# Grand Canyon National Park Pavement Preservation Project

## FHWA - Western Federal Lands Highway Division

## Contract No. 690567l9R000020


**2023 ISSA President's Award for Excellence**

# A Story of Success...

During the summer of 2020, VSS International mobilized its resources to one of the most beautiful places on earth to take on one of the largest and most difficult projects in the company's long history. We were going to be taking on a pavement preservation project at one of the nation's most visited national parks.

The COVID-19 outbreak had recently started and no one was sure how it would affect the construction sector. VSS International had to figure out how to perform work under these new working conditions. During this project, we were able to transport multiple crews, management personnel and equipment to and from the remote site while keeping our workforce safe and healthy. The Grand Canyon is located four hours north of Phoenix, AZ. Because of this, it took a lot of planning to make sure that all the materials and personnel needed were onsite to complete the work. If traffic control signs were missing or small items were needed from a hardware store, the closest location was hours away in Flagstaff.

This project also incorporated work on both the North Rim and South Rim of the Grand Canyon. Although several of the locations were only a few miles apart by air, the drive time between the North Rim and South Rim work locations were approximately four to five hours. This was a challenge as the project required work to be going on in both locations simultaneously to complete it on time. Throughout this project VSS had to deal with a fire that almost shut down all access to the north rim, and an early snow that almost stopped VSS from finishing the striping. Despite all of this, we were able to finish the project on time and to the expectations of the park and Western Federal Lands personnel.

All this work was placed over two years ago is still in place and performing to the expectations of the owner's design despite harsh weather cycles and severe winter maintenance operations.

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# Project Eligibility Requirements

- VSS International is a member in good standing with the ISSA
- Project acceptance date was November 17th, 2020
- Project was completed on time, and within the owner's budget
- All pavement preservation techniques represented by ISSA were performed by VSS International, Inc.
- The Western Federal Lands Highway Division of the Federal Highway Administration is very satisfied with the performance, workmanship and aesthetic appearance of the project, even after two harsh seasons of winter maintenance in the park.

ISSA
Innovation Through Preservation.

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

VSS INTERNATIONAL

# ISSA Member Applicant Information

Matt Ferguson
Area Manager - California
VSS International, Inc.
3785 Channel Drive
West Sacramento, California 95691

(916)416-6130 – Cellular
(916)373-1500 – Office
Matthew.ferguson@slurry.com

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# Owner Agency Contact

Mr. Gabriel Krumbein
Construction Operations Engineer (COE)
Western Federal Lands Highway Division
610 East Fifth Street
Vancouver, Washington 98661

(360)619-7638 – Office

# Owner Agency's On-site Inspection Contact

Mr. Doug Worley
Project Engineer (PE)
Western Federal Lands Highway Division
610 East Fifth Street
Vancouver, Washington 98661

(360)409-3713 – Cellular

# Initial Acceptance:

US Department of Transportation
**Federal Highway Administration**

Western Federal Lands Highway Division
610 E. Fifth Street
Vancouver, WA 98661
Phone 360-619-7700
Fax 360-619-7846

November 17th, 2020
{Sent via Electronic Mail}

In Reply Refer To: HFL-17

Matt Ferguson, Construction Manager
VSS International Inc.
3785 Channel Drive
West Sacramento, CA 95691

Re: AZ NPS PP GRCA 2019(2), Pavement Preservation Grand Canyon
Contract No. 69056720F000069

Dear Mr. Ferguson:

In accordance with the general provisions of the contract, you are hereby advised that work performed on the Pavement Preservation Grand Canyon was inspected and found to be complete as of November 17, 2020.

While this letter constitutes final acceptance and you are relieved of further maintenance obligations, you are not relieved of your other responsibilities under the contract until final payment is made by approval of the final payment voucher. The final payment voucher is the final settlement of the contract, and will be forwarded to you as soon as final quantities and pay records are verified.

Contract time will not be charged after November 5, 2020, the date the project was found to be substantially complete.

If you have any questions, please contact me at 360-619-7578.

Respectfully,

GABRIEL J KRUMBEIN

Digitally signed by GABRIEL J KRUMBEIN
Date: 2020.12.15 10:32:12 -08'00'

Gabe Krumbein, P.E.
Construction Operations Engineer

cc: Doug Worley, Project Engineer, WFLHD
Final Review, WFLHD
Central Files, WFLHD

# Sustained Owner Satisfaction

U.S. Department of Transportation
**Federal Highway Administration**

Western Federal Lands Highway Division
610 E. Fifth Street
Vancouver, WA 98661
Phone 360-619-7700
Fax 360-619-7846

November 28, 2022

Mr. Jeff Roberts
Senior Vice President
VSS International, Inc
3785 Channel Drive
W. Sacramento, CA 95691

RE: AZ NPS PP GRCA 2019(2) Pavement Preservation Grand Canyon
ISSA Presidents Award Nomination

To Whom It May Concern,

WFLHD is pleased to support VSS International in nomination of the ISSA President's Award for their work on Western Federal Lands Highway Division project: AZ NPS PP GRCA 2019(2) Grand Canyon Pavement Preservation.

This $8.5 million FHWA contract performed in Grand Canyon National Park, entailed daytime and nighttime work of 400,000 sqyd of Type 2 micro surfacing; 75 miles of chip and fog sealing; 56 miles of crack sealing; 10,400 sqyd of asphalt patching; concrete work; and 3 million feet of pavement markings. The project included concurrent work at both the North and South Rims of the Park -which are separated by a 4-hour driving distance between the 2 sites.

The Grand Canyon is a highlight of the U.S. National Parks system, hosting nearly 5 million annual visitors from across the U.S. and worldwide -with the majority of the visitation occurring during the construction season. National Park construction projects necessitate a rapid, responsive adaptation and understanding by Contractors for a Park project to be successful. These projects often include unique facets that may not be commonly seen in city, county, and other commercial work.

The pavement preservation work of this project included renowned scenic high-visitation roadways such as Cape Royal Road (20 miles), Desert View Drive (24 miles), and Hermits Rest Road (9 miles). These roads were required by contract to remain passable for public access and shuttle busses during all construction work -with implementation of all necessary traffic control, flagger, and pilot car operations.

The additional significant counterpart to the project's scope is the pavement preservation work in the Park's public areas and NPS operations -these include campgrounds, visitor centers, administrative buildings & facilities, ems, and residences -all while performing the work in a manner as best possible to provide minimal interruptions to the Park operations. Also notable is that as the project's contract work was located at both the North and South Rims -with each Rim having its own set of operations -it was necessary for the contractor to plan and logisticize for many duplicate sensitive facilities having high importance to the National Park Service -e.g. both Rims have their own sets of visitor centers, campgrounds, administrative buildings, ems, residences, etc. This project work also required protection of historical structures, stonework, and other Park features.



VSSI's was dedicated to all matters of the project; including construction quality, partnering and resolution, and customer satisfaction. VSSI's onsite general superintendent was exceptional in monitoring and maintaining the contractor's activities and production. FHWA is also appreciative of the multiple onsite visits made by VSSI's Senior Vice President and their Regional Construction Manager to ensure this high-profile Park project ran smoothly.

VSSI's combination of construction competency, technical performance, and management practices are exhibited in the Grand Canyon's outstanding final product -adding another to a succession of VSSI's previous successful WFLHD projects.

Sincerely,

Doug Worley
Project Engineer
Western Federal Lands Highway Division
doug.j.worley@dot.gov |
(360) 409-3713

# Project Information

# Grand Canyon National Park

- Established in 1919, Grand Canyon National Park is arguably one of the most beautiful places to visit in all of America.
- Located in the northwest corner of Arizona, close to the borders of Utah and Nevada.
- The Grand Canyon receives close to 5 million visitors annually and is known internationally for its deep canyons, outdoor activities, geologic features, and wildlife.
- Despite its beauty, the park's roadways are in immediate need of millions of dollars in infrastructure rehabilitation due to heavy traffic demands and the impacts of harsh thermal climatic conditions such as freezing temperatures in the winter and the extreme heat of hot summer days.

# Key Contract Information

- Contract Value Total: $8,500,120.00
- Awarded as part of a Multiple Award Task Order Contract (MATOC) by the Federal Highway Administration.
- Contract Time required completion by fixed date of November 2nd, 2020.
- Working Hours: 7 AM until 8 PM (Sunrise to Sunset)
- Contractor Quality Control Plan (CQCP) required.
- Very restrictive project phasing to maintain visitors' traffic flow throughout the park at all times.
- Maintenance of Traffic per MUTCD Standard Specifications.

# Project Scope & Terrain

- The base project consisted of placement of 3/8” Chip Seal at large mainline sections throughout the North Rim (Cape Royal Road, Point Imperial Road) and South Rim (Hermit Rest Road, Desert View Drive) of the Grand Canyon stretching approximately 75 miles across the width of the massive park located in the northwest corner of Arizona.
- The base project consisted of placement of Type II Micro Surfacing at several parking lots and side streets throughout both the North and South Rim of the Grand Canyon.
- 82 parking lots as well as 30 access roads received a Type II micro surfacing overlay.
- Type II work included several large parking areas such as the three popular parking lots at the South Rim Visitor Center & Grand Canyon Village.

# Project Locations

# Project Summary

## Materials Installed by VSS International, Inc.

- VSS International completed all work during peak summer tourist season, requiring completion of over 405,000 square yards of Type II Micro Surfacing ,approximately 650,000 square yards of 3/8” Chip Seal, and 650,000 square yards of Fog Seal under intense working conditions.
- The total Type II micro surfacing placed equaled over 4,000 tons of aggregate supplied by Vulcan Materials, and over 550 Tons of MSE Emulsion provided by Ergon. The total 3/8” Chip seal placed equaled over 10,000 tons of aggregate supplied by Cemex.
- Over 1,200 tons of PMCRS emulsion and 350 tons of CQS fog seal provided by Quality Emulsions.

# Project Summary

## Prep work Performed by VSS International, Inc.

- Project requirements included the masking and protection of dozens of miles of curbing and islands throughout the park.

- Extensive taping of curbs and islands to ensure historical features of the park were protected was typical throughout the park.

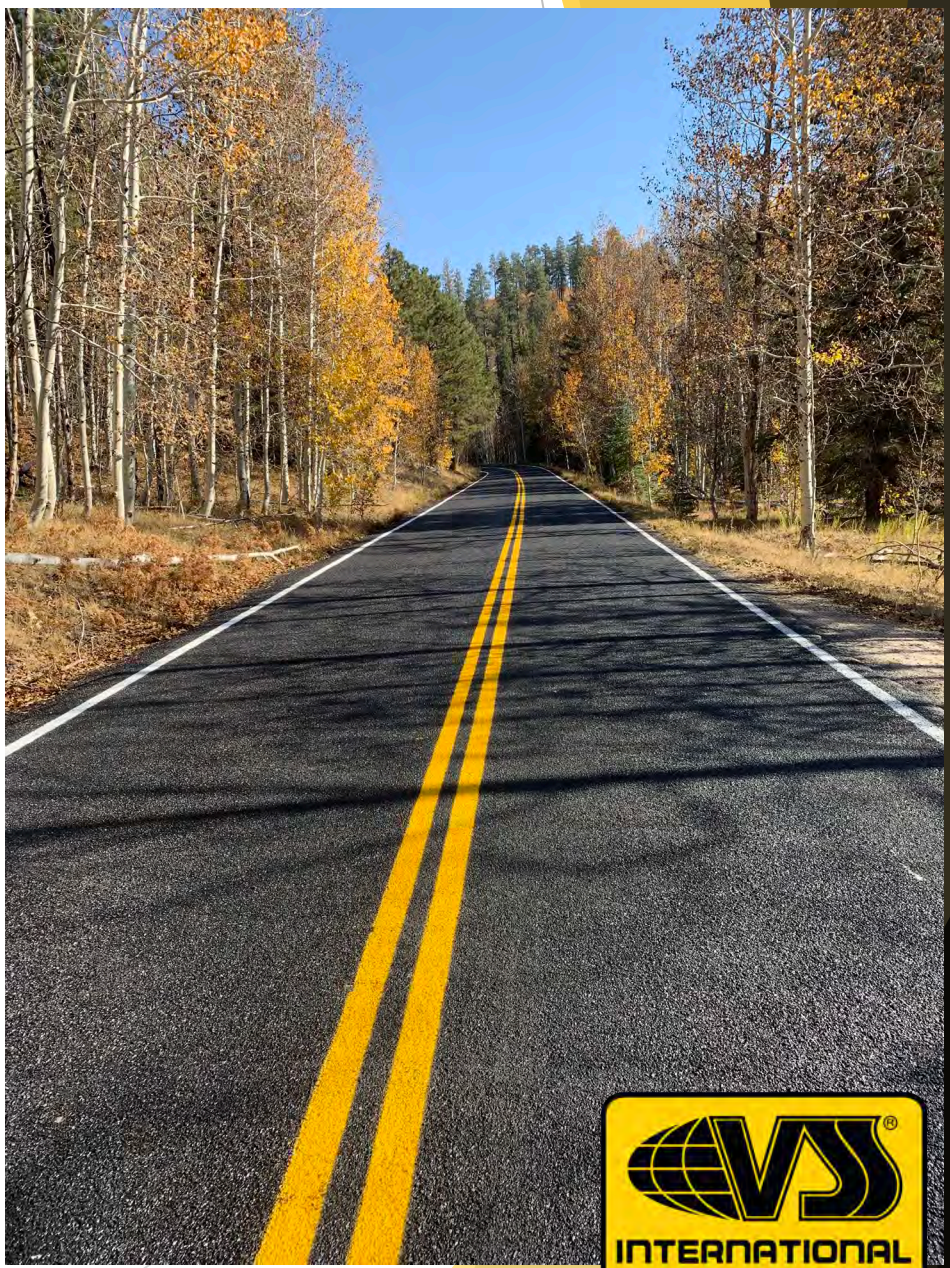
# Project Summary

## Work Performed by VSS' Subcontractors

- 56 miles of crack sealing treatment was performed to ensure than any significant cracks were sealed to slow the re-emergence of these cracks through the new slurry seal application.
- Patching of existing asphalt at approximately 350 locations where existing conditions had deteriorated beyond the point where the slurry seal alone could address the distress. Typically, the repairing of these distressed areas consisted of removing existing asphalt with a milling machine and replacing the existing asphalt to a depth of 3-4 inches.
- Install approximately 3,000,000 linear feet of pavement markings throughout the project area.
- Concrete repair & rumble strip installation

# Other Pay Items:

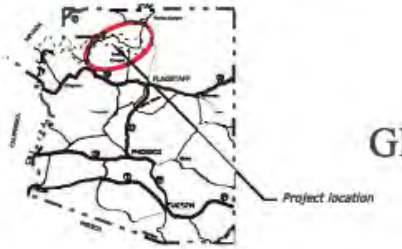
- Contractor Quality Control
- Contractor Testing
- Construction Schedule
- Mobilization
- Traffic Control System

# VSS Project Planning

Prior to mobilizing to the remote project location, VSS held dozens of planning and preparation sessions including a day long orientation session with all project participants to discuss the plan for executing this complex project.

# Contract Plans




ARIZONA KEY MAP

| STATE | PROJECT | SHEET NUMBER |
|---|---|---|
| AZ | NPS PP GRCA 2019(2) | A.1 |

U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
GRAND CANYON NATIONAL PARK (GRCA)

PLANS FOR PROPOSED PROJECT

AZ NPS PP GRCA 2019(2)
PMIS PKG NO.: 303755, 306374

## PAVEMENT PRESERVATION
## GRAND CANYON

COCONINO COUNTY
ARIZONA

LENGTH BASE 50.93 MILES & PARKING AREAS
OPTION X 23.37 MILES & PARKING AREAS

**TYPE OF CONSTRUCTION:**
*Resurfacing*

**SPECIFICATION:**
*Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14*

Registered Professional Engineer (Civil)
CERTIFICATE NO.
69777
JAMES
MILLS
Date Signed 1/15/2020
ARIZONA

PLANS PREPARED BY

Jacobs

FOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

WESTERN FEDERAL LANDS HIGHWAY DIVISION
VANCOUVER, WASHINGTON

PROJECT MANAGER
K. GRAY

N

N.T.S.


| INDEX TO SHEETS | |
|---|---|
| **A.** | **GENERAL INFORMATION** |
| A.1 | TITLE SHEET & INDEX TO SHEETS |
| **B.** | **SUMMARY OF QUANTITIES** |
| B.1-B.2 | SUMMARY OF QUANTITIES |
| **C.** | **TYPICAL SECTIONS** |
| C.1 | TYPICAL SECTIONS |
| C.2 | ASPHALT PAVEMENT CRACK SEALING AND FILLING |
| C.3 | ASPHALT CONCRETE PAVEMENT PATCH TYPE 1 & 2 DETAILS |
| C.4 | MINOR CONCRETE PAVEMENT DETAIL |
| C.5 | MINOR CONCRETE PAVEMENT JOINTS DETAIL |
| C.6 | CONCRETE PAVEMENT RESTORATION DETAIL |
| **D.** | **PLANS** |
| D.1-D.5 | TABULATION OF SURFACING QUANTITIES |
| D.6-D.23 | KEY AND AREA MAPS |
| **E.** | **TEMPORARY TRAFFIC CONTROL** |
| E.1-E.2 | TABULATION OF TEMPORARY TRAFFIC CONTROL QUANTITIES |
| E.3-E.8 | TEMPORARY TRAFFIC CONTROL DETAILS |
| **F.** | **PERMANENT TRAFFIC CONTROL** |
| F.1-F.6 | TABULATION OF PERMANENT PAVEMENT MARKINGS |
| F.7 | STRIPING PLAN CAMPGROUND REGISTRATION PARKING ROUTE 0997 |
| F.8-F.13 | PERMANENT TRAFFIC CONTROL DETAILS |

***APPROVED:***

BRENT L COE Digitally signed by BRENT L COE Date: 2020.02.19 19:28:55 -08'00'

Chief of Engineering
Western Federal Lands Highway Division

DATE:

By letter

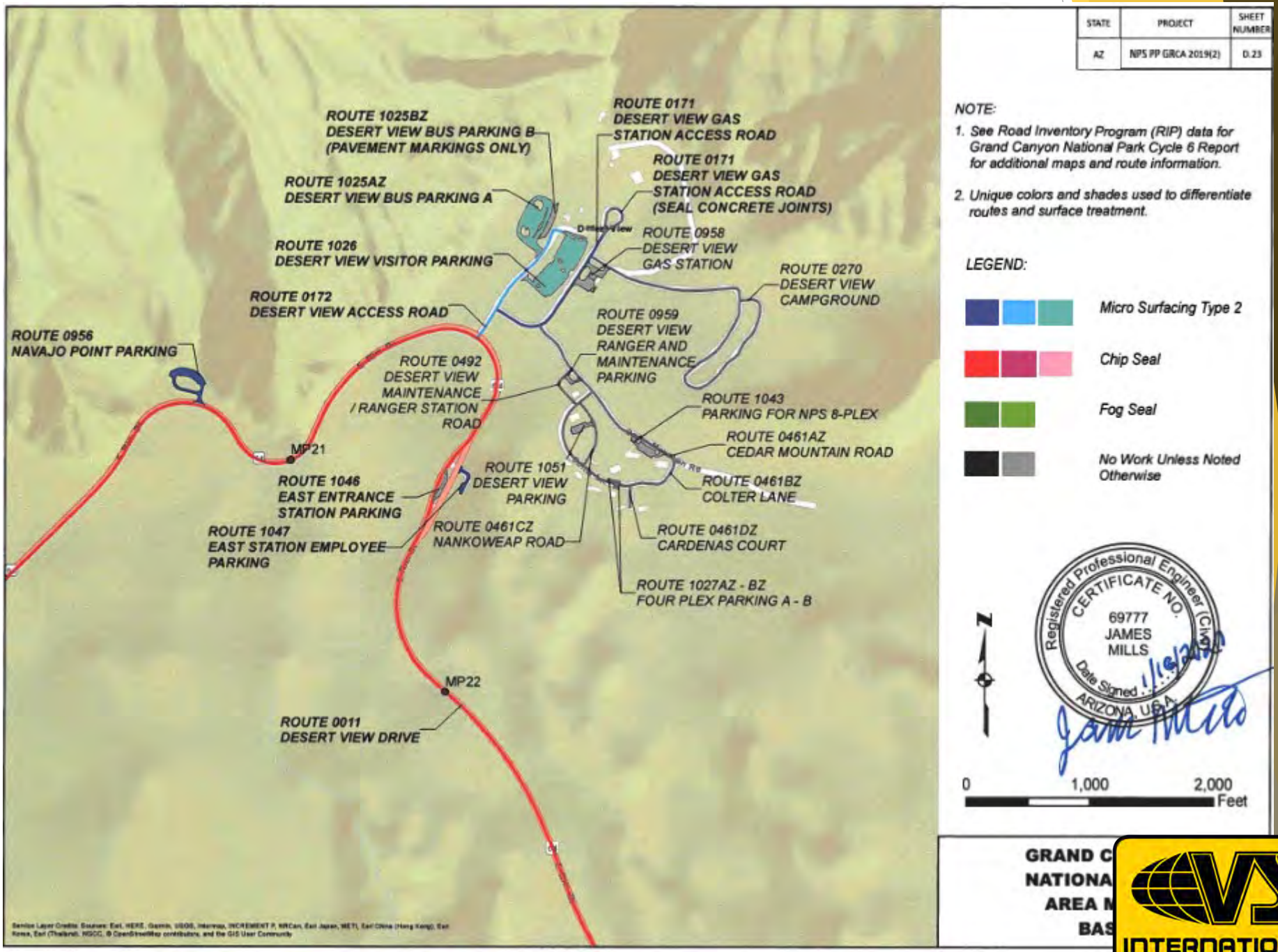
Grand Canyon National Park

DATE: 12/20/19

PMI

VJS INTERNATIONAL

# Typical Plan Sheet




INTERNATIONAL

# Key Safety Concerns

- COVID 19 – Strict Covid 19 protocols
- Severe wildfire danger – Red flag alerts
- Limited emergency services due to remote locations
- Environmental issues – Sensitive environmental area
- Narrow roadways shared with large Recreational Vehicles
- Heavy bicycle & pedestrian traffic through the work zones
- Operating near cliff edges and shear drop-offs
- Park visitors constantly asking crew personnel for directions
- Limited hydration sources for crews in remote locations
- Wildlife Encounters

# Key Safety Solutions

- VSS was required to have fire extinquishers in trucks and equipment at all times; all employees were trained on fire suppression techniques.
- VSS designated a fire watchman on duty at all times who was required to have fire suppression equipment.
- VSS utilized satellite phones, installed cell phone boosters and upgraded short range radios to help overcome communication issues created by nature of remote terrain.
- VSS installed plastic barriers and containment berms at all materials transfer points to limit potential spills.
- Traffic control was paramount to the daily success of all operations.
- Bicycle traffic was escorted through the work zone separate of regular vehicle traffic.

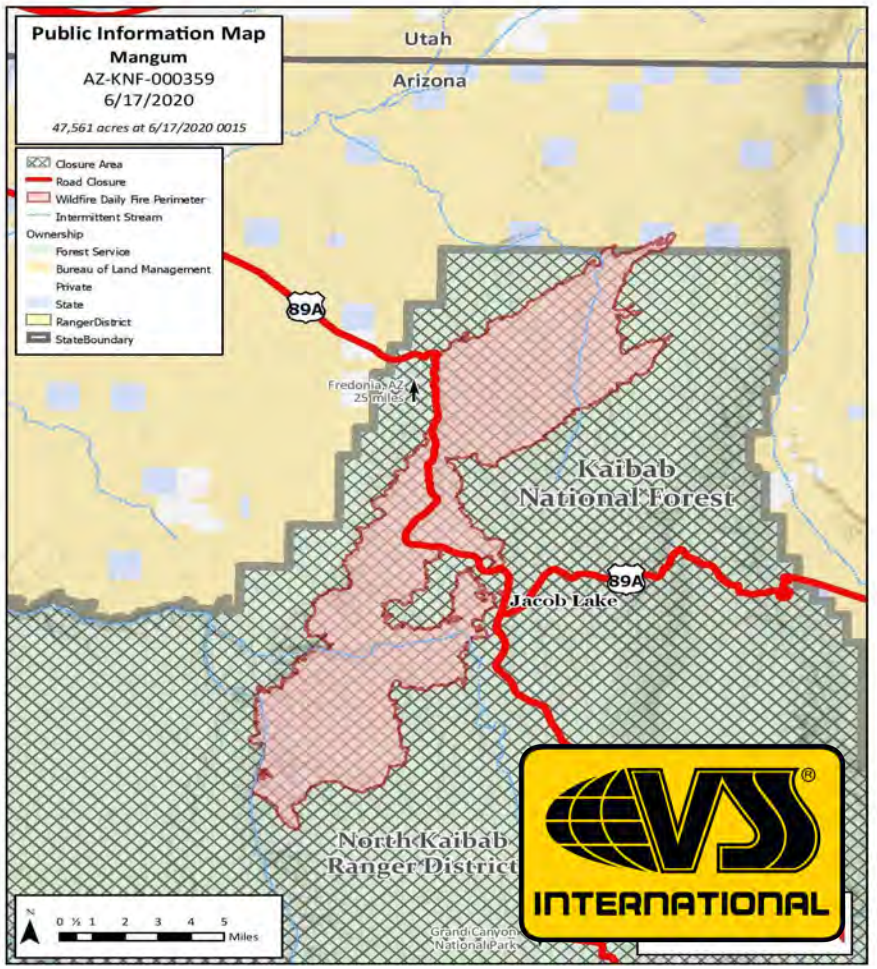
# Key Challenges – Heavy Traffic

- Heavy traffic from tourists and residents living within the park created special needs for traffic control solutions. Heavy traffic also necessitated increased communication with park staff to ensure proper notification was given to tourists before entering a work zone.

Source: https://www.nps.gov/places/000/south-entrance-station-1.htm

# Key Challenges – Fire

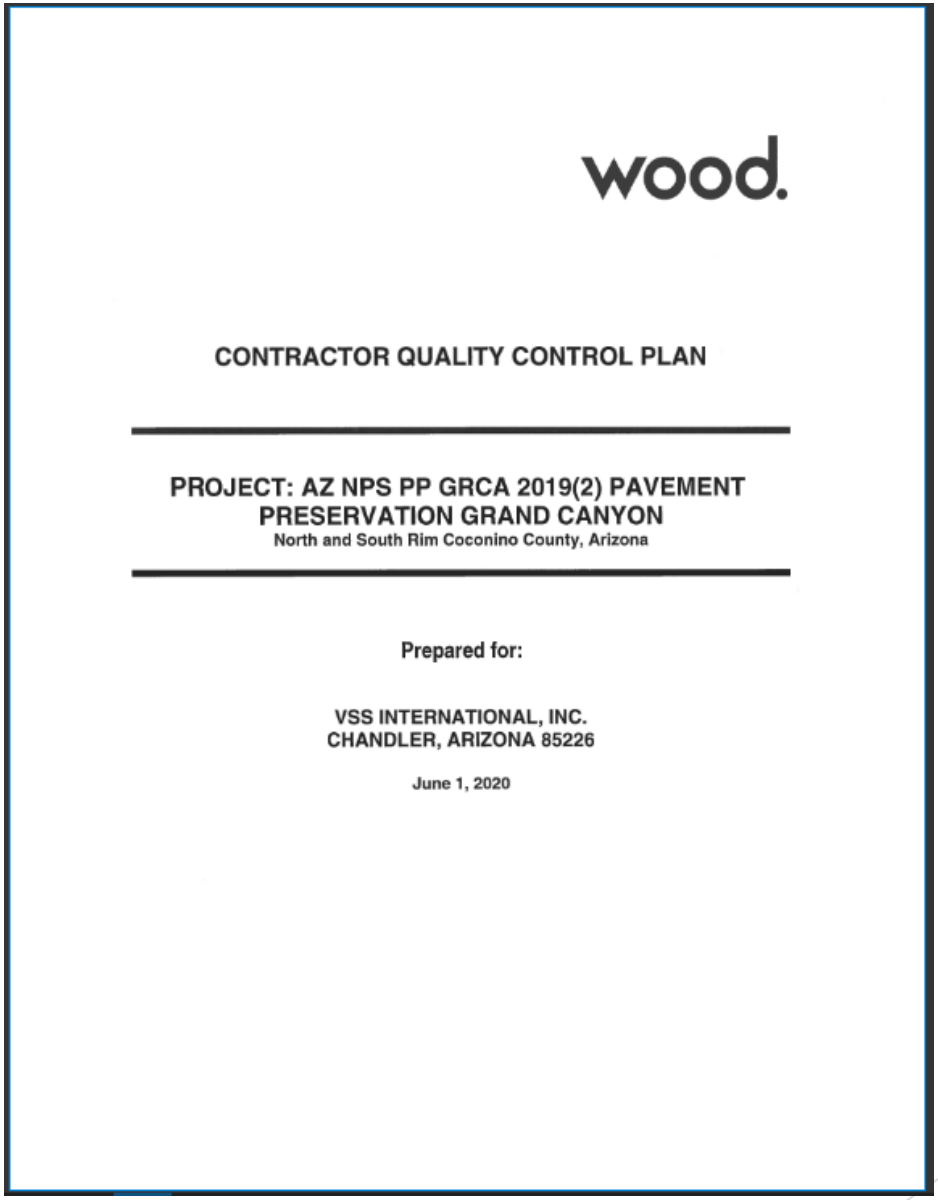
- The Mangum Fire burned throughout Kaibab National Forest in Arizona during the month of June 2020. The fire threatened the Grand Canyon and nearly shut down all access to the North Rim. It burned a total of 71,450 acres and luckily it was held off 16 miles north of the North Rim of Grand Canyon National Park. If the fire had shut down the North Rim, all construction operations on that side of the park would have ceased.



# Other Key Challenges

- Extremely limited communications
- Long materials supply line of deliveries and suppliers over 100 miles away
- Distances between worksites consisted of 2+ hours of drive time through congested visitor traffic
- Very limited and small staging areas
- Limited housing for crew personnel
- Noxious weed certification required for all aggregates entering jobsite
- Equipment Inspections required before entering park

# Quality Control Plan



wood.

CONTRACTOR QUALITY CONTROL PLAN

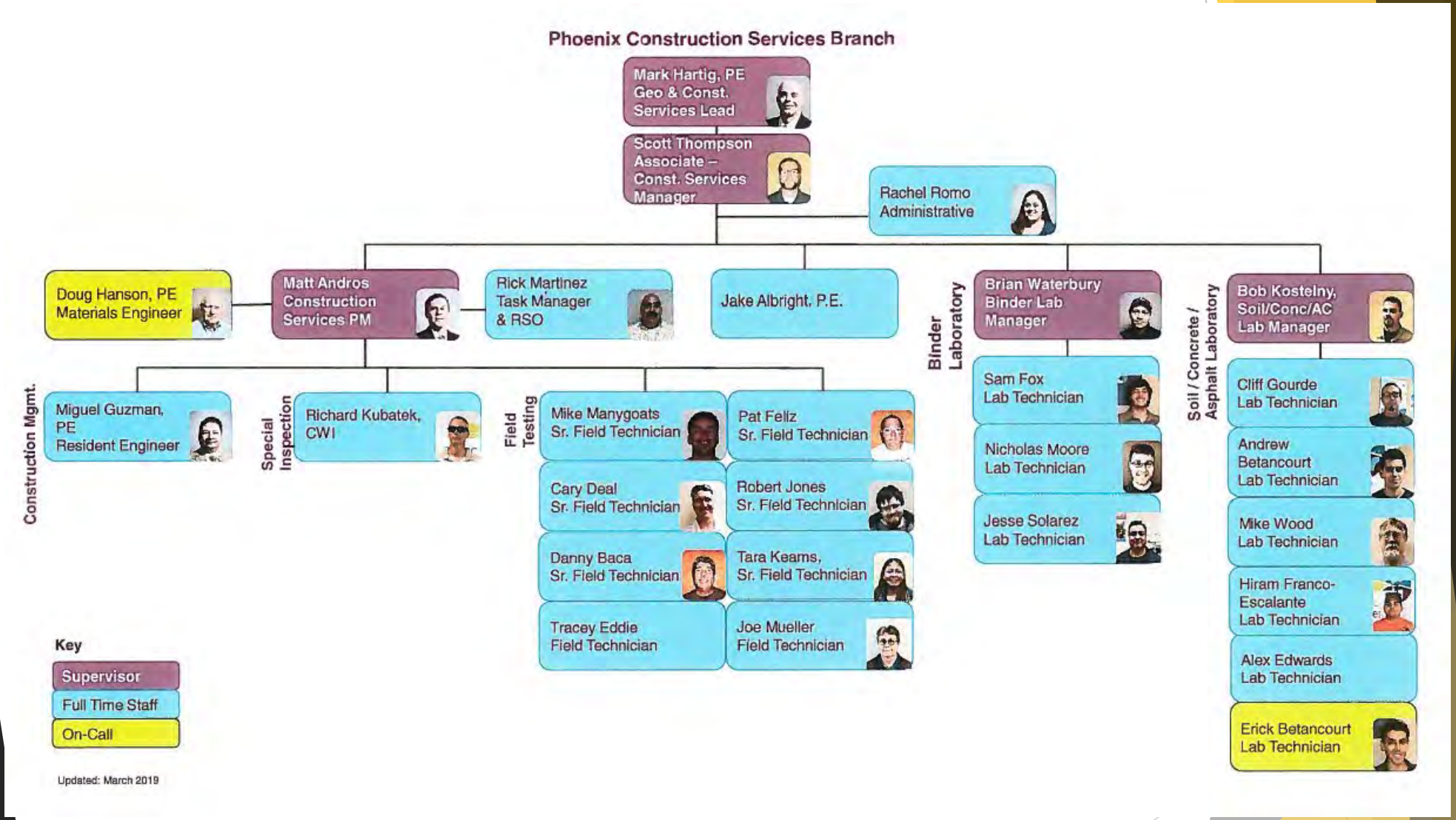
PROJECT: AZ NPS PP GRCA 2019(2) PAVEMENT PRESERVATION GRAND CANYON
North and South Rim Coconino County, Arizona

Prepared for:

VSS INTERNATIONAL, INC.
CHANDLER, ARIZONA 85226

June 1, 2020

# QC Organizational Chart



# QC Tests Requirements

| Section 407 – Chip Seal | | | |
|---|---|---|---|
| Material | Test For | Sample Frequency | Test Method |
| Cover Material (Source Testing) | Sieve Analysis | 1 per source | ARIZ 201 |
| | L.A. Abrasion | 1 per source | AASHTO T96 |
| | Carbonates | 1 per source | ARIZ 238 |
| | Fractured Faces | 1 per source | ARIZ 212 |
| | Flakiness Index | 1 per source | ARIZ 233 |
| | Bulk Specific Gravity/ Water Absorption | 1 per source | ARIZ 210 |
| | Density (Unit Weight) | 1 per source | AASHTO T19 (shoveling procedure) |
| Cover Aggregate (Daily Testing) | Gradation | 1 per 50,000 square yards | AASHTO T27 / T11 |
| | Moisture Content | Contractor Determined | Visual Inspection per section 409.10 |
| | Application Rate | 1 per day / if equipment moved to new location / if application rate is out of tolerance | Per Project Specifications section 407.11 – Table 407-1 |

| Section 409 – MICRO-SURFACING | | | |
|---|---|---|---|
| Material | Test For | Sample Frequency | Test Method |
| Type II Micro-surfacing | Job Mix Formula | 1 per project or change of source materials | Per section 409 and ISSA A143 |
| Micro-surfacing aggregate (Source Testing) | Gradation | 1 per source | AASHTO T27 / T11 |
| | Sand Equivalent | 1 per source | AASHTO T176 |
| | L.A. Abrasion | 1 per source | AASHTO T96 |
| | Sulfate Soundness (5 cycles) | 1 per source | AASHTO T104 |
| | Fractured Faces | 1 per source | |
| Micro-surfacing aggregate (Daily Testing) | Gradation | 1 per 50,000 square yards | AASHTO T27 / T11 |
| Polymer-Modified emulsified emulsion | Emulsion Prequalification Series | 1 per project | Per Section 702 and ISSA A143 |
| Polymer-Modified emulsified emulsion | Emulsion Production Certification from Supplier | 1 per tanker truck including trailer | Per Section 702 and ISSA A143 |
| Polymer-Modified emulsified emulsion | Placement Temperature | 1 per distributor truck | |

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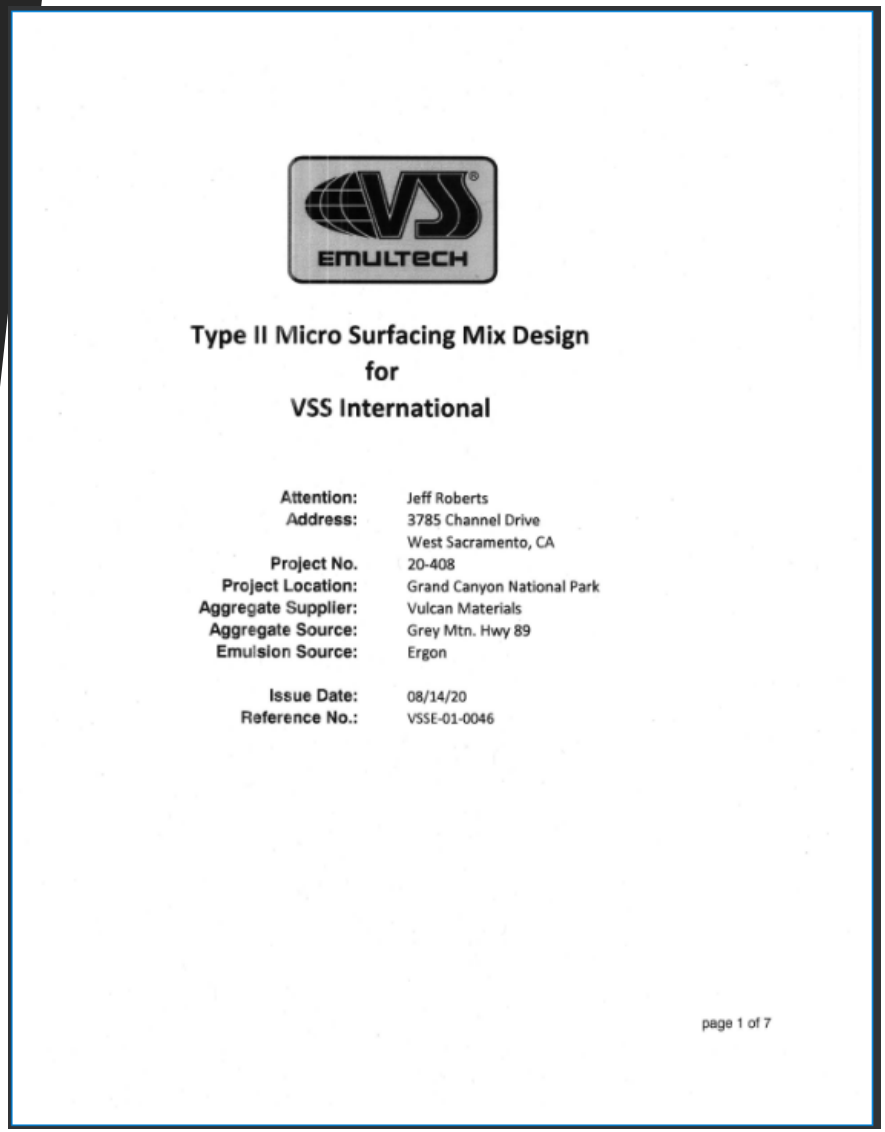
# Mix Designs



Type II Micro Surfacing Mix Design
for
VSS International

| | |
|---|---|
| Attention: | Jeff Roberts |
| Address: | 3785 Channel Drive<br>West Sacramento, CA |
| Project No. | 20-408 |
| Project Location: | Grand Canyon National Park |
| Aggregate Supplier: | Vulcan Materials |
| Aggregate Source: | Grey Mtn. Hwy 89 |
| Emulsion Source: | Ergon |
| Issue Date: | 08/14/20 |
| Reference No.: | VSSE-01-0046 |

page 1 of 7

- VSS' Technical Team prepared mix designs which complied with ISSA A 143 guidelines
- All materials were submitted to the FHWA in advance for quality assurance purposes

*Note: Complete Copies Of mix designs are Saved on submitted drive.*

# Calibrations

## Slurry Seal Truck Calibration

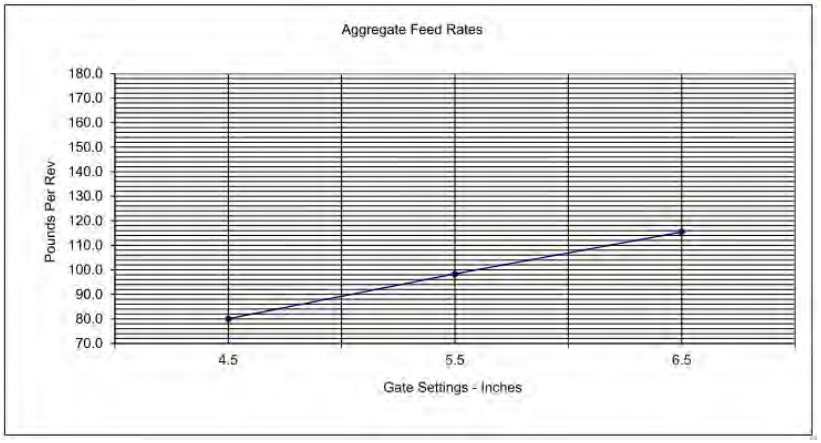
| Truck Number | 91148 | | |
|---|---|---|---|
| Date | 8/31/2020 | County - Rte - PM | Grand Canyon |
| Resident Engineer | | Contractor | VSS International |
| Aggregate Source | Grey mountian | Pit Location | |
| Emulsion Supplier | | Slurry Seal Type | 2 |

| Moisture Content | Gate Setting | Gross Weight | Tare Weight | Net Weight | REVS | Lbs. per REV | Dry Pounds per REV | Mark with * if used |
|---|---|---|---|---|---|---|---|---|
| 1.0 | 4.5 | 67,160 | 59,120 | 8,040 | 100.0 | 80.4 | 79.6 | * |
| | 4.5 | 51,300 | 43,160 | 8,140 | 100.0 | 81.4 | 80.6 | * |
| Percent Emulsion Hot | 4.5 | 66,600 | 58,500 | 8,100 | 100.0 | 81.0 | 80.2 | * |
| 18.55 | 4.5 | | | | | | 80.1 | Avg. Lbs. Per REV |

| Moisture Content | Gate Setting | Gross Weight | Tare Weight | Net Weight | REVS | Lbs. per REV | Dry Pounds per REV | Mark with * if used |
|---|---|---|---|---|---|---|---|---|
| 1.0 | 5.5 | 58,500 | 48,700 | 9,800 | 100.0 | 98.0 | 97.0 | * |
| | 5.5 | 68,100 | 58,100 | 10,000 | 100.0 | 100.0 | 98.0 | * |
| Percent Emulsion Hot | 5.5 | 58,100 | 48,100 | 10,000 | 100.0 | 100.0 | 99.0 | * |
| 15.12 | 5.5 | | | | | | 98.3 | Avg. Lbs. Per REV |

| Moisture Content | Gate Setting | Gross Weight | Tare Weight | Net Weight | REVS | Lbs. per REV | Dry Pounds per REV | Mark with * if used |
|---|---|---|---|---|---|---|---|---|
| 1.0 | 6.5 | 68,700 | 56,900 | 11,800 | 100.0 | 118.0 | 116.8 | * |
| | 6.5 | 56,900 | 45,240 | 11,660 | 100.0 | 116.6 | 115.4 | * |
| Percent Emulsion Hot | 6.5 | 60,740 | 49,200 | 11,540 | 100.0 | 115.4 | 114.3 | * |
| 12.87 | 6.5 | | | | | | 115.5 | Avg. Lbs. Per REV |

| | Emulsion Temp | Gross Weight | Tare Weight | Net Weight | Pump % | REVS | HOT Pounds per REV | |
|---|---|---|---|---|---|---|---|---|
| | 80 | 47,520 | 46,040 | 1,480 | 100 | 100.0 | 14.80 | |
| Emulsion Pump | 80 | 46,040 | 44,540 | 1,500 | 100 | 100.0 | 15.00 | |
| | 80 | 44,540 | 43,060 | 1,480 | 100 | 100.0 | 14.80 | |
| | | | | | | | 14.87 | Avg. Lbs. Per REV |




All machines were properly calibrated in advance for quality assurance purposes

# Keys to Success

- VSSI's experienced personnel rose to meet every challenge, every shift and created a favorable legacy for the future use of Pavement Preservation techniques in America's National Park System.

- Excellent planning and communication with all stake holders, combined with excellent field supervision led to project success.

- Routine meetings between the Western Federal Lands team and VSS' contracting teams to discuss expectations and progress toward project milestones.

# Project Photo Gallery

# During Construction

# During Construction

# During Construction

# During Construction

# During Construction


Upon Completion –
South Rim
VSS
INTERNATIONAL

# Upon Completion – South Rim


Upon Completion –
South Rim
VSI
INTERNATIONAL

# Upon Completion – South Rim

# Upon Completion – South Rim

# Upon Completion – North Rim


VSI INTERNATIONAL

# Upon Completion – North Rim

# Upon Completion – North Rim

# Upon Completion – North Rim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# Two Years Later

# Two Years Later

# Two Years Later


Two Years Later
SPEED LIMIT 30
Photo taken on 11/05/22
VSS INTERNATIONAL

# Two Years Later

# Two Years Later


VSS INTERNATIONAL

# Cost & Green Calculator:

Micro Surfacing

## Cost & Green Calculator

*Compare cost savings and environmental impact by treatment*

An approach to pavement management that applies a robust toolbox of pavement preservation and recycling treatments will save time, money, and reduce environmental impact over the long-term.

Use this calculator to see average data comparing the cost and environmental savings of preservation and recycling techniques, compared to conventional reconstruction, mill and fill, or thin overlays.

Please note that these estimates are approximate and should not be used for emissions inventory or formal carbon footprinting exercises or project cost estimates.

How to use this Tool


Total Cost: **$3,969,000**
Equivalent Annualized Cost: **0.89**

Total Cost: **$1,121,850**
Equivalent Annualized Cost: **0.46**

Chip Seal

## Cost & Green Calculator

*Compare cost savings and environmental impact by treatment*

An approach to pavement management that applies a robust toolbox of pavement preservation and recycling treatments will save time, money, and reduce environmental impact over the long-term.

Use this calculator to see average data comparing the cost and environmental savings of preservation and recycling techniques, compared to conventional reconstruction, mill and fill, or thin overlays.

Please note that these estimates are approximate and should not be used for emissions inventory or formal carbon footprinting exercises or project cost estimates.

How to use this Tool


Total Cost: **$6,370,000**
Equivalent Annualized Cost: **0.89**

Total Cost: **$1,339,000**
Equivalent Annualized Cost: **0.34**

Source: roadresource.org

VSS INTERNATIONAL

# Roadresource.org:

Micro Surfacing


Chip Seal


Source: roadresource.org

VSS INTERNATIONAL

# Award Winning Project

**The Grand Canyon National Park Pavement Preservation Project:**

- Extremely unique project met and exceeded all criteria for the 2023 ISSA President's Award for Excellence.
- Required multiple crews and precision execution in the application of pavement preservation materials and methods.
- Required an exemplary level of professionalism, planning and discipline for project success.
- Exhibited unmatchable appearance and aesthetic value.
- Required regimented safety protocols to keep workers safe.
- Demonstrated the high level of projects that can be suitable for pavement preservation materials.
- Provided owner with substantial costs savings vs. conventional paving techniques while conserving a significant amount of energy and natural resources.

# VSS Project Team


- Jeff Roberts, Senior Vice President
- Matt Ferguson, Construction Manager
- Derrick Deckwa, Project Manager
- Jorge Martinez, On-Site Project Engineer
- Sayed Hekmatullah, On-Site Project Engineer
- Jon James, Operations Manager
- Jose Martinez, Project Superintendent
- Jimmy Blackmon, Project Superintendent
- Leroy Gleaves, Project Superintendent
- Keith Delancy, Project Superintendent
- Rick Cross, Pre-Construction Manager
- Roman Benedyuk, Safety Manager
- Will Cross, Chief Estimator
- Nicholas Corcoran, Project Estimator

***Many Thanks to the US Department of Transportation, and the Western Federal Lands Highway Division for their partnership on this project!***

VSS INTERNATIONAL


VSS International dedicates this award nomination to the hard-working men and women who made significant sacrifice during the summer of 2020 to successfully accomplish this amazing project.
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Thank You for your consideration
of this award nomination!
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