case” groundwater sample and determine if a groundwater contamination issue exists.

Task 7: Pollution Prevention, Runoff Management, Plugging and Abandonment, and Site Restoration Plan

SCS will follow best management practices for drilling and excavation work as agreed to with BNSF.

Soil needed for backfill will be from a source acceptable to BNSF. The backfill source will be sampled and analyzed prior to the start of the investigation to verify the soil is acceptable for fill.

Task 8: Waste Management and Disposal

SCS will work with the city and adjacent landowners to select staging areas off of BNSF property. Lined roll-off dumpsters and drums will be used to hold investigation derived soil for characterization and disposal.

Waste disposal will be performed by the contractor. The City of Flagstaff will be the responsible party for disposing of all investigation derived waste. All waste profile sheets, manifests, and shipping documents will be signed by a City of Flagstaff representative.

Task 9: Evaluation and Reporting

- SCS will prepare a report documenting all field activities, laboratory data, and field decisions.
- SCS will estimate the extent of excavation necessary to construct the channel based on the available drawings and standard engineering estimation methods. This may include discussion with USACE. The soil boring and test trench analytical data will be plotted to determine what portion of the total excavation is likely to be contaminated.
- SCS will use the laboratory data to determine the likely waste characterization and requirements for disposal of soil excavated for remediation.
- Based on the volume and characteristics of the soil, SCS will develop an estimate of the excavation and disposal costs.
- SCS will estimate budgetary costs to enter and complete the remediation under the ADEQ Voluntary Remediation Program (VRP). ADEQ will not approve or comment on the scope until the Rio De Flag project is entered into the VRP.

- Laboratory results will be received approximately 2 weeks after submittal to the laboratory. The draft report will be available for COF and BNSF review 4 weeks after receipt of laboratory results.
- This work is being undertaken as a voluntary study by COF and is not subject to any decree, consent order, or other regulatory requirements.

Task 10: Phase 1 ESA Arizona Materials Property

- SCS will perform a Phase I Environmental Site Assessment (ESA) for the above-referenced property. The primary screening tool for identifying potential environmental problems at a property is the current *ASTM Standard Practice for Environmental Site Assessments, the Phase I Environmental Site Assessment Process (E1527-13)*, along with the All Appropriate Inquiries (AAI) Standard 40 CFR 312 developed by the U.S. Environmental Protection Agency (EPA).

COST ESTIMATE

The work will be conducted in phases in December and January 2019-2020 to meet the reporting requirements of USACE of February 29, 2019. These are termed Phase 2 and 3. Phase 1 is complete and comprised preparing and obtaining approval of the work plan. All work will be completed on a time and materials basis. The proposed budgets will not be exceeded without prior City of Flagstaff approval. We understand the City is negotiating with BNSF on the various fees. The cost estimates included best estimates of these fees. SCS and its Subcontractors will each meet the insurance and liability requirement of BNSF.

Table 1
PHASE 2 and 3
COST ESTIMATE SUMMARY
IMPLEMENTATION OF BNSF WORK PLAN
RIO DE FLAG
November 6, 2019

Task	Subtotal	Phase
Task 1 - Sampling Locations, Access	\$4,134	2
Task 2 - Health and Safety, Training, Permitting	\$4,712	2
Task 3 - Paramount Area Test Trenches	\$17,050	3
Task 4 - Paramount Area Borings	\$18,525	3
Task 5 - General Alignment Borings and Surface Samples	\$78,007	3
Task 6 - Monitoring Wells	\$5,300	3
Task 7 - PP, Runoff Mgmt, Abandonment, Restoration Plan	\$486	3
Task 8 - Waste Mgmt and Disposal	\$10,786	3
Task 9 - Evaluation and Reporting	\$5,640	3
Task 10 - Phase 1 ESA Arizona Materials	\$3,611	2
Other - Meetings, Project Management, BNSF contact	\$10,003	2 and 3
USACE/BNSF Additional Testing and Reporting	\$20,000	3
Investigation Subtotal	\$178,255	
Anticipated BNSF Fees:		
BNSF Access Fee	\$9,100	2
BNSF Crossing Review	\$800	2
BNSF Insurance (SCS)	\$730	2
Phase 2 Total	\$30,556	
Phase 3 Total	\$158,329	
Project Total	\$188,884	