Memorandum
MONTEREY REGIONAL WASTE MANAGEMENT DISTRICT

Reviewed by: _____ Date: 7/12/19
General Manager

DATE: July 12, 2019

TO: General Manager

FROM: Senior Engineer and Director of Engineering & Compliance

SUBJECT: Authorize the General Manager to Execute a Contract Change Order to Wood Brothers, Inc. for the Modules 1 and 2 North Slope Maintenance in an Amount Not-to-Exceed $395,000

RECOMMENDATION: That the Board Authorize Wood Brothers Inc. to Repair the North Slope of Module 1 and 2 in an Amount Not to Exceed $395,000, Through a Change Order to Current Module 6 Construction Contract.

BACKGROUND

Landfill Modules 1 and 2 at the Monterey Peninsula Landfill were originally filled between 1964 and 1986. Due to settlement of the waste mass (which naturally occurs over time), the District elected to perform a waste sliver fill over these modules between 2006 and 2009 to fill the air space resulting from the waste settlement. This sliver fill occurred in four phases and was subsequently capped with a prescriptive final cover system. This final cover system consisted of a foundation soil layer and a compacted clay liner overlain with a minimum 1-foot thick vegetative soil cover.

Since 2009, the vegetative soil cover has experienced several slump failures in various areas where the vegetative soil layer above the clay has slid down the slope. These slump failures typically coincide with heavy rainfall events and occurred in areas with over-steepened slopes, inadequate drainage control, or both. Between 2009 and 2019 there have been approximately 12 or more slope failures ranging from 10,000 to 60,000 square feet in size. Three slumps occurred in the 2017 storms which were declared major disasters by the Federal and State Governments (DR-4301, DR-4308). The slumps in this disaster year damaged landfill gas (LFG) header pipes and required at new LFG bypass line around the slump area. Anticipated costs to make final repairs on the damaged headers was estimated at approximately $900,000.

Wood Brothers Inc. (WBI) was awarded the contract for Module 6 base liner construction in March of 2019 and is currently onsite performing the Module 6 contract work. WBI has separately provided a cost estimate quote to perform maintenance on the northern slopes of Modules 1 and 2.

DISCUSSION

As mentioned above, slumps have been occurring since 2009 and coincide with storm events. The root causes that have led to these shallow soil failures are as follows:

- The prescriptive one foot thick (minimum) vegetative soil layer was thickened to 10 feet to provide for two longitudinal benches for the length of the slope. These benches surcharge the load (weight) on the slope which increase the downslope driving forces that can lead to slump failures.
- The benches provide a location where storm water can accumulate and seep into the vegetative cover layer if inadequate drainage control measures are not present. This increases the surcharge load on the slope and can lead to slump failures. The water infiltration also contacts the clay barrier surface and weakens the shear strength of the soils (a destabilizing condition).
- Steep slope angles in isolated areas of the sliver fill and on the downslope side of the benches. These steep angles, which increase the driving forces on the slope, are not sustainable and are prone to failure.

- The benches were not keyed into the clay layer on a flat plane. This sloping interface acts as a slip plane and makes the slope more susceptible to slump failures.

The proposed interim remedy for the slumps on the north slopes of Module 1 and 2 is to remove the benches that are surcharging the slope and which intercept the downslope surface water drainage. Once this is complete the disturbed areas will be hydroseeded and erosion control wattles will be placed at 30' (vertical) intervals. Doing this maintenance would have the following benefits:

- Removes the surcharge loads of the additional vegetative soil in the benches, and reduce ponding and infiltration of storm water.
- Eliminates the steep slopes at the bench areas.
- Minimizes potential for future slumps.
- Minimizes potential for damage to gas and leachate systems.
- Minimizes potential for damage and access to the landfill's northern perimeter road.
- Prepares the slopes for the upcoming wet weather season (a District responsibility).
- Improves the stormwater runoff quality by installing erosion control measures and eliminating the potential for exposed slopes. May lead to reduced annual maintenance costs should the hydroseeding vegetation displace the vegetation that has historically been present on the slopes.
- Minimizes potential interim costs while the Landfill Master Plan of final corrective design is developed, proposed and permitted.

FINANCIAL IMPACT

WBI has estimated the work on a time and materials basis not to exceed $395,000. Funds for this scope of work are available in the 2019/2020 FY infrastructure improvement budget. Funds are also available from FY18/19 revenues that were in excess of budgeted revenues and from the recent Bond issuance. A portion of this slope maintenance work **may** be eligible for reimbursement from FEMA since some of the damage occurred during the 2017 disaster declarations.

The recommendation to support the use of WBI to perform the work as opposed to District forces is included in the following table:

District Labor Costs vs. Contractor Comparison			
Consideration	**Option 1 – Use of District Forces**	**Option 2 – Contract to Wood Brothers**	**Option 3 – Advertise for Bid**
Completion Timeframe	6 weeks	2 weeks from Board Authorization	Bid advertisement would push start of work beyond start of wet weather season (Oct. 1)
Overtime Costs	All work would be overtime	Only Two hours per day of overtime	Unknown
Availability of Equipment and manpower	Limited equipment availability. Two staff members per day on OT for 4 hours.	Large inventory of equipment and manpower available to perform work.	Unknown
Mobilization Costs	None	None	Yes
Technology	Traditional methods	GPS guided grading equipment	Unknown
Impact on landfill operations staff	This task would take MRWMD's staff away from other landfill related projects and wet weather preparation.	None	None

STRATEGIC PLAN

The authorization of WBI to perform this work fits under several general policy directives cited in the District's "Pillars of Sustainability" plan.

Environment
Improving the slope performance protects the landfill cover liner from damage and thus protects the environment from potential releases. Reducing the possibility of slope failures also improves stormwater runoff quality since sediment would not make its way to the drainage channels and further downstream to rivers and streams.

People
Outsourcing this work would maintain a manageable workload for the District's landfill and site crew equipment operators so they can focus on projects such as preparing for Module 6 opening and wet weather season preparedness improvements.

Financial
There are several financial efficiencies achieved with outsourcing this work. WBI is currently onsite with equipment, manpower, and supervisory staff (Bid development, Bidding, and Mobilizations costs are avoided). In addition, WBI will be able to dedicate full time staff and equipment to this effort and will accomplish work more efficiently than MRWMD staff who have limited hours available to work on projects outside of landfilling.

CONCLUSION

The authorization of WBI to remove the vegetative soil benches on the north slopes of Modules 1 and 2 mitigates the potential for continued slump failures on said slopes. Protection of these slopes ensures that the cover liner system remains intact and protects the environment from potential releases. The selection of WBI also provides numerous financial and operational efficiencies for the District by having a contractor with specialized resources currently available and onsite. **Staff therefore recommends that the board authorize Wood Brothers Inc. to repair the north slope of Module 1 and 2 in an amount not to exceed $395,000, through a change order to current Module 6 construction contract.**

David Ramirez

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