



REPORT TO TOWN MAYOR AND COUNCIL

DATE: June 25, 2015
TO: Mayor and Council
FROM: Erik Montague, Finance Director
THROUGH: Gilbert Davidson, Town Manager and Jamsheed Mehta, Deputy Town Manager
SUBJECT: Report to Council for the emergency procurement of soil stabilization and repair work in the Pines housing development along portions of North Mountain Stone Pine Way.

The purpose of this report is to provide information and to report on an expenditure made in adherence to Town Code 3-4-4 Emergency Purchases. Emergency procurement of soil stabilization and repair work was determined to be necessary as the current condition places citizens and property at risk of injury or damage. Town Code requires that a “full report of the circumstances of the emergency and the goods or services obtained shall be made to the town council at its next regular meeting”. The following provides information surrounding the emergency procurement.

Background

In late fall 2014, Public Works staff became aware of collapsing or lifting driveways, curbs and asphalt in the Pines development along portions of North Mountain Stone Pine Way. Based upon staff review of site preparation documents, it was determined that a significant pit with an increasing depth of up to approximately 25 feet deep existed on the site which was filled in with soils as part of the site preparation work for the housing development. However, compacted, engineered soils appear to not have been utilized to fill all sections of this pit. A review of the soils evaluation report from Terracon indicated that these deep fill soils were used to support the front concrete drive ways, sidewalks, curb/gutters and asphalt roadway of approximately eight residences along a section of North Mountain Stone Pine Way. An illustrative map is included as Exhibit 1.

As a result of inadequate fill soils and compaction, significant settling and compaction of the fill soils within portions of this pit are occurring which, in some cases, is causing significant collapsing, shifting or lifting of concrete slabs, sidewalks, curb/gutter and asphalt along portions of North Mountain Stone Pine Way. Significant periods of precipitation appear to expedite the rate of settling and compaction of soils within the impacted area. As significant shifts in soil have occurred and as the summer monsoons are quickly approaching which will potentially worsen the situation with increased precipitation, the Public Works department recommended that an emergency procurement occur so that the required stabilization and repair work can occur as quickly as possible.

Recommended Treatment

The recommended treatment for the fill soils within this pit is to first stabilize the soil by utilizing a filling, structural urethane in a grid pattern from a depth of 25 feet up to within approximately 4-5 feet of the surface. Once the soils have been stabilized, a second phase of the treatment utilizing an

expanding, structural urethane will be used to lift driveways, curbs and asphalt, as required. The Public Works department utilized similar techniques along a section Blue Crossing Way in the Continental Ranch development with positive results. A copy of the stabilization and repair proposal is attached to this report as Exhibit 2.

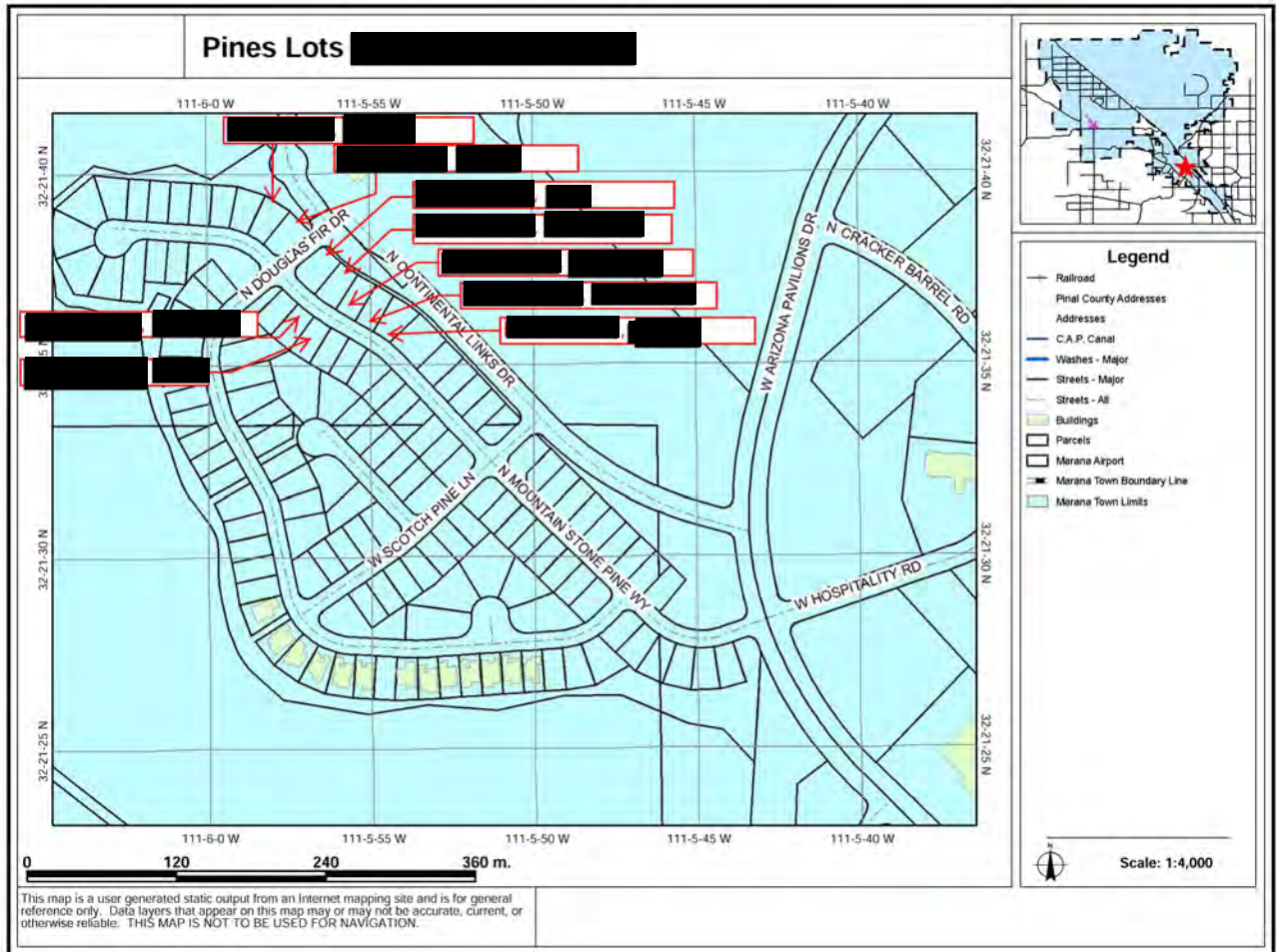
Financial Impact

Estimated costs within the public right of way are approximately \$101,890. Adequate budget capacity exists within the adopted 2016 budget to absorb these costs.

Evaluation

Public Works staff reviewed cost estimates and determined the approach, techniques and costs are reasonable and appropriate. Additionally, the stabilization and repair work will also significantly reduce the risk of additional damage to property and risk of personal injury within the development.

EXHIBIT 1



Reliable Structures Inc

PO Box 21202, Mesa, AZ 85277 * phone 480 529 4800 * fax 866 529 4704
greg.walliman@reliablestructuresinc.com * www.reliablestructuresinc.com

June 20, 2015 – Rev 2

This proposal is hereby submitted to: Mr. Morris J. Reyna, Engineering Dept.
Town of Marana
11555 West Civic Center Drive
Marana, AZ 85653

Richmond American Homes
3091 West Ina Road
Tucson, AZ 85741

For soils structural repairs at: Eight Residences
North Mountain Stone Pine Way
Marana, AZ 85743

Reliable Structures and the individuals or entities designated as Owner(s) or Agent(s) above enter into this agreement as follows:

Reliable Structures will provide all labor, materials, Workers' Compensation Insurance, Liability Insurance and supervision to perform the following:

SITUATION

The referenced eight residences require soils structural repair. Based on information provided by Mr. Reyna, Mr. Rich of Richmond American, the Terracon soils evaluation report and the Reliable inspection conducted on April 3, 2015, there are deep fill soils (approx 15' to 25') supporting the front concrete driveways, front yards/walkways, sidewalks, curb/gutters and asphalt roadway that have experienced soils collapse and caused varying degrees of pavement settlement at the following eight addresses; [REDACTED] North Mountain Stone Pine Way. This condition is likely a result of inadequate compaction of the deep fill soils during original construction and/or subsequent water infiltration into those deep soils.

The Town (ROW) and Builder (Private) are requesting a repair plan and cost estimate to strengthen and stabilize the deep soils with expanding, structural urethane at the eight areas between the front face of the residences and the center of the street, using the back of the sidewalk as the dividing line between private and public ownership. In addition, a repair plan and cost estimate is also requested for the lifting of the settled sections of driveway, sidewalk and curb/gutter, again using the same back-of-sidewalk dividing line.

The Town and Builder indicate that the potential collapse conditions within the deep soils behind the front face of some of the six residences on the east side of the street were resolved prior to home construction by 15' over-excavation and replacement backfill/compaction with engineered fill.

SCOPE OF WORK

Once the underground utilities within the work zone have been located and marked and the homeowners have removed their vehicles from the driveways and the street, the urethane deep injection grid pattern (4' to 4.5' staggered, horizontal centers) will be laid out and marked, 3/4" dia injection pipe pathway holes will be drilled through the driveway, walkway, sidewalk, curb/gutter and street pavements and 3/4" dia pre-drilled injection pipes will be inserted and driven/advanced to depths of between 13' and 20', depending upon each area's location relative to the fill depth contour information contained in the Terracon borings maps. Approximately 960 total injection pipes will be required to treat the eight areas.

Then, water and water-reactive expanding, structural urethane (Spetec H-40 or equivalent) will be incrementally injected through each pipe until back-pressure refusal is achieved which will indicate that a

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compaction and/or permeation grout column has been established within the soils mass at each injection pipe thereby strengthening, densifying and stabilizing the deep soils. The concrete and asphalt pavements will not be lifted during the deep stabilization process.

After the deep injections are completed, the injection pipes running through the pavement areas will be cut flush with the pavement surface and the remaining holes will be patched with a non-shrink cementitious grout to help hide the holes for cosmetic purposes. The injection pipes in the landscaped areas will be cut below the surface and the remaining ends will be covered with soils and/or landscape gravel.

Once the deep soils are stabilized, the joints within the area of the settled sections of driveway pavement and the settled sections of sidewalk and curb/gutter pavement at the [REDACTED] addresses will be cut to free them up and the slabs will be drilled as needed (5/8" dia holes) and lifted with expanding, structural urethane (SWD Urethane 232-4 or equivalent) back to their proper, on-grade elevations. To properly control the lift progress the driveways and adjoining sidewalks must be lifted together as one operation.

Following the lift operation, the injection holes will be patched with non-shrink grout to help hide the holes for cosmetic purposes.

Scope of Work Notes and Conditions

- A. It is not expected that local jurisdictional agency(s), including the HOA will require the deep soils stabilization or slab lifting repair work be permitted, therefore costs for preparing engineering drawings and/or for obtaining, managing and closing out a permit are not included in this proposal. If it is determined a permit is required, then the related agreement cost and timeline impacts will be determined and adjusted at that time.
- B. The work will be accomplished between the hours of 6:00 AM to 6:00 PM, Monday through Sunday, holidays excepted. The work areas will be safety barricaded and construction debris will be cleared at the end of each work period.
- C. A rental restroom will be placed and maintained on site for Reliable crew use.
- D. Reliable will locate and mark all existing sub-grade utility systems within the work zone that can be found with conventional location technology and Reliable shall be liable for any located utility damage that is caused by their work. However, Reliable has no responsibility for damage that they cause to any unknown sub-grade utility system or for additional damage to utility or structural systems that were weakened or compromised as a result of the soils collapse conditions.

ESTIMATED COST & SCHEDULE

For repair area breakdown and pricing, please see Exhibit A, enclosed

The project duration for all of the listed work is estimated at sixteen working days on site.

Note: the pricing listed in Exhibit A is based on performing the deep soils repair work and the pavement lifting work at the eight residences under one mobilization at Reliable's discretion.

Note: the pricing for urethane deep stabilization is approximately \$0.70 per square foot per foot depth.

Thank you for your interest in Reliable Structures and for the opportunity to submit a plan/proposal on this deep soils and pavement lifting structural repair program. We would be glad to meet with you in person or on the phone to discuss these items in greater detail. Please let us know if you have any questions. We look forward to providing superior service and excellent results.

Sincerely,

Greg G. Walliman
Project Manager

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AZ License # ROC247805

Initial _____

Exhibit A

<u>Scope of Work *</u>	<u>lot #</u>	<u>address</u>	<u>approx fill depth (ft)</u>	<u>area (ft2)</u>	<u>Private price (\$)</u>	<u>ROW price (\$)</u>
deep stabilize driveway & front yard			15.00	1,040	10,120	-
deep stabilize sidewalk, c/g & street			15.00	988	-	9,680
deep stabilize driveway & front yard			17.00	1,160	11,770	-
deep stabilize sidewalk, c/g & street			17.00	1,102	-	11,230
deep stabilize driveway & front yard			25.00	1,408	17,080	-
deep stabilize sidewalk, c/g & street			23.00	1,216	-	14,900
lift settled section of driveway			-	-	2,060	-
lift settled section of sidewalk & c/g			-	-	-	2,550.00
deep stabilize driveway & front yard			20.00	1,298	14,710	-
deep stabilize sidewalk, c/g & street			20.00	1,121	-	12,860
deep stabilize driveway & front yard			17.00	1,232	12,960	-
deep stabilize sidewalk, c/g & street			18.00	1,064	-	10,880
deep stabilize driveway & front yard			13.00	1,232	11,770	-
deep stabilize sidewalk, c/g & street			13.00	1,064	-	10,710
lift settled section of driveway			-	-	1,930	-
lift settled section of sidewalk & c/g			-	-	-	2,440.00
deep stabilize driveway & front yard			15.00	1,232	11,980	-
deep stabilize sidewalk, c/g & street			15.00	1,064	-	10,880
lift settled section of driveway			-	-	1,930	-
lift settled section of sidewalk & c/g			-	-	-	2,440.00
deep stabilize driveway & front yard			15.00	1,232	11,980	-
deep stabilize sidewalk, c/g & street			15.00	1,064	-	10,880
lift settled section of driveway			-	-	1,930	-
lift settled section of sidewalk & c/g			-	-	-	-

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		2,440.00
	=====	=====
	\$ Totals	110,220
		101,890

* = driveway & front yard measured from back of sidewalk to front face of residence
= sidewalk, c/g & street measured from back of sidewalk to center of street


RELIABLE STRUCTURES INC.

Agreement Terms

1 / CHANGES: Changes to the scope of work will be performed only with a written change order signed on behalf of the Agent and Reliable.

2 / PAYMENT TERMS: Fifty percent (50%) of the total Agreement amount is due at the Agreement signing. The fifty percent (50%) balance is due within seven calendar days after project completion. Finance charges at a rate of 3% monthly will accrue on delinquent balances.

3 / DEEP SOILS REPAIR LIMITED WARRANTY: The deep soils stabilization and pavement lifting structural urethane repair work is warranted on the basis of materials and workmanship for a period of ten (10) years from the date of completion of the Work. The sole remedy that Reliable Structures is obligated to provide under this warranty is the injection of additional urethane at those otherwise unmodified and/or undamaged area(s) of deep soils where there is evidence that the deep soils have experienced collapse or consolidation from their post-repair conditions and/or the injection of additional urethane at those otherwise unmodified and/or undamaged area(s) of lifted pavement where there is evidence that the lifted pavement has experienced settlement from its post-repair elevation.

This proposal may be withdrawn if not accepted within 30 days.	Signature _____	_____
	Greg G. Walliman Reliable Structures Inc. Arizona License # ROC247805	Date _____
	Signature _____	_____
	Owner	Date _____
ACCEPTANCE OF PROPOSAL: The prices, specifications and conditions are satisfactory and are hereby accepted. Reliable is authorized to accomplish the work as specified.	Signature _____	_____
	Owner	Date _____

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