

CORPORATE

1535 South 100 West
Richfield, UT 84701
435.896.8266

50 South Main, Suite 4
Manti, UT 84642
435.835.4540

1675 South Highway 10
Price, UT 84501
435.637.8266

45 South 200 West (45-13)
Roosevelt, UT 84066
435.722.8267

775 West 1200 North
Suite 200A
Springville, UT 84663
801.692.0219

435 East Tabernacle, Suite 302
St. George, UT 84770
435.986.3622

16 East 300 South
PO Box 577
Monticello, UT 84535
1.800.748.5275

38 West 100 North
Vernal, UT 84078
435.781.1988

MEMORANDUM

DATE: August 6, 2019
TO: Carl Padilla (Town of Meeker Building Official)
CC: Jeff Kummer (Rio Blanco County Floodplain Administrator)
FROM: Ricky Anderson, PE, CFM | Bart Jensen, PE | Kedric Curtis |
Jacob Olsen (Jones & DeMille Engineering)
PROJECT: Eastern Rio Blanco Metropolitan Recreation & Park District –
Meeker Fish Pond
PROJECT NO: 1811-050
RE: FEMA No-Rise Analysis Documentation

Introduction

This memorandum documents a no-rise analysis that was completed to support the Eastern Rio Blanco Metropolitan (ERBM) Recreation & Park District – Circle Park Pond project. This analysis was completed for submission to the local floodplain administrator for approval, as explained in the letter this is attached to. There is currently an existing park that includes two pavilions, lawn and trees, and a large open area. Several improvements to the park are proposed that will include the removal of the two existing pavilions, rerouting an existing irrigation channel, the construction of a new pavilion, and the construction of a pond with a path around the perimeter. A sample of the design drawings showing the overall concept is attached to the memorandum. The proposed improvements are located in a Zone AE Floodplain with no established floodway. Per FEMA criteria a no-rise must be completed and submitted to the local floodplain administrator. This no-rise analysis was performed to determine the impacts resulting from the proposed improvements.

Given that there is no established floodway for the White River in Meeker, Colorado, our analysis was based upon the following logic. With no established floodway, 44 CFR 60.3(c)(10) applies. 44 CFR 60.3(c)(10) states: “Communities must require until a regulatory floodway is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community’s FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.” It is our understanding that in Rio Blanco County the increase of one foot has been reduced to six inches.

References

- FIS: 08103CV001A (Draft July 22, 2019)
- FIRM: 08103C0666A (Draft July 22, 2019)
- Draft HEC-RAS model obtained from AECOM on July 18, 2019

- Draft GIS Data obtained on July 22, 2019
- Proposed design drawings, grading plan, etc. produced by J&DE (attached)

No-Rise Analysis

The effective FIS and FIRM were published in September 1991. A new FEMA study was just completed for the White River in the Meeker, Colorado area. Draft maps and a hydraulic model were obtained from AECOM. In order to utilize the most current and correct data, the draft data and model were used. The HEC-RAS 1-D model has five cross-sections that transect the project site. These cross-sections were updated to reflect the improvements that will result as part of this project.

The 1 percent annual chance flood (100-year return interval) flow rate from the HEC-RAS model and FIS were used to model the proposed condition. This flow rate was 6,325 cfs (FIS, Table 10). The HEC-RAS model Manning's n values were not modified where the cross-section did not change. One of the updated cross-sections shows a small channel that will discharge into the proposed pond. A Manning's n of 0.035 was used for this channel. An overview of the model in plan view for the proposed project location is provided in Figure 1.

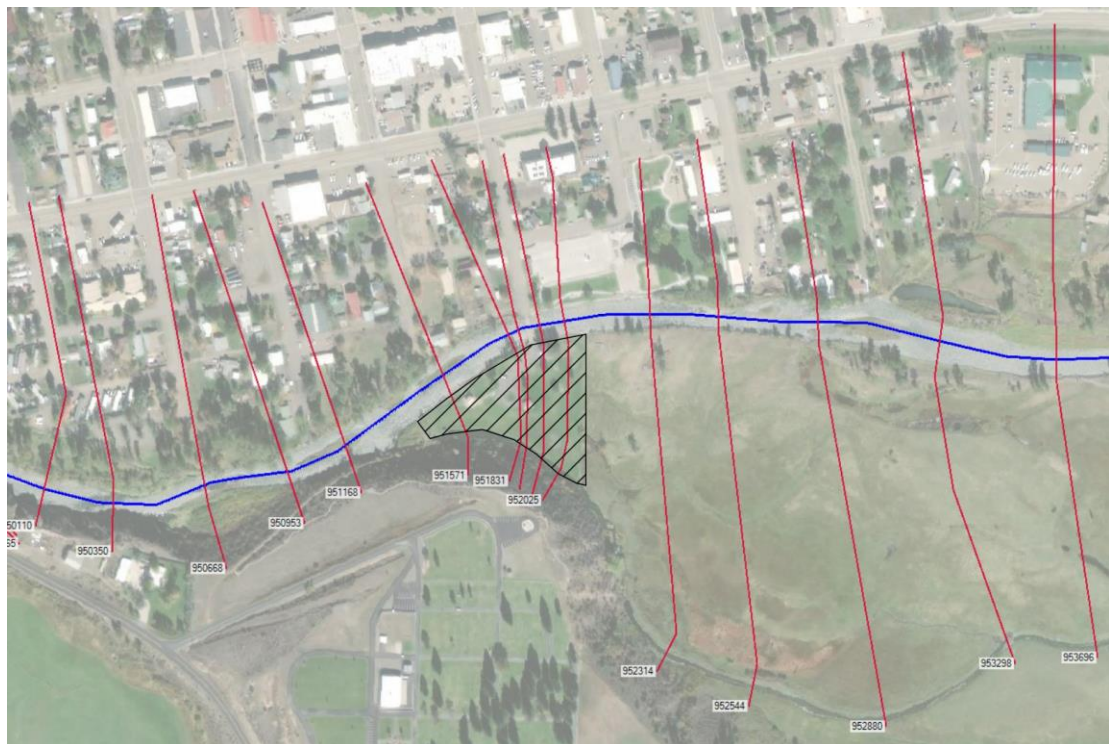


Figure 1. HEC-RAS Model Overview

The existing and proposed conditions were evaluated for each cross-section and a model run was developed for each scenario. The five cross-sections that were updated have been graphed for comparisons and are shown in Figure 2 through Figure 6.



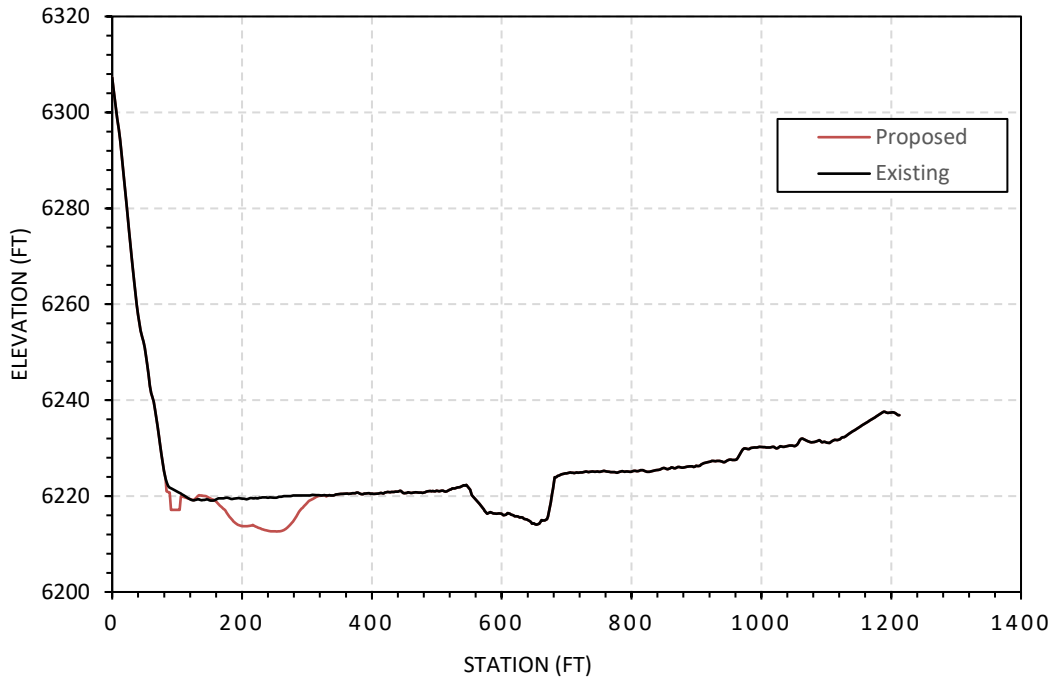


Figure 2. Cross-Section - 952025

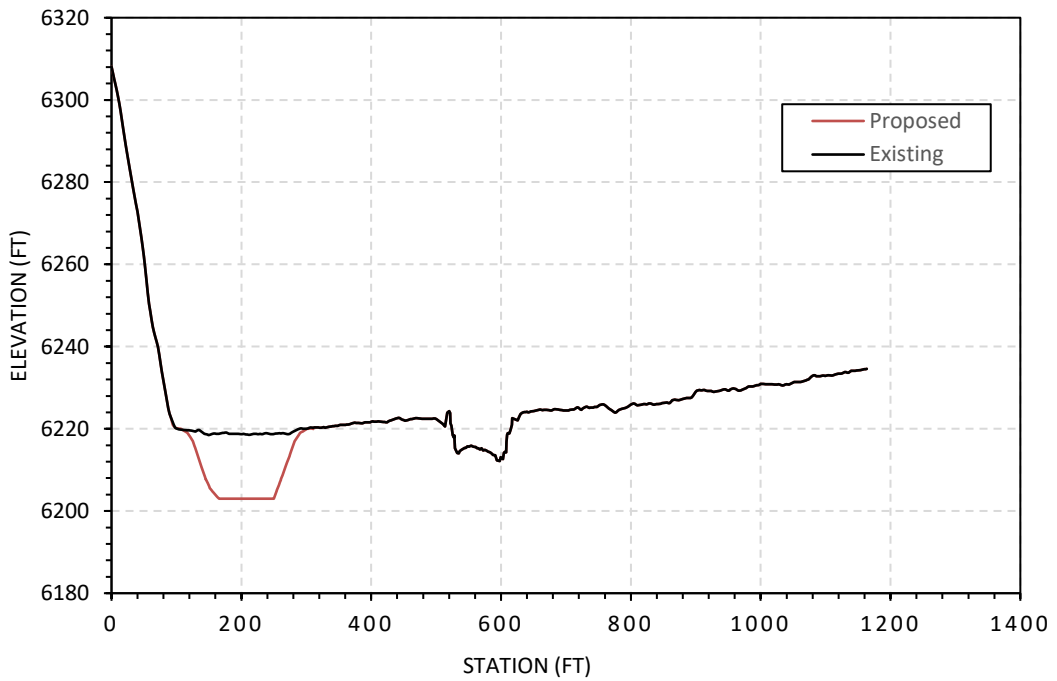


Figure 3. Cross-Section - 951940



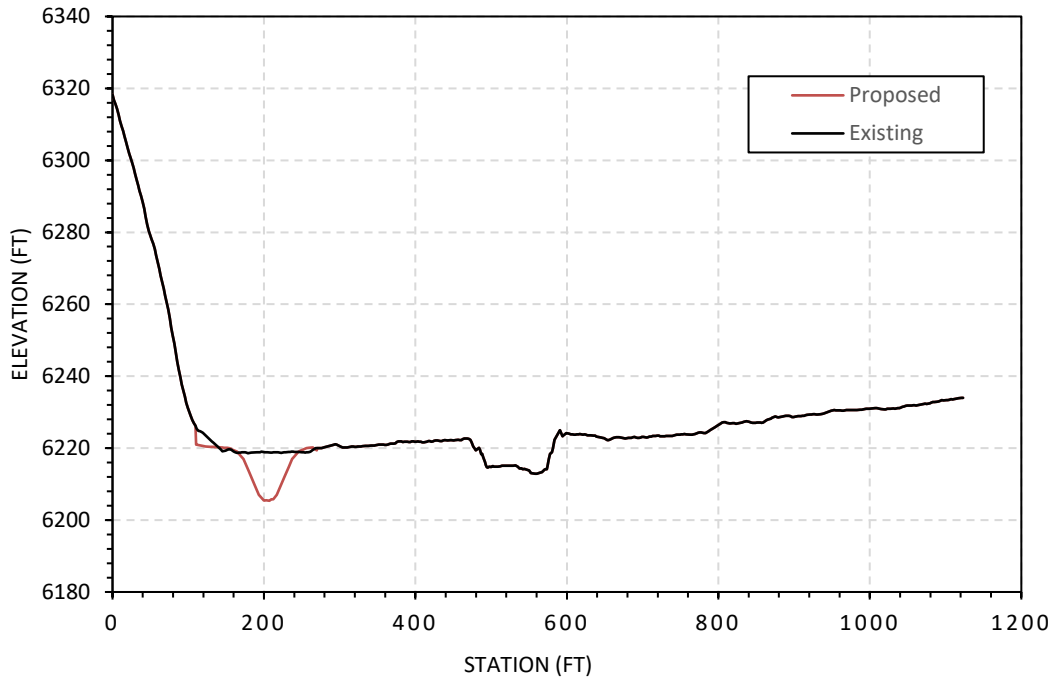


Figure 4. Cross-Section - 951867

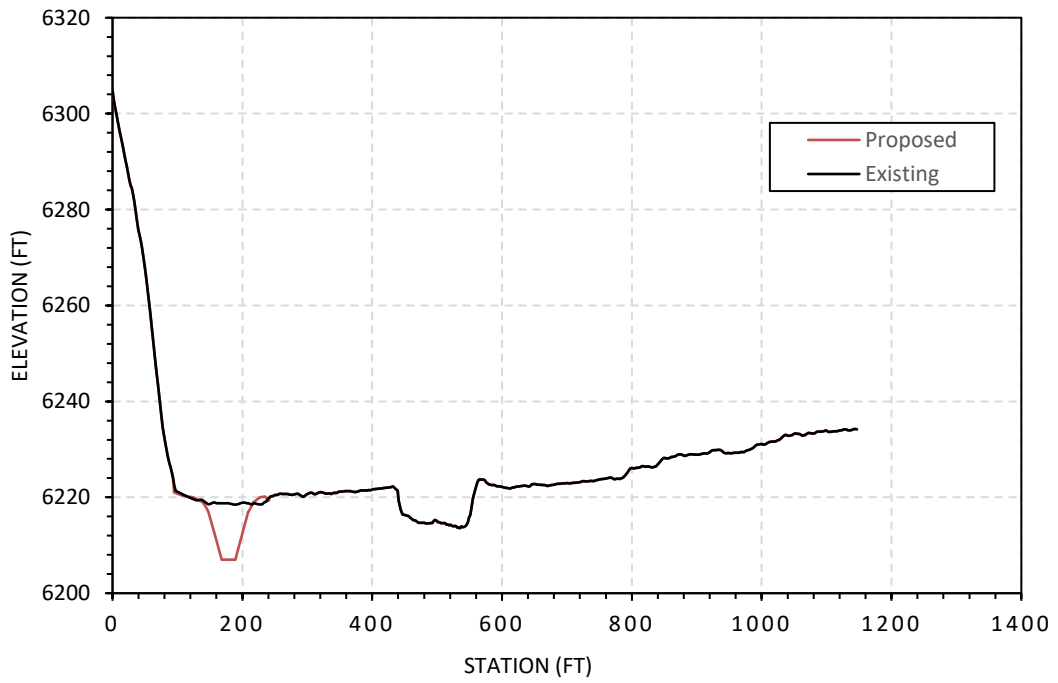


Figure 5. Cross-Section - 951831



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Engineering

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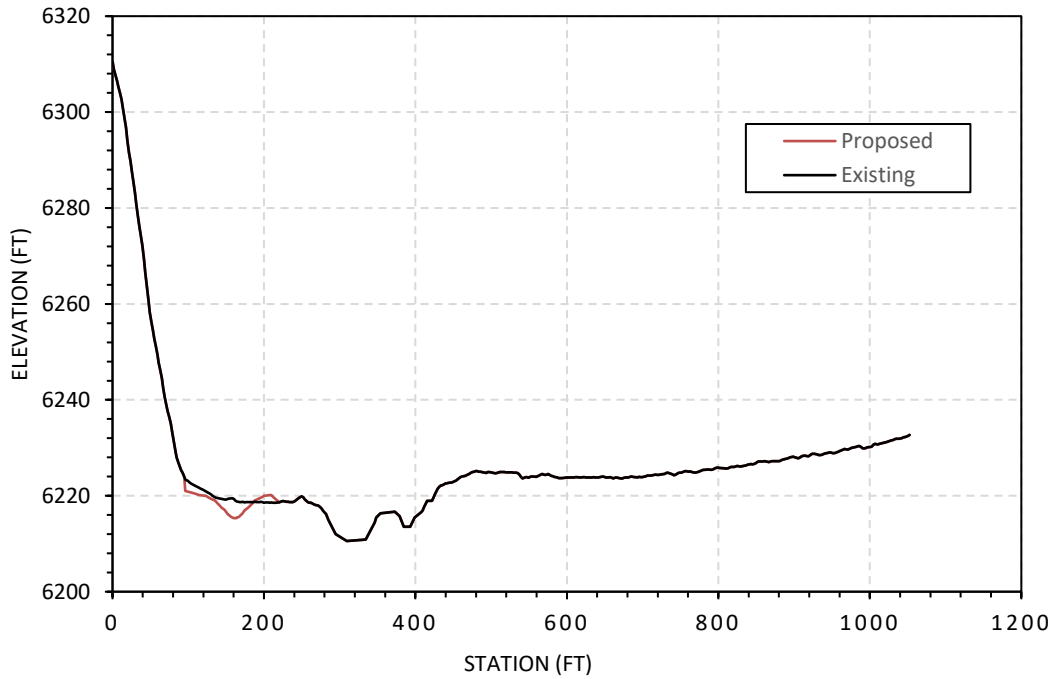


Figure 6. Cross-Section - 951571

The hydraulic model was used to compare these two scenarios. It was found that the maximum increase in water surface elevation was 0.13 feet (1.56 inches). A profile view of the model results is shown in Figure 7. The tabular data results for the HEC-RAS model are shown in Table 1.

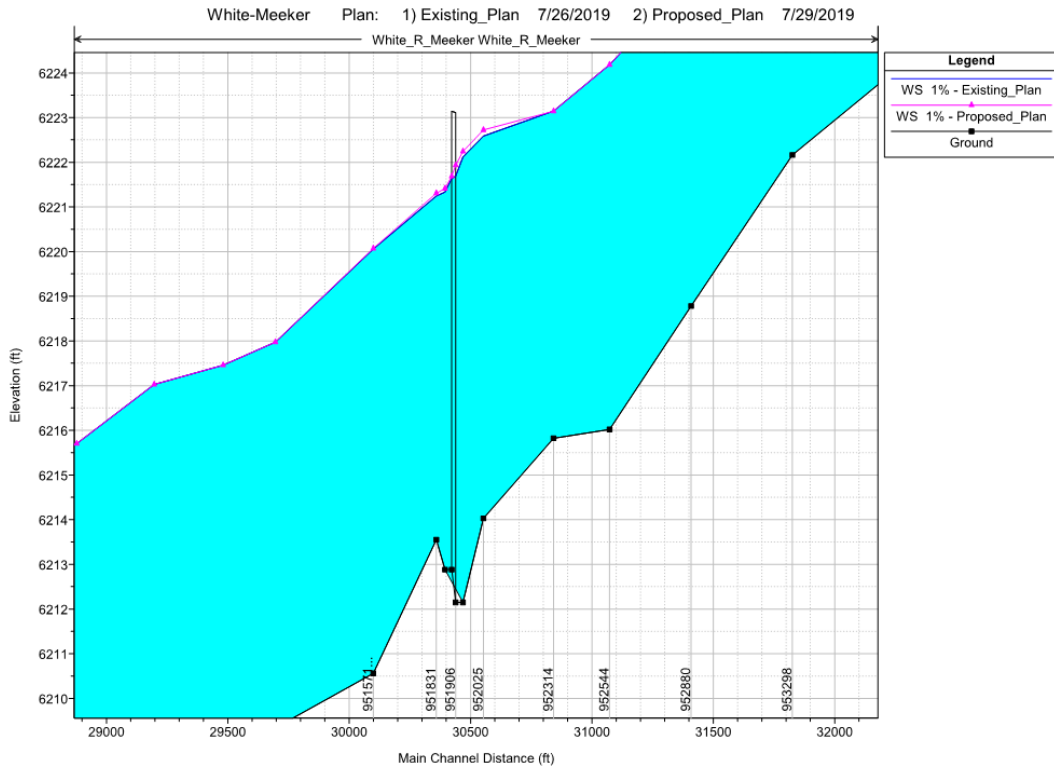


Figure 7. Profile View of HEC-RAS Model

Table 1. Tabular HEC-RAS Model Data

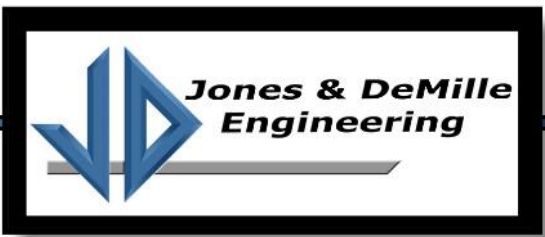
River Sta	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl	Change in W.S. Elev (ft)
952025	Exist	6325	6214.03	6222.59	6220.96	6222.8	0.001829	4.32	1859.23	595.57	0.3	0.13
952025	Prop	6325	6214.03	6222.72	6220.36	6222.87	0.001173	3.51	2111.31	597.8	0.24	
951940	Exist	6325	6212.15	6222.12	6220.66	6222.56	0.002399	6.31	1392.23	454.26	0.41	0.12
951940	Prop	6325	6212.15	6222.24	6220.73	6222.66	0.00226	6.19	1445.74	465.17	0.39	
951867	Exist	6325	6212.88	6221.33	6220.4	6222.12	0.004695	7.84	1011.47	346.84	0.54	0.08
951867	Prop	6325	6212.88	6221.41	6220.59	6222.23	0.004817	8.01	1018.87	371.44	0.54	
951831	Exist	6325	6213.55	6221.25	6219.98	6221.92	0.003699	7.17	1079.2	387.98	0.51	0.06
951831	Prop	6325	6213.55	6221.31	6220.02	6222.04	0.003878	7.39	1065.86	403.6	0.52	
951571	Exist	6325	6210.56	6220.06	6218	6220.73	0.006592	6.83	1025.04	293.09	0.48	0.01
951571	Prop	6325	6210.56	6220.07	6218	6220.78	0.006868	6.98	1006.24	300.17	0.49	



Conclusions

The analysis shows that the proposed project will increase in the existing water surface elevations by a maximum of 0.13 feet (1.56 inches), which is less than the required 6-inches. Therefore, the proposed development meets the no-rise requirements of FEMA and Rio Blanco County cited previously, and a no-rise certification is attached.





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Vernal, UT 84078
435.781.1988

Carl Padilla
Town of Meeker Building Official
345 Market Street
Meeker, CO 81641
970-878-5344
inspector@town.meeker.co.us

Dear Mr. Padilla,

“NO-RISE” CERTIFICATION

This is to certify that I am a duly qualified registered professional engineer licensed to practice in the State of Colorado.

This letter is to also certify that the attached technical data supports the fact that the proposed Eastern Rio Blanco Metropolitan Recreation and Park Districts Circle Park Improvements Project will not impact the 100-year flood elevations, floodway elevations, or floodway widths on White River at published sections in the Flood Insurance Study for Meeker, Colorado (Draft July 22, 2019) and will not impact the 100-year flood elevations, floodway elevations, or floodway widths at unpublished cross-sections in the vicinity of the proposed development beyond the limits set forth by FEMA and Rio Blanco County as discussed on the analysis documentation.

Sincerely,

Bart Jensen, PE, PLS

JONES & DEMILLE ENGINEERING, INC.

