

ADVANCED ENGINEERING & DESIGN, INC.

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January 30, 2025

Megan Wepfer
Public Works Director
City of Madeira Beach
505 150th Ave.
Madeira Beach, Florida 33708

Re: City of Madeira Beach
Proposal for Preliminary Program Development, Document Review, and Support Services

Dear Ms. Wepfer:

Advanced Engineering & Design, Inc. (AED) is pleased to provide this proposal for preliminary program development, document review, and support services. This work will include the preliminary development of a Terrain Modification Program (TMP), plan review, development of standard details, and additional support services for the City of Madeira Beach (City).

The City has already experienced impacts from tidal conditions, and those conditions are only expected to worsen over time (**Figure 1**). The projection below only considers tidal impacts and sea level rise. It does not include rainfall events or more extreme events, such as the ones that recently occurred.



Figure 1. Predicted tidal impacts of a King Tide in 2100.

AED is wrapping up Madeira Beach’s Watershed Management Plan (WMP), which evaluates the impacts of design storm events across the City. While working on this effort, several areas of opportunity were identified. Based on these opportunities, five (5) projects were recommended to improve the Flood Protection Level of Service (FPLOS) and the City’s overall resilience (**Figure 2**). It should be noted that many of these projects propose the use of fill.



Figure 2. Locations of Best Management Practices (BMPs) to be implemented as a result of the ongoing WMP.

Recent weather events have highlighted the importance of Madeira Beach exploring the implementation of resilient strategies (**Figure 3**). The City is interested in evaluating options for resilience that keep residents in their homes through 2100 with an improved FPLOS. In addition to highlighting the importance of exploring options for a more resilient City, these storm events have simultaneously created challenges and opportunities for the City. The burden of the

permitting/plan review process addressed in this scope represents only one of those challenges. However, despite these challenges, the opportunity to rebuild a better Madeira Beach – a more resilient Madeira Beach has also been created.



Figure 3. Photos of flood conditions in Madeira Beach, FL.

The incorporation of TMP would increase the city's resilience through the standardized utilization of fill. The TMP would be a City-wide program that elevates low-lying public and private lands segmentally over time. Having a program in place to elevate public and private properties over time provides the ability to elevate public infrastructure. However, promoting the use of fill as a resilience strategy presents a unique set of challenges. These challenges vary from regulatory restrictions, such as the National Flood Insurance Program, to technical difficulties associated with floodplain impacts.

This scope is designed to accomplish two (2) primary goals: 1.) to assist City Staff through the permitting/plan review process while supporting willing applicants use of fill using TMP principles and 2.) to establish the framework of a TMP for the City and obtain an understanding of what guidance documents support or conflict with this effort. Upon the completion of the effort outlined in this scope, the City can then begin to take steps to construct and formalize the TMP to incorporate long-term resiliency measures beyond what is currently outlined in its existing land development regulations, comprehensive plan, strategic plan, and master plan.

AED will provide the following services:

1. Project Development & Preparation of Guiding Documents

This task includes the project kickoff, the establishment of Terrain Modification Program (TMP) goals, a technical review of critical guidance documents, coordination with Kimley-Horn on the ongoing development of the new master plan, one (1) community engagement event, and one (1) roundtable meeting with the City before finalizing the guiding documents. *This task does not include the development of a Terrain Modification Manual (TMM) or a standalone guidance document. The documents created in this deliverable are meant to support the creation of a standalone guidance document and/or the TMM.*

The CONSULTANT shall:

- 1.01 Conduct a project kickoff meeting with City staff and other key stakeholders.
- 1.02 Establish terrain modification program goals and prepare a document outlining the program's objectives within the existing governing framework. Establishing these goals may result in goals that are currently unachievable due to the current restrictions on the utilization of fill. This will become more apparent in the following task. The technical memorandum in task 1.03 will address these conflicts.
- 1.03 Perform a technical review of critical documents, including the following: land development regulations, comprehensive plan, strategic plan, and master plan. Prepare a technical memorandum documenting the revisions required to the existing governing framework to implement the Terrain Modification Program. *This technical memorandum will only provide recommendations on changes, not the actual language for implementing the changes.*
- 1.04 Coordinate with Kimley-Horn staff on the master plan for its inclusion in Task 1.03. *This subtask will be billed on a time and materials basis. This assumes that the master plan is at a point of completion where it can be included in Task 1.03 within the timeline of this effort.*
- 1.05 Hold one (1) public engagement event to educate the community on the City's resiliency goals and how they can support its goals to be more resilient through the utilization of fill.
- 1.06 Hold one (1) roundtable meeting with City staff to get feedback and finalize guidance documents.

2. Plan Review & Additional Support Services

This task includes supporting the City with its existing plan review process while implementing the goals set forth within the guiding documents created in Task 1. Additionally, this task includes coordinating with contractors and building officials. AED will essentially be serving as an organic TMM in lieu of having a preliminary TMM for fill utilization under restrictions of the existing governing documents. *All subtasks associated with Task 2 will be billed on a time and materials basis.*

The CONSULTANT shall:

- 2.01 Support the existing plan review process as an extension of staff while incorporating the guiding documents established in Task 1.
- 2.02 Coordination with contractors and building officials through the plan review process as needed.

3. Standard Details & Fill Visualization

This task includes developing standard details utilized in the TMP and providing utilization support services as needed.

The CONSULTANT shall:

- 3.01 Develop standard details for all various roadway and stormwater infrastructure elements.
- 3.02 Provide fill utilization support services on an as-needed basis. *This subtask will be billed on a time and materials basis.*

4. Assumptions:

- 1. Unless otherwise stated in this scope of work, all meetings will be held virtually.
- 2. The master plan is/will be at a stage where aspects can be reviewed and implemented while it is being produced within the timeframe of this project.
- 3. BMPs for public infrastructure will not be provided.

Performance Schedule

This work will be completed by May 31, 2025, as outlined in the project schedule below. It is recognized that plan review support services and other tasks billed on a time and materials basis may extend beyond the anticipated completion date.

Project Schedule					
Task	Description	Feb. '25	Mar. '25	Apr. '25	May '25
1.01	Project Kickoff Activities & Preliminary Stakeholder Engagement				
1.02	Establishment of Program Goals & Preparation of Memorandum				
1.03	Technical Review of Critical Documents & Preparation of Technical Memorandum				
1.04	Coordination with Kimley-Horn Staff on the Master Plan				
1.05	Community Engagement Event				
1.06	Roundtable with City Staff & Finalization of Guiding Documents				
2.01	Plan Review Support				
2.02	Contractor & Building Official Coordination				
3.01	Development of Standards Details				
3.02	Fill Utilization Support Services				

Compensation to the Consultant

For the Scope of Services described in this work assignment, Advanced Engineering & Design, Inc. shall be compensated a Lump Sum of \$89,865.81 per the terms of our master agreement. *Subtasks 1.04, 2.01, 2.02, and 3.02 will be billed on a time and materials basis against the lump sum amounts allotted in the proposed labor breakdown (PLB). If the amounts assigned to those subtasks are exhausted, additional funds will be required to continue the effort on those subtasks. The CONSULTANT will provide a worksheet with each invoice showing the balance associated with each subtask billed on a time and materials basis.*

Next Steps

Developing and implementing a TMP entails complex tasks that cannot be performed quickly without due diligence and extensive technical review. The effort outlined in this scope will be a major lift in the early development of the framework for the TMP. However, additional work still needs to be done before the implementation of a TMP.

1. Continue to develop the TMP.

- a. The efforts outlined in this scope establish a preliminary framework for a TMP, including program goals and guiding documents to support the implementation of some TMP principles within the existing governing documents. The program must be further developed to incorporate goals that may not be achievable under the current governing documents.

2. Develop the TMM.

- a. The efforts outlined in this scope include the production of a technical memorandum and some guiding documents intended to assist with incorporating some TMP principles within the existing governing documents. However, creating a standalone TMM is not included within this scope. Creating a TMM at this point would result in the need for two manuals – one that is utilized for the current governing documents and one that would be used once those documents were modified. A TMM would need to be developed as the official guidance document associated with the TMP to implement the TMP. In an effort to streamline development and save costs, AED intends on utilizing similar documents that have been creating for adjacent communities.

3. Modify existing governing documents (land development regulations, comprehensive plan, strategic plan, and master plan) as needed to support the implementation of the TMP's goals.

- a. The efforts outlined in the scope include the production of a technical memorandum outlining recommended changes to support a more robust TMP. Writing the ordinance language for these changes and adopting those modifications will be necessary to implement both the TMP and the TMM.

4. Implement both the TMP and TMM.

- a. The efforts outlined in this scope include an organic incorporation of some TMP principles within the existing governing documents. To actually incorporate a robust TMP and TMM, the items above would need to be completed, and both the TMP and TMM would need to be implemented.

5. Ongoing Program Maintenance.

- a. Once the program is established, maintaining the TMP will be essential for its longevity. The program's goals will need to be revisited based on the latest scientific findings regarding sea level rise projections, including the timing of impacts and resulting tidal elevations. Revisions may also be needed as development patterns change and community preferences become more defined.

We look forward to working with you on this project and assure you that we will make our best effort to make it a success. Please feel free to give me a call if you have any questions.

Sincerely,
Advanced Engineering & Design, Inc.



Justin V. Keller, P.E., CFM, ENV SP
President



Cody J. Stewart, M.S., ENV SP, WEDG
Director of Resilience & Sustainability

Attachment(s): Proposed Labor Breakdown

Terrain Modification Program

Preliminary Program Development, Document Review, & Support Services

Proposed Labor Breakdown

Task No.	Description	Sr. Project Manager	Sr. Project Engineer	Project Engineer	CAD Operator	Admin.	Hours	Total	
		\$ 221.26	\$ 183.98	\$ 161.49	\$ 107.66	\$ 72.31			
1	Project Development & Preparation of Guiding Documents								
1.01	Project Kickoff Activities / Preliminary Stakeholder Engagement	2	3	3		2	10	\$ 1,623.55	
1.02	Establishment of Program Goals / Preparation of Memorandum	6	16	16		4	42	\$ 7,144.32	
1.03	Technical Review of Critical Documents (Codes, Comp Plan, Strategic Plan, Master Plan, etc.) / Preparation of Technical Memorandum Documenting Revisions Required for Terrain Modification	6	12	90		4	112	\$ 18,358.66	
1.04	Ongoing Coordination with Kimley-Horn Staff on the Master Plan (Time & Materials)	4	8	12			24	\$ 4,294.76	
1.05	Community Engage Event	4	12	12		4	32	\$ 5,319.92	
1.06	Roundtable with City Staff / Finalize Guiding Documents	5	5	12		4	26	\$ 4,253.32	
		Task 1 Subtotal							\$ 40,994.53
2	Plan Review & Additional Support Services								
2.01	Plan Review Support Budget (Time & Materials)	12	36	36		2	86	\$ 15,236.66	
2.02	Contractor / Building Official Coordination (Time & Materials)	6	24	24		4	58	\$ 9,908.08	
		Task 2 Subtotal							\$ 25,144.74
3	Standard Details & Fill Visualization								
3.01	Development of Standards Details	12	24	36	40	3	115	\$ 17,407.61	
3.02	Fill Utilization Support Services (Time & Materials)	4	8	12	14	3	41	\$ 6,018.93	
		Task 3 Subtotal							\$ 23,426.54
		Subtotal							\$ 89,565.81
		Reimbursables (Mileage, Reproductions, etc.)							\$ 300.00
		Total							\$ 89,865.81