LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT CONTRACT CHANGE ORDER

Date:	**June 16, 2015**	
Project:	Senior Citizen Center Construction	
Location:	Lexington	
Contract No.	227-2014	
Original Contract Amt.	$8,882,900.00	
Cumulative Amount of Previous Change Orders	$228,161.07	
Percent Change - Previous Change Orders		2.57%
Total Contract Amount Prior to this Change Order	$9,111,061.07	
Change Order No.	**18**	

To (Contractor):
Marrillia Design & Construction
259 West Short Street
Suite 325
Lexington, KY 40507

You are hereby requested to comply with the following changes from the contract plans and specification;

Current Change Order

Item No.	Description of changes-quantities, unit prices, change in completion date, etc.	Decrease in contract price	Increase in contract price
1	Parking Subgrade Remediation per Proposal Request # 018		$336,699.00
	Total decrease	$0.00	
	Total increase		$336,699.00
	Net Amount of this Change Order	$336,699.00	
	New Contract Amount Including this Change Order	$9,447,760.07	
	Percent Change - This Change Order		3.79%
	Percent Change - All Change Orders		6.36%

The time provided for the completion in the contract and all provisions of the contract will apply hereto.

Recommended by	(Project Manager)	Date 6/16/15
Accepted by	(Contractor)	Date 6/16/15
Approved by	(Director)	Date 6/16/15
Approved by	(Commissioner)	Date 6/16/15
Approved by	(Mayor or CAO)	Date 6/16/15

R-391-2015
Contract #227-2014

JUSTIFICATION FOR CHANGE	PROJECT: Senior Citizen Center Construction
	CONTRACT NO. 227-2014
	CHANGE ORDER NO. 18

1. Necessity for change: Proposal Request #018 was written to remediate poor soil conditions that exist in the future parking lot for the senior citizen center.

2. Is proposed change an alternate bid? ___Yes __X__No

3. Will proposed change alter the physical size of the project? ___Yes __**X**__No

   If "Yes", explain.

4. Effect of this change on other prime contractors: N/A

5. Has consent of surety been obtained? ___Yes __X__Not Necessary

6. Will this change affect expiration or extent of insurance coverage? ___Yes __X__No

   If "Yes", will the policies be extended? ___Yes ___No

7. Effect on operation and maintenance costs: If remediation is not performed the parking lot asphalt will likely fail prematurely due to the lack of a sufficient substructure.

8. Effect on contract completion date: N/A

Jim Gray
Mayor

10/22/15
Date

Lexington-Fayette Urban County Government
Replacement Senior Citizens Center

Purchase Order #LF00120278

Proposal for Remediation of Subgrade Conditions
at Paved Areas for Vehicle Traffic and Parking

June 16, 2015

TABLE OF CONTENTS

Proposal Request

EOP architecture | interiors

PROJECT NAME:	LFUCG Senior Citizens' Center
PROJECT NUMBER:	201333
SUBJECT:	Parking Subgrade Remediation - Revised
DUE DATE:	6/25/2015
ID:	PR-018
SENDER ID:	
INITIATED BY:	Harding Dowell
REASONS:	Field Conditions
DISCIPLINE:	Civil Site
STATUS:	Closed
COP STATUS:	Not Received
CONTRACT:	Construction Services for Replacement Senior Citizens Center

EOP
architecture | interiors

Proposal Request

DESCRIPTION:

Previous excavation activities have uncovered unsuitable soils in future parking areas of the site. Geotechnical engineers Cardno ATC have made supplemental explorations in these areas and have made recommendations for stabilization of the subgrade to ensure stable parking and driveway construction. Please refer to the attached report by Cardno for instructions on undercutting and backfilling.

As a revision to Cardno's recommendation Option 1, one layer of woven high performance geosynthetic fabric replaces the lowest layers of filter fabric and geogrid noted in the attached document. This revision is illustrated in the attached profile section by Element Design and shall be included in the pricing.

Additionally, 6-inch diameter subdrains shall be included as noted in the plan drawing by Element Design. Subdrains shall tie into adjacent storm water structures.

Please provide pricing for undercut and fill materials and activities over the full extent of asphalt and permeable pavers in areas of vehicle traffic and parking. Remediation work is limited to those areas within the scope identified in the contract. Extensions of undercut and fill beyond the limits of paving and curbing are to follow instructions noted in the attached geotechnical report and the attached paving profile section.

Pricing shall take the form of a not-to-exceed sum. The owner shall be billed based on actual materials and labor used. Invoices shall provide details on materials and labor, including but not limited to receipts for materials and unit costs for labor.

Pricing must be submitted to the owner and architect by the end of the day on Monday, June 15 for submission to LFUCG Urban County Council for discussion and approval at the June 15 work session and June 18 meeting.

Please let me know if you have any questions.

Thanks,

Cardno ATC

Shaping the Future

May 28, 2015

Mr. Harding Dowell
EOP Architects
201 W. Short Street, Ste. 700
Lexington, Kentucky 40507
859-231-7538
hdowell@eopa.com

Cardno ATC

11001 Bluegrass Parkway
Suite 250
Louisville, KY 40299

Phone +1 502 722 1401
Fax +1 502 267 4072
www.cardno.com

www.cardnoatc.com

Subject: **Limited Exploration and Pavement Subgrade Recommendations**
Lexington Senior Citizens Center – Idle Hour
St. Ann Drive
Lexington, Kentucky

Dear Mr. Dowell:

Cardno has provided geotechnical consulting services in support of the referenced project. In particular, a *Report of Geotechnical Exploration* dated May 29, 2014 and a letter titled *Revised Subgrade Conditions and Recommendations* dated October 28, 2014, have been provided. Based on additional information provided to us and a recent limited exploration at the site, we provide the following summary of conditions with recommendations for remediation of unstable subgrade soils in the proposed pavement areas.

Information provided in the geotechnical report prepared by Cardno and logs of borings drilled on site indicated that underlying soils were suitable for the proposed construction at the time of exploration considering the site was prepared and foundations were designed and constructed as recommended in the report. However, during site development, the contractor and site inspection team noted that actual site subgrade conditions encountered outside of exploratory locations varied in both composition and consistency. Cardno visited the site as requested during initial foundation construction activities near the southeast corner of the building where unsuitable subgrade soils were encountered. A vein of unsuitable subgrade soils consisting of dark brown and gray lean clay containing intermixed organic debris overlain with variable soil fill was encountered near design subgrade elevation. The vein was observed to diminish as the excavation approached the southeast building corner where boring B-5 was advanced during the previous exploration. The unsuitable soils were observed to be outside of the advanced boring location and inconsistent with the materials encountered in the boring. Based on the unsuitable subgrade soils encountered in some foundation areas, the foundations were over excavated as determined and directed by Thelen Associates according to the undercutting recommendations provided by Cardno. The recommendation included overexcavating to either suitable bearing materials or to a specified depth below the footing and backfilled with flowable fill up to design footing subgrade elevation.

Cardno personnel were not present to observe and document the conditions encountered during further building construction activities; therefore, Cardno was not able to determine if conditions reported during construction varied from those encountered during the geotechnical exploration. However, it is our

understanding that unanticipated conditions were reported to the design team by the contracted testing agency, Thelen Associates, Inc. It should be reiterated as stated in the geotechnical report that regardless of the thoroughness of a geotechnical exploration, there is always a possibility that conditions between borings will be different from those at specific boring locations and that conditions may not be as anticipated by the designers or contractors. In addition, the construction process may itself alter soil conditions.

Throughout the period of building construction, the pavement subgrade areas were not addressed. The proposed pavement areas were stripped of topsoil during initial site preparation operations in Fall of 2014 and remained exposed through the winter and early spring of 2015 except for a narrow gravel lined construction access road adjacent to the south side of the building. The exposed subgrade in the proposed pavement areas has been subjected to repetitive passes of heavily loaded construction and excavation vehicles and equipment, freeze/thaw and wetting/drying cycles, and utility installation trenching and backfilling. No apparent protective measures were or are in place to protect the subgrades in these locations from destabilization as was recommended in section 5.1 of the geotechnical report.

Cardno recently performed a limited subsurface exploration in the proposed pavement areas. Travis Andres, Cardno Senior Geotechnical Engineer, visited the site on May 27, 2015 to observe the excavation of test pit excavations at select locations in the proposed pavement areas, particularly in the west central portion of the parking lot area where no previous borings had been located. A total of two test pit excavations were advanced. Test pit TP-1 was performed approximately 65 feet south of the south wall of the newly constructed building and just west of the geothermal well field. Test pit TP-2 was performed approximately 50 feet south of TP-1. Additional test pit excavations were preferred, but due to site utilities and the location of the geothermal well field, test pits were only advanced where no subsurface utilities, structures, or obstructions were expected. In general, subsurface conditions encountered in the test pits consisted of fill to depths of approximately 7.0 feet in test pits TP-1 and TP-2. The fill soils were observed to consist mostly of orange brown clay with intermixed crushed limestone, and occasional limestone cobbles and boulders. A layer of shot rock fill was encountered at the base of the fill in test pit TP-2. Layers of dark gray and brown silty clay with trace organic debris was encountered beneath the fill materials and extended to test pit termination depth of approximately 8.0 feet in both test pits. Based on available information pertaining to the site, it is likely that the presence of the dark gray and brown clay indicates the transition from fill to undisturbed soil. A dynamic cone penetrometer and steel probe rod was used to explore the consistency of encountered materials at the ground surface and at 2 feet depth intervals to excavation termination. In general, the observed and measured subgrade soil consistencies varied from soft to stiff with blow count "N-values" in the range of 2 to 10 blows per 1 ¾ inches. In addition, the excavation sidewalls were observed to be relatively unstable.

Samples of excavated soil were sampled and delivered to the Cardno laboratory for moisture content determination. Moisture content values in the range of 24.6 to 27.9 percent were measured. For reference, available results of standard proctor testing for site soils indicate optimum moisture content values in the range of 18.7 to 19.2 percent.

While on-site the Cardno representative walked proposed pavement areas of the site in an attempt to further identify conditions which could influence site preparation techniques and/or pavement design. The majority of exposed pavement subgrade areas exhibited signs of instability such as rutting, heaving, tension cracking, and pumping from construction traffic. Several areas of ponded water were also observed on the ground surface.

Cardno has reviewed available information including our experience with site and subsurface conditions and recent field observations. Since near surface subgrade soils throughout the proposed pavement areas are well above optimum moisture condition and consist of highly variable fill, considerable undercutting and moisture conditioning and replacement as controlled fill would be required to provide suitable subgrade bearing conditions for designed pavement sections. Therefore, subgrade improvement by undercut of unsuitable soils and filling with an improved aggregate section using one of the replacement options outlined below is recommended.

Undercutting

As indicated by the site contractor, as much as 1 to 2 feet of cut is planned to reach design pavement subgrades. The material proposed as cut should remain in place and be included in the undercut operation to help prevent further destabilization of the underlying subgrade during undercutting and hauling operations. Undercutting should be performed in subgrade areas deemed unsuitable by proofroll as recommended in the geotechnical report and project specifications. Additional undercutting considerations and recommendations follow.

- Perform undercut operations using a track-hoe excavator working from the rear of the site (northast) to the site entrance (southwest)

- Undercut a minimum of 24 inches below design subgrade elevation for Option 1 outlined below. Undercut a minimum of 36 inches below design subgrade elevation for Option 2 below.

- The undercut subgrade should be leveled and graded smooth with the track-hoe bucket only. Grading and leveling of undercut subgrade areas with tracks of the excavator or dozer or by roller should not be performed to help prevent further destabilization of the subgrade.

- All excavator and haul truck traffic should be prohibited from undercut subgrade areas. All traffic should remain on subgrade materials yet to be undercut and routed to avoid undercut areas where possible to prevent further destabilization. Traffic should remain removed from the stabilized section until the complete pavement section can be installed.

- The limits of undercutting should extend beyond the pavement limits at least 2 feet to assure adequate support of associated curbing and guttering and minimize differential settlement between these structures and adjacent pavements.

Filling

We recommended the undercut volume be filled by one of the methods presented below. Fill placement should be performed working from the site entrance (southwest) to the rear of the site (northeast). Fill material should be end dumped and pushed out into the undercut fill area. Only small dozer traffic should be subjected to the fill layers during installation. No haul traffic should be subjected to the stabilized section until the full depth of stabilization section and aggregate base course has been installed to help prevent further destabilization of the subgrade.

Option 1 – Geogrid Reinforced Aggregate Section (undercut 22 inches minimum)

- Line exposed undercut subgrade with a needle-punched non-woven geosynthetic filter fabric such as Propex 701 or Mirafi 170N. Provide lap of at least 12 inches to adjacent sides and ends.

- Overlie geosynthetic filter fabric with Tensar BX1300. Provide lap of at least 24 inches to adjacent sides and ends. Installation should be performed according to manufacturer and supplier recommendations

- Place 12 inches of KYTC #2 or #3 stone in single lift. Grade level and track-in place using a small dozer. No roller or vibratory compaction should be used to help minimize further destabilization of the subgrade.

- Line surface of KYTC #2 or #3 stone with layer of Tensar BX1200. Provide lap length of at least 18 inches to adjacent sides and ends.

- Place 10 inches of KYTC #57 stone in a single lift to finish the stabilized section. Grade level and track-in place using a small dozer. No roller or vibratory compaction should be used to help minimize further destabilization of the subgrade.

Option 2 – Shot Rock with Stone Choke (Undercut 36 inches minimum)

- Line exposed undercut subgrade with a needle-punched non-woven geosynthetic filter fabric such as Propex 701 or Mirafi 170N. Provide lap of at least 12 inches to adjacent sides and ends.

- Place 24 inches of shot-rock in single lift and track-in with small dozer.

- Place 6 inches of KYTC #57 stone over the placed shot-rock. Grade level and track-in place with dozer to help choke voids in the shot-rock surface.

- **Place additional 6 inches of KYTC #57 stone and compact with a smooth-drum roller to finish the improved section.**

Asphalt and concrete pavement sections should be constructed as designed overlying the stabilized subgrade section. Stone base placed as part of the design pavement section should be compacted using a smooth-drum vibratory roller to attain minimum compaction requirements. The permeable paver design section is noted to include similar aggregate and geosynthetic materials and dimensions. These design sections may include the stabilized section as part of the constructed section per the approval of the Civil Engineer and Landscape Architect.

All material recommendations provided herein should be installed per manufacturer and/or supplier recommendations. Contractor selection of equivalent materials should be approved by the engineer prior to installation.

Cardno ATC
Shaping the Future

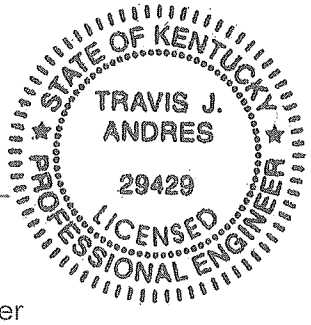
Logistics during subgrade stabilization is extremely important. Any excessive loading to the exposed undercut subgrades or incomplete stabilization sections could compromise the installed section or any stable subgrade support conditions that may exist. Undercutting and filling should be performed as outlined above and construction and paving traffic should be routed to avoid traversing unimproved subgrade areas. Following installation of the improved sections, repetitive passes of construction traffic should be kept to a minimum until site paving is completed.

Minimizing infiltration of water into the subgrade and rapid removal of subsurface water are essential to successful long-term pavement performance. Both subgrade and pavement surfaces should have minimum slopes of one-quarter inch per foot to promote drainage. Pavement edges should be provided a means of water outlet by extending the aggregate stabilization layers and base course through to daylight or to surface drainage features such as storm inlets. Drop inlets and other stormwater management structures should be provided weep holes in order to keep subsurface water from accumulating against their outside walls.

Although not retained to provide construction materials testing and special inspection services, the project geotechnical consultant should be present to observe the implementation of the recommendations provided herein to judge suitability of site preparation, undercutting, filling, and pavement construction. Actual subgrade conditions may differ from the expected conditions. Therefore, the engineer should be on site to confirm the recommendations provided herein are applicable and sufficient for the actual conditions encountered.

Cardno ATC appreciates the opportunity to have provided this service and we look forward to serving as your geotechnical consultant throughout project execution. Please contact us if you have any questions regarding the information presented.

Sincerely,
CARDNO



Travis Andres, P.E.
Senior Geotechnical Engineer

Mark Edmonson, P.E.
Branch Manager

Harding Dowell

From: Travis Andres <travis.andres@cardno.com>
Sent: Monday, June 08, 2015 10:24 AM
To: Harding Dowell; Joyce Thomas (jthomas@lexingtonky.gov); 'Jessica Walker'; Martin Woodford - LFUCG (mwoodford@lexingtonky.gov); Ramona Fry; Vaughan Adkins
Subject: RE: LFUCG Senior Center - PR-16 Pricing

Categories: Filed by Newforma

As promised, I was able to look into the possibility of replacing the base layer of Option 1 consisting of a layer of geogrid overlying a layer of filter fabric with a single layer of KYTC Type V High Strength Geotextile Fabric as mentioned by Martin Woodford with LFUCG during the site meeting last Wednesday.

The following first two steps of Option 1 as excerpted from our previously provided letter of recommendation and provided below:

- Line exposed undercut subgrade with a needle-punched non-woven geosynthetic filter fabric such as Propex 701 or Mirafi 170N. Provide lap of at least 12 inches to adjacent sides and ends.
- Overlie geosynthetic filter fabric with Tensar BX1300. Provide lap of at least 24 inches to adjacent sides and ends. Installation should be performed according to manufacturer and supplier recommendations

May be replaced with the following single application:

- Line exposed undercut subgrade with woven high performance geosynthetic fabric such as Mirafi HP570. Provide lap of at least 18 inches to adjacent sides and ends.

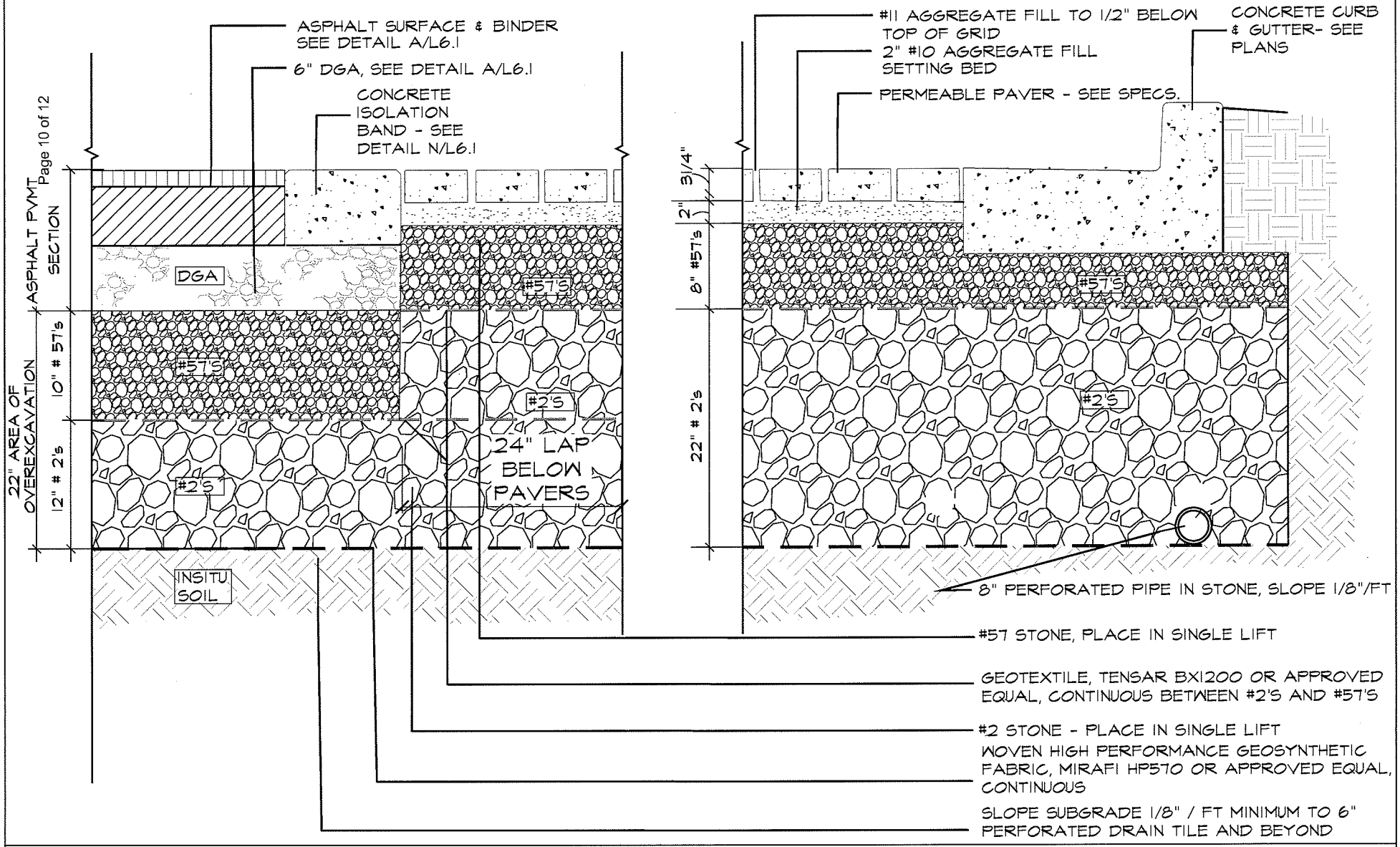
All other recommendations remain the same.

Thank you for your input Martin. This should provide a cost savings to the option as well.

Travis Andres, PE*
SENIOR GEOTECHNICAL ENGINEER
PROJECT MANAGER
CARDNO ATC

Cardno ATC
Shaping the Future
Phone (+1) 502-722-1401 Fax (+1) 502-267-4072 Mobile (+1) 502-693-9412
Address 11001 Bluegrass Parkway, Louisville, KY 40299
Email travis.andres@cardno.com Web www.cardnoatc.com - www.cardno.com

*Registered in KY, IN, TN



EOP architecture | interiors

LEXINGTON SENIOR CENTER

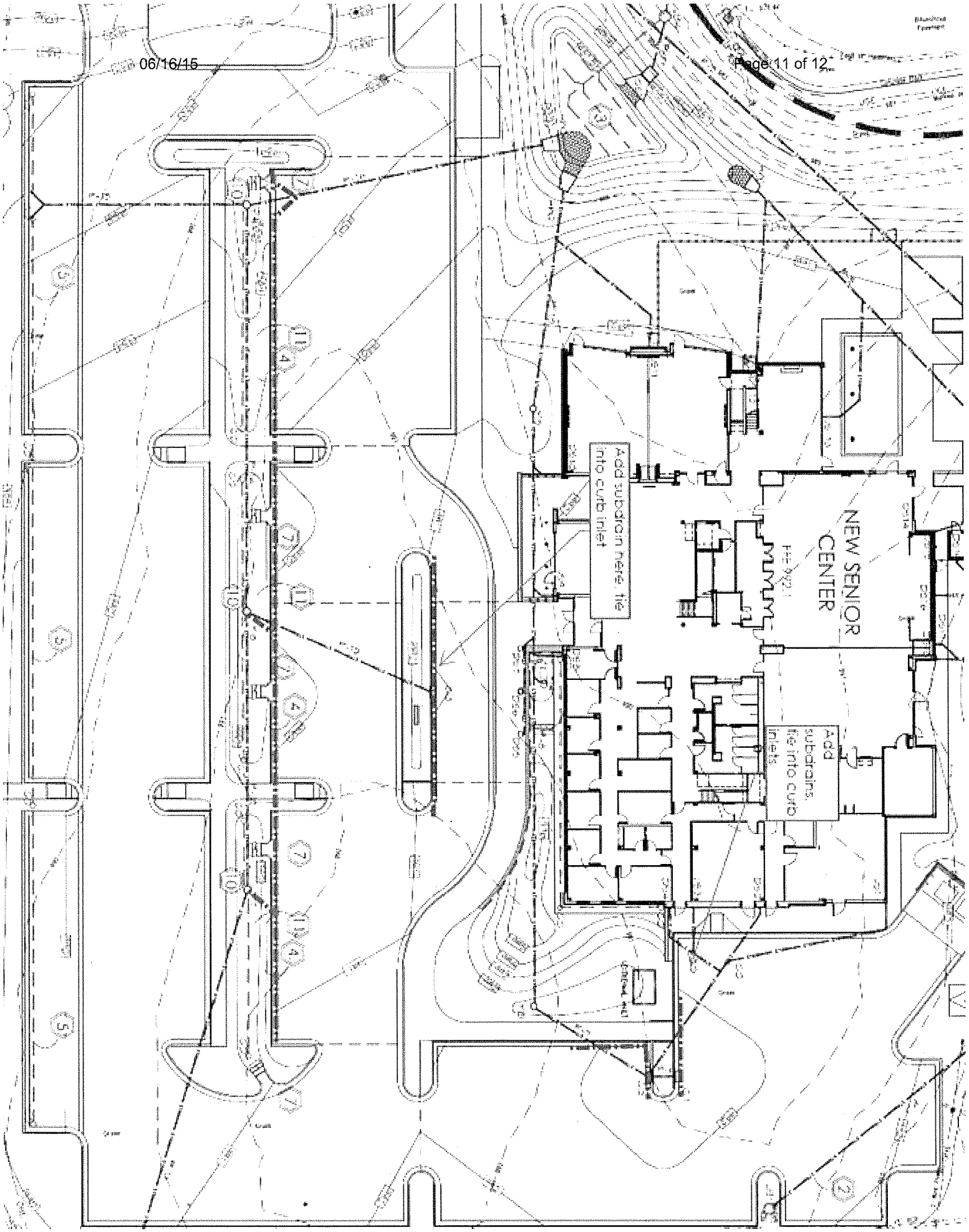
195 LIFE LANE
LEXINGTON, KY 40502

elementdesign
landscape architecture+civil engineering+planning

SHEET L6.1 R-1

Proj. No. 201333 Date June 10, 2015
Drawn by RF Checked by RF

No.	REVISION	DATE
1	pavement section - undercut	06/10/15


Add subdrain here, tie into curb inlet
NEW SENIOR CENTER
Add subdrains, tie into curb inlets

Pending Owner Approval

	Quantity	Units	Hr.	Rate	Labor	U/P	Materials	Subcontractor	Total
PR-17 GMP to Complete the Undercutting and Stabilization of the Parking Lot per the Cardno Recommendations and Supplemental Design Details - Revision #1									
GMP to Complete the Undercutting and Stabilization of the Parking Lot per the Cardno Recommendations and Supplemental Design Details									
Total Area of **Asphalt Paving Portion** of Parking Lot (Includes Landscaping Islands, Excludes Biofiltration Basin) =	57,158.35	sf							
Total Depth of Undercutting Required (22 in. - 24 in.) =	2.0	ft							
Total Volume of Undercutting =	4,234	cy							
Total Volume of #2 Stone per Recommended Cross Section (12 in.) =	2,117	cy							
Total Volume of #57 Stone per Recommended Cross Section (10 in.) =	1,765	cy							
Excavation of Unsuitable Soils	4,234	cy				9.00		38,106	
Off-Site Disposal/Haul-off of Undercut Soils	4,234	cy				7.00		29,638	
#2 Stone In-Place (Based on 1.65 Tons per Cubic Yard In-Place)	3,493	tn				25.00		87,326	
#57 Stone In-Place (Based on 1.7 Tons per Cubic Yard In-Place)	3,001	tn				25.00		75,013	
Tensar Biaxial BX1200 Geogrid (Assume 15% Lap Factor)	7,304	sy				3.25		23,738	
Mirafi HP570 High-Tenacity Polypropylene Yarn Geotextile Fabric (Assume 15% Lap Factor)	7,304	sy				4.80		35,059	
Additional Parking Lot Construction Staking	1	ls				4,700.00		4,700	
Total Area of **Permeable Paver Portion** Parking Lot (Includes Landscaping Islands) =	6,732.76	sf							
Total Depth of Undercutting Required (18 in.) =	1.5	ft							
Total Volume of Undercutting =	375	cy							
Total Volume of **Additional** #2 Stone per Recommended Cross Section (Additional 14 in.) =	291	cy							
Total Volume of **Additional** #57 Stone per Recommended Cross Section (Additional 4 in.) =	84	cy							
Excavation of Unsuitable Soils	375	cy				9.00		3,375	
Off-Site Disposal/Haul-off of Undercut Soils	375	cy				7.00		2,625	
#2 Stone In-Place (Based on 1.65 Tons per Cubic Yard In-Place)	480	tn				25.00		12,004	
#57 Stone In-Place (Based on 1.7 Tons per Cubic Yard In-Place)	143	tn				25.00		3,570	
Tensar Biaxial BX1200 Geogrid (Assume 15% Lap Factor)	861	sy				3.25		2,798	
Mirafi HP570 High-Tenacity Polypropylene Yarn Geotextile Fabric (Assume 15% Lap Factor)	861	sy				4.80		4,133	
Credit for Tensar BX1100 Geogrid Included Under the Original Permeable Paver Cross Section	861	sy				(2.35)		(2,023)	
Additional Parking Lot Construction Staking	1	ls				See Above		See Above	
Drainage Piping									
Material Cost Difference to Enlarge the Drainage Pipe Under the Permeable Pavers from 6" to 8"	345	lf				1.50		518	
6" Perforated Subdrain per Element Design Sketch	450	lf				6.20		2,790	
ALLOWANCE for Additional Undercutting Due to Rain/Saturated Soils During the Undercutting Operations	1	ls				5,000.00		5,000	
ALLOWANCE for Temporary Pavement Markings if it Becomes Necessary to Complete the Surface in 2016	1	ls				8,330.00		8,330	
					0		0	336,699	336,699

Total Construction Cost = 336,699