

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
411 West Ocean Boulevard, 9th Floor
Lona Beach, CA 90802-4664

1 FIFTH AMENDMENT TO AGREEMENT NO. 34489

2 **34489**

3 THIS FIFTH AMENDMENT TO AGREEMENT NO. 34489 is made and
4 entered, as of October 14, 2022, for reference purposes only, pursuant to a minute order
5 adopted by the City Council of the City of Long Beach at its meeting on October 11, 2022,
6 by and between TWINING, INC., a California corporation ("Consultant"), with a place of
7 business at 2883 E. Spring Street, Suite 300, Long Beach, California 90806, and the CITY
8 OF LONG BEACH, a municipal corporation ("City").

9 WHEREAS, City and Consultant (the "Parties") entered into Agreement No.
10 34489 (the "Agreement") whereby Consultant agreed to provide as-needed construction
11 materials testing and inspection services in an amount not to exceed Two Million Dollars
12 (\$2,000,000) for a period of three (3) years, with the option to renew for two (2) additional
13 one-year periods, at the discretion of the City Manager; and

14 WHEREAS, the Parties entered into a First Amendment to the Agreement to
15 add Two Million Dollars (\$2,000,000) for a total not to exceed amount of Four Million Dollars
16 (\$4,000,000), and extend the term to December 31, 2020; and

17 WHEREAS, the Parties entered into a Second Amendment to the Agreement
18 to extend the term to December 31, 2021; and

19 WHEREAS, the Parties entered into a Third Amendment to the Agreement
20 to attach an updated rate sheet; and

21 WHEREAS, on August 3, 2021, City Council approved extending the
22 Agreement one (1) additional one-year period; and

23 WHEREAS, the Parties entered into a Fourth Amendment to the Agreement
24 to extend the term to December 31, 2022; and

25 WHEREAS, on October 11, 2022, City Council approved extending the
26 Agreement one (1) additional one-year period; and

27 WHEREAS, the Parties desire to extend the term one (1) additional one-year
28 period, and attach an updated rate sheet;

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
411 West Ocean Boulevard, 9th Floor
Lona Beach, CA 90802-4664

1 NOW, THEREFORE, in consideration of the mutual terms, covenants, and
2 conditions herein contained, the Parties agree as follows:

3 1. Section 2 of the Agreement is hereby amended to read as follows:

4 "2. TERM. The term of this Agreement shall commence at midnight on
5 January 1, 2017, and shall terminate at 11:59 p.m. on December 31, 2023, unless sooner
6 terminated as provided in this Agreement, or unless the services or the Project is
7 completed sooner."

8 2. The Rates in Exhibit "B-1" in the Third Amendment to the Agreement
9 are hereby amended in accordance with Exhibit "B-2", attached hereto and incorporated
10 by this reference."

11 3. Except as expressly amended herein, all terms and conditions in
12 Agreement No. 34489 are ratified and confirmed and shall remain in full force and effect.

13 //
14 ///
15 ///
16 ///
17 ///
18 ///
19 ///
20 ///
21 ///
22 ///
23 ///
24 ///
25 ///
26 ///
27 ///
28 ///

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

IN WITNESS WHEREOF, the Parties have caused this document to be duly executed with all formalities required by law as of the date first stated above.

TWINING, INC., a California corporation

October 27, 2022

By [Signature]
Name Linas Vitkus
Title President / COO

October 28, 2022

By [Signature]
Name Steve Schiffer
Title Senior Vice president

"Consultant"

CITY OF LONG BEACH, a municipal corporation

November 10, 2022

By [Signature]
City Manager

"City" EXECUTED PURSUANT TO SECTION 301 OF THE CITY CHARTER

This Fifth Amendment to Agreement No. 34489 is approved as to form on NOVEMBER 3, 2022.

CHARLES PARKIN, City Attorney

By [Signature]
Deputy

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
411 West Ocean Boulevard, 9th Floor
Lona Beach, CA 90802-4664

Exhibit B-2 - Updated Rates



**Schedule of Rates for Services for City of Long Beach As Needed Construction Materials
Testing and Inspection- 1/1/23 to 12/1/23**

NOTE: Rates are adjusted by contract amendment only.

Personnel Rates: Per Hour Unless Otherwise Noted

Task Code	Engineering and Consulting Personnel	New Rates
10026	Senior Principal Advisor/Consultant	\$311.47
10001	Principal Engineer/Geologist	\$205.79
10017	Metallurgical Engineer	\$200.23
70000	Registered Geotechnical Engineer	\$200.23
10010	Technical Advisor	\$200.23
10011	Material Scientist, Welding/NOT Consultant	\$211.36
70003	Registered Geologist/Certified Engineering Geologist	\$189.11
10003	Senior Engineer/Geologist	\$183.55
10009	Registered Civil Engineer	\$177.98
60003	Roofing/Waterproofing Consultant	\$205.79
10013	Project Engineer/Manager	\$166.86
30000	Quality Control Manager	\$155.74
10005	Senior Staff Engineer/Geologist	\$150.17
10007	Staff Engineer/Geologist	\$144.61
10015	Quality Control Administrator	\$133.49
10019	Metallurgical Technician	\$105.68
90001	GADD Operator/Draftsperson	\$94.55
70107	Field Supervisor	\$127.93
91030	Safety Supervisor	\$127.93
20000	Laboratory Manager	\$116.80
98000	Laboratory Technician	\$94.55
90005	Expert Witness Testimony	\$439.40
91010	Qualified SWPPP Developer	\$144.61
91000	Qualified SWPPP Practitioner	\$133.49

Task Code	Engineering and Consulting Personnel	New Rates
10101	Concrete/Reinforced Steel Inspector	\$118.47
10103	Prestressed/Post Tensioned Inspector	\$118.47
10105	Concrete ICC Inspector	\$118.47
10109	Drilled-In-Anchor Inspector	\$118.47
10111	Gunite/Shotcrete Inspector	\$118.47
10113	Masonry Inspector	\$118.47
10201	Structural Steel/Welding Inspector	\$118.47
10203	AWS Certified Welding Inspector	\$118.47
10207	Fireproofing Inspector	\$118.47
10501	Public Works Inspector/ Special Inspector	\$124.03
70109	L.A. Deputy Grading Inspector	\$124.03
75001	Asphalt Field and Plant Inspector/Technician	\$119.58
70103	Pile Driving Inspector	\$119.58
70101	Soils Technician	\$118.47
10107	Concrete Quality Control (ACI/Caltrans Technician)	\$118.47
60001	Roofing/Waterproofing Inspector	\$125.15
10515	Mechanical Inspector	\$139.61
10519	Electrical Inspector	\$141.83
10521	Plumbing Inspector	\$141.83
10523	Building Inspector	\$141.83
50003	Field Engineering Technician	\$122.92

Task Code	Shop Inspection Personnel	New Rates
10301	Structural Steel Fabrication Inspector	\$ 119.58
10309	Batch Plant Quality Control Technician/Inspector	\$ 119.58
10325	Glue-Laminated Fabrication Inspector	Quotation
10328	Pre-Cast Concrete/Pipe Fabrication Inspector	\$ 119.58



		Invoice Name	New Rates
20201	6" x 12" or 4" x 8" Cylinder: Compression Strength (ASTM C39)	6x12 Or 4x8 Cylinders-Comp St (Astm C39)	\$35.60
20203	Density of Structural Lightweight Concrete Equilibrium or Oven Dry	Density Of Struc Lw Cone (Astm C567)	\$83.43
20205	Core Compression including Trimming (ASTM C42)	Compression - 2", 4", 6" Cores (C42)	\$61.18
20207	6" x 6" x 18" Flexural Beams Not Exceeding Referenced Size (ASTM C78, C293 or CTM 523)	6x6x18 Flex Beams (Astm C78,C293)	\$77.87
20208	6" x 6" x 30" Flexural Beams (CTM 523)	6x6x30 Flexural Beams	\$94.55
20209	Splitting Tensile Strength (ASTM C496)	6x12 Cyl/Core-Split Tensile (Astm C496)	\$94.55
20211	Modulus of Elasticity Test (ASTM C469)	Mod Of Elasticity Static 6x12(Astm C469)	\$155.74
80003	Rapid Chloride Permeability Test: Cylinders or Cores (ASTM	Chloride Permeability Test: Cyl/Core	\$500.58
80006	Density, Absorption, and Voids in Hardened	Den, Absorp, And Voids In Hard	\$389.34
40005	Concrete (ASTM C642)	Cone.	\$778.68
40009	Coefficient of Thermal Expansion of Concrete (CRD 39, AASHTO	Coefficient Of Therm. Exp. Of Concrete	\$556.20
Task			
Code	Concrete Specimen Preparation	Invoice Name	New Rates
20151	Sawing of Specimens (Each)	Sawing Of Specimens (Each)	\$27.81
20157	Coring of Specimens in Lab (Each)	Coring Of Specimens In Lab (Each)	\$27.81
Task	Laboratory Trial Batch: Concrete Cement and		
Code	Mortar	Invoice Name	New Rates
30217	Compression Test Cylinders Made and Tested In	6x12 Comp Test Cyl, Made/Test	\$50.06
30219	Laboratory (ASTM C192, C35)	In Lab	\$94.55
30221	Laboratory (ASTM C192, C78)	In Lab	\$105.68
30223	Laboratory (ASTM C192, C293)	In Lab	\$111.24
30225	Laboratory (ASTM C192, C496)	Made/Test Lab	\$173.63
30227	Laboratory (ASTM C192, C469)	C192,C469	\$95.67
30201	Laboratory Trial Batch (ASTM C192)	Lab Trial Batch-Exel Prep & Test (C 192)	\$500.58
Task	Laboratory Trial Batch: Concrete, Cement and Mortar,		
Code	continued	Invoice Name	New Rates
30203	Laboratory Trial Batch: Packaged Dry Concrete Including Verification	Laboratory Trial Batch-Packaged Dry Cone	\$889.92
30205	Drying Shrinkage Up to 28 Days: Three 3" x 3" or (ASTM C157)	Drying Shrinkage Made & Tested In Lab	\$500.58
30230	Additional Reading, Per Set of Three Bars	Additional Reading, Per Set Of 3	\$50.06
30231	Storage over Ninety (90) Days, Per Set of	Bars	\$33.37
30207	Three Bars, Per Month	Per Set	\$139.05
30209	Bleeding (ASTM C232)	(C403)	\$139.05
		Bleeding (C232)	\$139.05
Task	Laboratory Trial Batch: Concrete, Cement and		
Code	Mortar, continued	Invoice Name	New Rates
30229	Concrete Restrained Expansion (ASTM C878)	Concrete Restrained Expansion	\$528.39
30211	Mix, Make and Test Mortar or Grout Specimens for	(Astm C878)	\$444.96
20263	Compressive Strength: Set of 6 (ASTM C109, C942)	Como Strnth	\$500.58
20265	Set (ASTM C1090)	Aft Final	\$778.68
30232	Age (ASTM C827)	Earlv Age	\$4,449.60
30233	Evaluation of Pre-Packaged Masonry Mortars (ASTM C270)	Evaluation Of Pre-Packaged Masonry Morta	\$1,223.64
Task	Chemical Analysis and Petrographic		
Code	Examination of Concrete	Invoice Name	New Rates
80120	Chemical Analysis for Water Soluble Sulfates (ASTM C114)	Chem Analysis Water-Sol Sulf	\$144.61
Task			
Code	Soils and Aggregate Tests	Invoice Name	New Rates
70319	Direct Shear Test: Undisturbed - Slow [CD] (ASTM D3080)	Direct Shear Test (Undisturbed-Slow) (Cd	\$250.29
70321	Direct Shear Test: Undisturbed - Fast [CU] (ASTM D3080)	Direct Shear Test (Undisturbed-Fast)	\$216.92
70378	Durability Index: Per Method - A,B,C, or D (CTM 229, ASTM D3744)	Dur Index Per A,B,C,D Ctm 229, Astm D3744	\$233.60
70325	Expansion Index (ASTM D4829, USC 18-2)	Expansion Index (Astm D4829, Ube 18-2)	\$189.11
75004	Fine Aggregate Angularity (MSHTO T304, ASTM C1252, CTM 234)	Fine Aggreg Angularity (T304,C1252,Ct234)	\$205.79
30507	Flat and Elongated Particle (ASTM D4791)	Flat And Elongated Particles (Crd C119)	\$250.29
30508	Flat or Elongated Particle (ASTM D4791)	Flat Or Elongated Particle-Astm D4791	\$216.92
70331	Maximum Density: Methods A/B/C (ASTM D1557, D698, CTM 216)	Mx Density-Mthds A/B/C D1557,D698,Ctm216	\$211.36
70333	Maximum Density: Check Point (ASTM D1557, D698)	Max Density-Check Pt (D1557, D698)	\$72.31
70335	Maximum Density: AASHTO C [Modified] (MSHTO T-180)	Maximum Density- Aashto C (Modified)	\$216.92



Task Code	Soils and Aggregate Tests, continued	Invoice Name	New Rates
70337	Moisture Content (ASTM O2216,CTM 226)	Moisture Content (Astm D2216, Ctm 226)	\$27.81
70339	Moisture and Density: Ring Sample (ASTM D2937)	Moisture And Density-Ring Sample	\$33.37
70341	Moisture and Density: Shelby Tube Sample (ASTM D2937)	Moisture And Density-Shelby Tube Samole	\$44.50
70340	Moisture-Density Relations of Soil-Cement Mixtures Premixed in the	Moist-Dens Relation Of Soil- Cement Field	\$305.91
70342	Moisture-Density Relations of Soil-Cement Mixtures Mixed in the	Moist-Dens Relations Of Soil-Cem In Lab	\$389.34
30401	Organic Impurities (ASTM C40, CTM 213)	Organic Impurities (Astm C40,Ctm 213)	\$100.12
70343	Permeability (ASTM D5084)	Permeability (Astm D5084)	Quotation
80001	Potential Reactivity: Chemical Method (ASTM C289)	Potential Reactivity (Astm C289)	\$528.39
70394	Potential Reactivity: Mortar Bar Expansion Method, 14-Day	Potential Reactivity: Mortar Bar Expansi	\$834.30
70391	Potential Reactivity: Mortar Bar Expansion Method, 28-Day	Potential React. Mortar Bar ASTM C1260	\$889.92
70398	Potential Reactivity: Concrete Bar Expansion, Method (ASTM	Po React Concrete Expan 12mo Astm C1293	\$2,669.76
70399	Potential Reactivity: Concrete Bar Expansion, Method (ASTM	Po React Concrete Expan 24mo Astm C1293	\$2,892.24
70397	Potential Reactivity of Aggregate Combination,14-Day Exposure,	Potential React Of Agg Combo, Mortar 14d	\$1,001.16
70392	Potential Reactivity of Aggregate Combination, 28-Day Exposure,	Potential React. Agg Combo ASTM C1567	\$1,056.78
70345	R-Value: Soil (ASTM 2844, CTM 301)	R-Value (Soil) (Astm 2844, Ctm 301)	\$417.15
70347	R-Value: Aggregate Base (ASTM D2844, CTM 301)	R-Value (Aggregate Base) (Astm D2844)	\$456.08
70349	Sand Equivalent (ASTM 02419, CTM 217)		\$139.05
70351	Sieve #200 Wash Only (ASTM D1140, CTM 202)	Sieve #200 Wash (Only) (Astm D422)	\$100.12

Task Code	Soils and Aggregate Tests, continued	Invoice Name	New Rates
70353	Sieve with Hydrometer: 3/4" Gravel to Clay (ASTM D422, CTM 203)	Sieve W/Hydrometer (3/4" Gravel to Clay)	\$278.10
70355	Sieve with Hydrometer: Sand to Clay (ASTM D422, CTM 203)	Sieve W/Hydrometer (Sand to Clay)	\$266.98
70357	Sieve Analysis Including Wash (ASTM C136, CTM 202)	Sieve Analysis (Including Wash)	\$166.86
70359	Sieve Analysis Without Wash (ASTM C136, CTM 202)	Sieve Analysis (Without Wash)(Astm C136)	\$133.49
70360	Sieve Analysis: Split Sieve (ASTM C136, CTM 202)	Sieve Analysis: Split Sieve (Astm C136)	\$266.98
70361	Sieve Analysis Without Wash: With Cobbles (ASTM C136, CTM 202)	Sieve Analysis With Cobbles (W/O Wash)	\$261.41
70363	Soundness: Sodium or Magnesium Sulfate, 5 Cycles (ASTM C88)	Soundness - Sodium/Mag Sulfate 5 Cycles	\$500.58
70365	Specific Gravity and Absorption: Coarse (ASTM C127, CTM 206)	Specific Gravity And Absorption,Coarse	\$111.24
70367	Specific Gravity and Absorption: Fine (ASTM C128, CTM 207)	Specific Gravity And Absorption,	\$183.55
70369	Swell/Settlement Potential: One Dimensional (ASTM D4546)	Fine Swell/Settlement Potential (One- Dimen.)	\$116.80
70371	Triaxial	Triaxial	Quotation
70373	Unconfined Compression (ASTM 02166, CTM 221)	Unconfined Compression (Astm D2166)	\$150.17

Task Code		Invoice Name	New Rates
20301	Modulus of Rupture: Flexural (5 Required Per ASTM)	Modulus Of Rupture - Flexural (5 Read)	\$50.06
20303	Compression Strength (3 Required Per ASTM)	Compressive Strength (3 Required)	\$50.06
20305	Absorption: 5 Hour or 24 Hour (5 Required)	Absorption - 5 Or 24 Hour (5 Required)	\$55.62
20307	Absorption (Boil): 1, 2 or 5 Hours (5 Required)	Boil - 1, 2 Or 5 Hours (5 Required)	\$66.74
20309	Initial Rate of Absorption (5 Required)	Initial Rate Of Absorption (5 Required)	\$44.50
20311	Efflorescence (5 Required)	Efflorescence (5 Required)	\$66.74
20313	Cores: Compression	Cores, Compression	\$61.18
20315	Shear Test on Brick Cores: 2 Faces	Shear Test On Brick Cores (2 Faces)	\$88.99

Task Code	Concrete Block, ASTM C140	Invoice Name	New Rates
20321	Compression (3 Required Per ASTM)	Compression (3 Required)	\$88.99
20323	Absorption/Moisture Content/Oven Dry Density	Absorption/Moisture	\$88.99
20327	(3 Required Per ASTM)	Content/Oven Orv Den	\$222.48
20335	Web and Face Shell Measurements	Web & Face Shell Measurements	\$44.50
20329	Tension Test	Tension Test	\$166.86
20331	Core Compression	Compression, 4", 6", 8 ¹¹ Cores	\$61.18
20333	Shear Test of Masonry Cores: 2 Faces	Shear Test Of Masonry Cores (2 Faces)	\$83.43
20339	Efflorescence Tests (3 Required)	Efflorescence Tests (3 Required)	\$44.50

Task Code	Masonry Prisms, ASTM C1314	Invoice Name	New Rates
20341	Compression Test: Composite Masonry Prisms Up To 8" x 16"	Comp Test, Compos Masnry Prisms, Up 8x16	\$205.79
20343	Compression Test: Composite Masonry Prisms Larger Than 8" x 16"	Comp Test, Comp Masnry Prisms. Lra 8x16	\$272.54
20346	Prism Cord Modulus of Elasticity	Prism Chord Modulus Of Elasticity	\$584.01
20347	Prism Cord Modulus of Elasticity with Transverse Strain (for double-wythe specimen)	Prism Moe With Transverse Strain	\$700.81



Task Code	Brick Masonry Tests, ASTM C67	Invoice Name	New Rates
20301	Modulus of Rupture: Flexural (5 Required Per ASTM)	Modulus Of Rupture - Flexural (5	\$50.06
20303	Compression Strength (3 Required Per ASTM)	Read)	\$50.06
20305	Absorption: 5 Hour or 24 Hour (5 Required)	Required)	\$55.62
20307	Absorption (Boil): 1, 2 or 5 Hours (5 Required)	Required)	\$66.74
20309	Initial Rate of Absorption (5 Required)	Required)	\$44.50
20311	Efflorescence (5 Required)	Required)	\$66.74
20313	Cores: Compression	Cores, Compression	\$61.18
20315	Shear Test on Brick Cores: 2 Faces	Shear Test On Brick Cores (2 Faces)	\$88.99

Task Code	Concrete Block, ASTM C140	Invoice Name	New Rates
20321	Compression (3 Required Per ASTM)	Compression (3 Required)	\$88.99
20323	Absorption/Moisture Content/Oven Dry Density	Absorption/Moisture	\$88.99
20327	(3 Required Per ASTM)	Content/Oven Orv Den	\$222.48
20335	Web and Face Shell Measurements	Web & Face Shell Measurements	\$44.50
20329	Tension Test	Tension Test	\$166.86
20331	Core Compression	Compression, 4", 6", 8" Cores	\$61.18
20333	Shear Test of Masonry Cores: 2 Faces	Shear Test Of Masonry Cores (2 Faces)	\$83.43
20339	Efflorescence Tests (3 Required)	Efflorescence Tests (3 Required)	\$44.50

Task Code	Masonry Prisms, ASTM C1314	Invoice Name	New Rates
20341	Compression Test: Composite Masonry Prisms Up To 8" x 16"	Comp Test, Compos Masnry Prisms, Up 8x16	\$205.79
20343	Compression Test: Composite Masonry	Comp Test, Comp Masnry	\$272.54
20346	Prisms Larger Than 8" x 16"	Prisms. Lra 8x16	\$584.01
20347	Prism Cord Modulus of Elasticity with Transverse Strain (for double-wythe specimen)	Prism Moe With Transverse Strain	\$700.81

Task Code	r i	Invoice Name	New Rates
20351	Compression: 2" x 4" Mortar Cylinders (ASTM C780)	Comp 2x4 Mortar/Grout Cyl (Astm C780)	\$61.18
20353	Compression: 3" x 3" x 6" Grout Prisms,		\$35.60
20355	Includes Trimming (ASTM C119)		\$61.18
20357	Compression: Cores (ASTM C42)		\$61.18

Task Code	Masonry Specimen Preparation	Invoice Name	New Rates
20155	Cutting of Cubes or Prisms	Cutting Of Cubes And Prisms	\$55.62

Task Code	Fireproofing Tests	Invoice Name	New Rates
20401	Oven Dry Density (Per Sample) (ASTM E605)	Oven Dry Density (Per Sample) Astm EGOS	\$72.31

Task Code	Gunite and Shotcrete Tests	Invoice Name	New Rates
20361	Core Compression Including Trimming (ASTM C42)	Compression, 2, 4, 6 Cores (Astm C42)	\$61.18
20363	Compression: 6" x 12" Cylinders		\$35.60
20365	Compression: Cubes (Includes Saw Cutting)	Compression Cubes Includes Saw Cutting	\$82.32

Task Code	Machining and Preparation of Tensile and Bend Sample: Carbon Steel	Invoice Name	New Rates
20751	Machinist: Initial Preparation from Mock-up, Etc. (Per Hour)	Machinist, Initial Prep From Mock-Up Per Hour)	\$100.12
20753		Sawcut To Overall Width (Per- 0.5" Thick)	\$50.06
20755	Thereof)	Mach. To Test Config, Milled Soec Per .5	\$66.74
20757	0.5" Thickness or Fraction Thereof)	Mach. To Test Config, Turned Soec (Per.5	\$133.49
20759	0.5" Thickness or Fraction Thereof)	Thickness	\$83.43

Task Code	Charpy Impact	Invoice Name	New Rates
20621	Charpy Impact Ambient Temperature, per sample (Average of 3 Samples Typically Required)	Charpy Impact Ambient Temp	\$94.55
20623	Charpy Impact Reduced Temperature, per sample (Average of 3 Samples Typically Required)	Charpy Impact Reduced Temp	\$116.80

Task Code	Machining of Charpy Samples: Carbon Steel	Invoice Name	New Rates
	Cutting and Milling (Per 0.5" or Fraction Thereafter) (Average of 3 Samples Typically Required)	Cutting & Milling (Per 0.5" Or Fraction)	\$85.00
	Final Machining to Sample Configuration (Average of 3 Samples Typically Required)	Final Machining to Sample Configuration	\$85.00



Task Code	Presressing Wires and Tendons	ASTM A416	Invoice Name	New Rates
	Stress- Strain Anaysis: Wire or Strands (Including Chart and Percent Offset)		Stress-Strain Analysis, Wire or Strands	\$170.00
	Tensile Test Only Tendons		Tensile Test Only -W/O Moe Tendons (Quote)	\$125.00 Quotation

Task Code	Non-Destructive Testing Personnel		Invoice Name	New Rates
	NDE Ultrasonic Testing Technician			\$111.50
	NDE Magnetic Particle Testing Technician			\$111.50
	NDE Dye Penetrant Testing Technician			\$111.50
	Combination NDE Technican/Welding Inspector			\$111.50
	Radiographic Testing (Crew of 2)			\$289.00
	NDE Engineer			\$160.00

Task Code	Equipment Usage (Daily Unless Otherwise Noted), continued		Invoice Name	New Rates
95339	UPV (Ultrasonic Pulse Velocity) Meter		Upv (Ultrasonic Pulse Velocity) Meter	\$311.47
95351	Fireproofing Adhesion/Cohesion (Per Test)		Equip Usage - Fireproofing Adhesion/Cohe	\$22.25
95300	A Scan Ultrasonic Equipment and Consumables		Equip Usage - A Scan Ultrasonic	\$72.31
95303	Magnetic Particle Equipment and Consumables		Equip Usage - Magnetic Particle	\$33.37
95306	Liquid Penetrant Consumables		Equip Usage - Liquid Penetrant Consumabl	\$27.81
95307	Phased Array Ultrasonic Equipment (Per Hour)		Equip Usage - Phased Array Ultrasonic	\$55.62
95347	Ground Penetrating Radar (Per Hour)		Equip Usage - Ground Penetrating Radar	\$55.62
95345	Impact Echo		Impact Echo	\$311.47
95359	California Pavement Profilograph (Per Hour)		Equip Usage - Calif Pavemnt	\$127.93
95349	Inertial Profiler (Per Hour)		Equip Usage - Inertial Profiler (Hr)	\$278.10
95357	Project Dedicated Vehicle		Equip Usage - Project Dedicated Vehicle	\$111.24

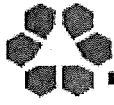
Task Code	Specimen Pick-Up		Invoice Name	New Rates
20102	Standard Sample: Concrete Cylinders (Each)		Std Sample (Concrete Cylinders Each)	\$22.25
20101	Standard Sample: Mortar/Grout Cubes and Cores, Fireproofing, Rebar, and Epoxy Prisms (Each)		Std: Mtrr/Grt Cube.Core/Fire/Rebar/Eooxv	\$22.25
20103	Oversize Sample: Masonry Prisms, Shotcrete Panels,		Oversized (Cone, Flex Beams,	\$52.28
20104	Flexural Beams (Each)		Shot Panels)/Masonry Prisms Up To 8x16	
20107	Technician for Specimen Pick-Up Not Listed Above (Per Hour, 2-Hour Minimum)		Technician For Specimen Pick-up	\$94.55

Task Code	Specimen Pick-Up, continued		Invoice Name	New Rates
20109	Technician for Specimen Pick-Up Before 5:00 a.m. or After 5:00 p.m. Monday thru Friday, or All Day Saturday (Per Hour, 2-Hour Minimum Plus Mileage)		Technician For Specimen Pick-Up	\$114.58

Task Code	Jobsite Trailer, Mobile or On-site Laboratory		Invoice Name	New Rates
95360	Mobile laboratory for rapid set concrete (per shift not exceeding 12 hours)		Equip Usage - Jobsite Trailer	\$417.15

Task Code	Chemical Analysis and Petrographic Examination of Concrete, continued		Invoice Name	New Rates
80126	Chemical Analysis for Water Soluble Chlorides (ASTM C1218) (includes sample prep)		CHEM ANALYSIS WATER-SOL Cl INCL PREP	\$144.61
80123	Chemical Analysis for Acid Soluble Chlorides (ASTM C1152) (includes sample prep)		CHEM ANALYSIS ACID-SOL Cl INCL PREP	\$155.74
80193	Chloride Diffusion Coefficient of Cementitious Mixtures by Bulk Diffusion (ASTM C1556)		Chlor Diff Coef Cem Mix-Bulk Diffusion	\$2,224.80
80129	Petrographic Examination of Hardened Concrete (ASTM 856)		Petrographic Exam Of Hardened Cone.	

Task Code	Physical and Chemical Analysis of Cement		Invoice Name	New Rates
80195	Physical Testing and Chemical Analysis of Portland Cement per Standard Requirements (ASTM C150)		Test/Analysis Portland Cement	\$1,112.40
80100	Chemical Analysis of Portland Cement per Standard Requirements (ASTM C150)		Chemical Analysis Of Portland Cement	\$611.82
80103	Physical Testing of Portland Cement per Standard Requirements (ASTM C150)		Physical Testing Of Portland Cement	\$611.82
80194	Physical Testing of Type K Cement, Mortar Expansion (ASTM C806)		Phys Test Type K Cem, Mtrr (Astm C806)	\$556.20
80106	Partial Analysis or Specific Physical Tests		Partial Analysis Or Spec. Physical Tests	Quotation
80110	Sulfates Resistance of Hydraulic Cement (ASTM C1012) - 6 months		Sulf Resist-Hydrlic Cmnt ASTM C1012 6 Mo	\$2,224.80
80111	Sulfates Resistance of Hydraulic Cement (ASTM C1012) -12 months		Sulf Resist-Hydrlic Cmnt ASTM C1012 12 Mo	\$2,447.28



TWINING

Task Code	Physical and Chemical Analysis of Fly Ash	Invoice Name	New Rates
80140	Chemical Analysis of Fly Ash per Standard Requirements (ASTM C618)	Chemical Analysis of Fly Ash	\$611.82
80143	Physical Testing of Fly Ash per Standard Requirements (ASTM C618)	Physical Testing Of Fly Ash	\$589.57
80146	Partial Analysis or Specific Physical Tests	Partial Analysis Or Spec. Physical	
80147	Chemical Analysis and Physical Testing of Fly Ash per Standard Requirements (ASTM C1618)	Tests	\$1,112.40
	Physical Testing of Chemical Admixtures	Ash-C1618	
Task Code	Soils and Aggregate Tests	Invoice Name	New Rates
30503	Abrasion: LA Rattler (ASTM C131)		\$205.79
30505	Abrasion: LA Rattler (ASTM C535)		\$216.92
70301	Atterberg Limits/Plasticity Index (ASTM D4318, CTM204)		\$166.86
70303	California Bearing Ratio Excluding Maximum Density		\$611.82
70304	(ASTM D1883): Soil		\$723.06
70344	(ASTM D1883): Cement-Treated Soil		\$3,337.20
	trial cement contents with three unconfined compressive strength specimens per cement content		
70305	Chloride and Sulfate Content (CTM 417, CTM 422)		\$144.61
30403	Clay Lumps and Friable Particles (ASTM C142)		\$194.67
30321	Cleanness Value: 1" x #4 (CTM 227)		\$194.67
30322	Cleanness Value: 1.5" x .75" (CTM 227)		\$305.91
70393	Collapse Potential/Index (ASTM D5333)		\$194.67
70396	Compressive Strength of Molded Soil-Cement		\$116.80
70309	Cylinders (ASTM D1633)		\$216.92
70311	Consolidation Test: Time Rate per Load Increment		\$50.06
70313	(ASTM D2435, CTM 219)		\$272.54
70315	Crushed/Fractured Particles (ASTM 05821, CTM 205)		\$194.67
70317	Direct Shear Test: Remolded and/or Residual		\$272.54
30317	(ASTM D3080)		\$139.05
30317	Unit Weight Per Cubic Foot (ASTM C29, CTM 212)		
30319	Voids in Aggregate with Known Specific Gravity		\$139.05
	(ASTM C29, CTM 212)		
Task Code	Asphalt Concrete Tests	Invoice Name	New Rates
75031	HMA Mixing and Preparation	Hrna Mixing & Prep W/	\$139.05
75032	HMA Mixing and Preparation with Aggregate Treatment	Aggregate Treatment Hrna Mixing & Preparation	\$194.67
75033	Bulk Specific Gravity of Compacted Sample or Core: SSD (CTM 308G and ASTM D2726)	Bulk Spec Gravity-Compacted Sample/Core	\$55.62
75036	Bulk Specific Gravity of Compacted Sample or Core: Paraffin Coated (CTM 308A and ASTM D1188)	Bulk Spec Gravity-Comp Sampl Paraffin	\$83.43
75040	Emulsion Residue, Evaporation (ASTM D244)	Emulsion Residue, Evaporation Astm D244	\$166.86
75024	Extraction: % Bitumen (CTM 382, ASTM D6307)	Extraction, % Bitumen (Astm	\$177.98
75027	Extraction: % Bitumen and Gradation (CTM 382, CTM 202, ASTM D6307, ASTM D5444)	D6307) Gradation	\$228.04
75028	Extraction: % Bitumen, Correction Factor	Extraction, % Bitumen	\$361.53
75030	(CTM 382, ASTM D6307)	Correction Factor	\$272.54
75042	(ASTM 02172 Method A or B, ASTM D5444)	Sieve Ana	\$228.04
	(CTM 304, CTM 308, ASTM D1561, ASTM 01188)		
75057	Hveem Stabilometer Test, Premixed, 3 briquettes	Hveem Stabilmtr Test Premixed (C1304)	\$228.04
	(CTM 304, CTM 366, ASTM 01560, ASTM D1561)		
75048	Lab Tested Maximum Density: Marshall,	Lab Tested Max Den Marshall	\$228.04
75049	Lab Tested Maximum Density: Marshall	Max Lab Den.- Marshall 6"	\$239.17
	6" Specimen, 3 briquettes (ASTM D5581, ASTM 02726)	Specimen	
75050	Lab Tested Maximum Density: Superpave Gyrotory	Lab Tested Maxden Superpave	\$83.43
	Compacted Briquette, SSD, 1 briquette	Gyrotory Ssd	
	(ASTM D6925, ASTM D2726)		
75052	Lab Tested Maximum Density: Superpave Gyrotory	Lab Tested Maxden Superpave	\$94.55
	Compacted Briquette, Paraffin, 1 briquette	Gyrotory pfn	
	(ASTM D6925, ASTM D1188)		
75051	Maximum Theoretical Specific Gravity [RICE]	Max Theoretical Specific Gravity (Rice)	\$172.42
	(CTM 309, ASTM D2041)		
75066	Marshall Stability and Flow, Cored Sample, each	Marshall Test-Cored Sampl	\$83.43
75069	Marshall Stability and Flow, Premixed, 3 briquettes	Marshall Test-Premixd (Astm D6926, D6927)	\$228.04
75106	(ASTM D6926, ASTM 06927)		\$250.29
	Specimen Pre-Mixed, 3 briquettes	Premixed	
	(ASTM D6925, ASTM 05581)		
75107	Marshall Stability and Flow 6 ¹¹ Specimen, Premixed,	6" Marshall Plastic Flow:	\$239.17
75063	3 briquettes (ASTM 05581)	Premixed	\$94.55
75005	Wet Track Abrasion Test (ASTM D3910)	Wet Track Abrasion Per D3910	\$166.86



Task Code	Task	Invoice Name	New Rates
Asphalt Concrete Tests, continued			
75093	Hveem Mix Design (Excluding Aggregate Quality Tests)	Hveem Mix Design-Exel Agg	\$3,337.20
75096	Hveem Mix Design, with RAP (Excluding Aggregate Quality Tests, RAP Qualification)	Qualitv Tests	\$3,670.92
75099	Hveem Mix Design, with Lime (Excluding Aggregate Quality Tests)	Hveem Mix Design W/Rap (Exe. Agg.Tests)	\$3,949.02
75094	Hveem Mix Design Caltrans Untreated Mix (Including Aggregate Quality Tests)	Hveem Mix Design W/Lime (Exe. Agg. Tests)	\$4,672.08
75095	Hveem Mix Design Caltrans Lime Treated Mix (Including Aggregate Quality Tests)	Hveem Mix Design Untreated	\$4,783.32
75084	Marshall Mix Design (Excluding Aggregate Quality Tests)	Marshall Mix Design Lime Treated	\$3,337.20
75087	Marshall Mix Design with RAP (Excluding Aggregate Quality Tests)	Marshall Mix Design-Exclude Agg Qualtest	\$3,670.92
75090	Quality Tests)	Marshall Mix Design W/Rap-Exc Agg.Tests	\$3,949.02
75083	Quality Tests)	Marshall Mix Design W/Lime-Exc Agg Qual	\$1,501.74
75109	(CTM 368, ASTM 07064)	Open Grade Asphalt Concrete Mix Desion	\$5,306.15
75113		Superpave Mix Design(Excl Agg Qual Test)	\$6,774.52
75114	Superpave Mix Design, with Rubber (Excluding Aggregate Quality Tests)	Superpave Mix Design With Rap (Exel Agg)	\$6,896.88
75115	Superpave Mix Design, with Additives (Excluding Aggregate Quality Tests)	Superpave Mix Design With Rubber	\$6,218.32
75075	Effect of Moisture on Asphalt Paving Mixtures, Pre- Mixed (AASHTO T 245)	Superpave Mix Design With Additives	\$1,001.16
75111		Effec Moist Premx Ctm371,T283,Astm D4867	\$1,112.40
75039		Raveling Test, W/ Mixing-1 Replicate	\$222.48
75067			\$361.53
75068	Marshall Stability, dry set, 3 replicates (AASHTO T 245)	Marshall Stability, Dry Set-3 Replicates	\$305.91
75070	Cold Recycled Asphalt Mix Design: 2 gradings each, 3 emulsion content (Caltrans LP-8)	Desion Ct Lp-8	\$10,567.80
Concrete Roof Fm: Gypsum, Vermiculite, Perlite, Lightweight Insulating Concrete, Etc.			
20371	Compression Test (ASTM C495 and C472)	Compression Test (Astm C495, C472)	\$ 43.20
20373	Air Dry Density (ASTM C472)	Air Dry Density (Astm C472)	\$ 32.40
20379	Oven Dry Density (ASTM C495)	Oven Dry Density (C495)	\$ 59.40
Reinforcing Steel, ASTM A615, A706			
20501	Tensile Test:# 11 or Smaller	Tensile Test, #11 Or Smaller	\$61.18
20503	Bend Test: # 11 or Smaller	Bend Test, #11 Or Smaller	\$55.62
20504	Bend Test #14 or #18	Bend Test #14 Or #18	\$333.72
20505	Tensile Test:# 14	Tensile Test,# 14	\$222.48
20507	Tensile Test:# 18	Tensile Test, # 18	\$333.72
Reinforcing Steel - Welded or Coupled Specimens			
20521	Tensile Test: Welded/Coupled #11 and Smaller	Tensile Test, Welded/Coupled #11&Smaller	\$ 70.20
20523	Tensile Test: Welded/Coupled #14	Tensile Test, Welded/Coupled #14	\$ 243.00
20525	Tensile Test: Welded/Coupled #18	Tensile Test, Welded/Coupled #18	\$ 351.00
20529	Weld: Macroetch	Weld-Macroetch	\$ 75.60
20531	Slippage Test - Caltrans (CTM 670)	Slippage Test (Per Ct 52-1.08c) Ctm670	\$ 194.40
Metal and Steel Testing			
20601	Tensile Strength: Up to 100K Pounds (Each)	Tensile Strength, Up To 100k Lbs	\$ 61.18
20603	Tensile Strength: Up to 200K Pounds (Each)	Tensile Strength, Up To 200k Lbs	\$ 72.31
20605	Tensile Strength: Up to 300K Pounds (Each)	Tensile Strength, Up To 300k Lbs	\$ 83.43
20607	Tensile Strength: Up to 400K Pounds (Each)	Tensile Strength, Up To 400k Lbs	\$ 139.05
20609	Tensile Strength: 400K to 600K Pounds (Each)	Tensile Strength, Up To 400k - 600k Lbs	\$ 333.72
20611	Tensile Strength: Stress-Strain Percent Offset	Tensile St,(Stress-Strain Percent Offset	\$ 166.86
20545	Weld: Macroetch	Weld-Macroetch	\$ 72.10
20547	Weld: Fracture	Weld-Fracture	\$ 33.37
20615	Bend Test	Bend Test	\$ 47.20
20617	Flattening Test	Flattening Test	\$ 61.18
20619	Brinell and Rockwell Hardness Test (ASTM E18) (Per Test)	Brinell & Rockwell Hardness Test - Samol	\$ 83.43
20630	Bolt: Axial Tensile Test (Up to 7/8" diameter)	Bolt Axial Tensile Test(Up To 7/8"	\$ 44.50
20631	Bolt: Wwedge Tensile Test (Up to 7/8" diameter)	Bolt Wedge Tensile Test (Up To 7/8"	\$ 61.18
20632	Bolt: Axial Tensile Test (Greater than 7/8" up to 1" diameter)	Bolt Axial Tensi(Grt Than 7/8" Uo To 1")	\$ 66.74



Task Code	Metal and Steel Testing, continued	Invoice Name	New Rates
20633	Bolt: Wedge Tensile Test (Greater than 7/8" up to 1" diameter)	Bolt Wedge Tnsl (Grt Than 7/8" Uo To 1")	\$83.43
20634	Bolt: Wedge Tensile Test (Greater than 1" diameter)	Bolt Axial Tensile (Grtr Than 1")	
20635	Bolt: Proof Load Test (Up to 7/8")	Bolt Wedge Tensile Test(Grt Than 1")	\$72.31
20636	Bolt: Proof Load Test (Greater than 7/8" up to 1" diameter)	Bolt Proof Load Test (Up To 7/8")	\$94.55
20637	Nut: Proof Load Test (Up to 7/8")	Bolt Proof Load Test (Grt Than 1")	\$50.06
20638	Nut: Proof Load Test (Greater than 7/8" up to 1" diameter)	Nut Proof Load Test (Up To 7/8")	\$72.31
20639	Nut: Proof Load Test (Greater than 7/8" up to 1" diameter)	Nut Proof Load (Grt Than 7/8" Uo To 1")	
20640	Nut: Proof Load Test (Greater than 1")	Nut Proof Load Test (Grt Than1")	

Task Code	Chemical Testing of Metal and Steel	Invoice Name	New Rates
80170	Steel Chemical Analysis	Steel Chemical Analysis	\$150.17
80173	Weight of Galvanized Coating (ASTM A90)	Wt Of Galvanized Coating (Astm A90)	\$83.43

Task Code	Calibration Services and Universal Machine Usage	Invoice Name	New Rates
20801	Calibration/Verification Services	Calibration/Verification - Services	
Task	Universal Test Machine Usage (Per Hour)	Universal Test Equip Usage	\$305.91

Ceramic Tile Testing Division
 The Ceramic Tile Institute of America (CTIOA) and Twining worked together to advance and develop technology designed to enhance the quality of materials and workmanship in the ceramic tile industry. A separate schedule of fees for these services is available upon request.

Cyclic and Fatigue Testing Programs on Special Products/Parts
 Engineering and Technical supports/Design of Prototypes and Special Test Set-Up Fastener/Coupling Full Testing Program
 Per New Regulations: Tension, Tension/Bend, Shear, Double Shear, 8 Compressions
 Fiberglass/Composite Materials Field Testing Program (ASTM D4065, D1143, D4923, D2584, D4476, D1242, D7901, D7921, and D732)
 Field Testing of Structures and Structural Elements In-Place Shear Testing
 Materials and/or Product Evaluation Per Specifications
 Structural Dynamic Testing and Durability Analysis

Task Code	Polymer Matrix Composite Materials (Fiberwrap)	New Rates
20706	Tensile Strength - Set of 5 Specimens/batch/direction (ASTM D3039)	\$1,458.00
20707	Tensile Strength -Additional Specimens (ASTM D3039)	\$270.00
20708	Heating Chamber Time - Per 24 hr period (ASTM D3039)	\$91.80



General Conditions

NOTE: Field inspection work conditions are established by contract with Operating Engineers, Local 12. NOTE: A minimum of 24 hours notice is required for testing and inspection services.

NOTE: A minimum of 24 hours notice is required for testing and inspection services.

Administrative Fees

Administrative Fees are included in blended rates. Back up will be provided with invoices.

Minimum Charges (Inspection and Technician Personnel Only - Other Personnel Charged on Portal to Portal Basis)

2-Hour Minimum: Inspector arrives at jobsite, no work to perform.

4-Hour Minimum: 1 to 4 hours of inspection

8-Hour Minimum: Over 4 to 8 hours of inspection

Regular Time

The first 8 hours worked Monday through Friday between 5:00 a.m. and 5:00 p.m.

Time and One-Half (All Types of Inspection)

All overtime must be Preapproved by City Construction Officer

All shifts will be billed based on the time and date of their start. Any increment past 8 hours through 12 hours worked Monday through Friday and the first 12 hours on Saturday. Time and one-half will also be charged for any time before 5:00 a.m. and after 5:00 p.m.

Double Time (All Types of Inspection)

All overtime must be Preapproved by City Construction Officer

All shifts will be billed based on the time and date of their start. After the first 12 hours worked Monday through Saturday, all day Sunday, holidays, and the first Saturday following the first Friday in June and December.

Holidays are New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, the day after Thanksgiving, and Christmas Day.

Meal Period

When personnel are required by their duties to work more than five consecutive hours without a one-half hour uninterrupted meal period, one half hour at double time rate will be charged in addition to any applicable overtime for actual hours worked.

Shift Differential (Applies to Regularly Scheduled Shifts Only)

A \$1.00 per hour shift differential premium will be charged for all inspection hours that fall outside of the 5:00 a.m. to 5:00 p.m. time period. Twining will require 48-hour notice prior to beginning a shift that will include hours falling outside this time period. Should this notice not be provided, all work performed on that shift will be billed at the overtime rate.

If three shifts per day are required, the first shift will be billed at the standard rate. The second shift shall be billed in accordance with the previous paragraph.

Travel Time and Mileage

No mileage, transportation charges or per diem will be charged.

Saturday Sample Pick-Ups

In order to be in strict conformance with testing standards, it may be required that Saturday pick-ups be performed (e.g. concrete specimens cast on Friday must be picked up on Saturday in order to be in conformance with ASTM C31 requiring specimens to be moved to their final curing location within 48 hours of casting.) Applicable charges for Saturday work will apply when this is required. Should these charges not be authorized then Twining will not be responsible for any negative consequences.

Reimbursable Expenses

There will no reimbursable expenses under this contract.

Project Specific Documents

Costs presented assume that client will provide project specific documents (plans, specifications, submittals, RFIs, etc.) for all inspection personnel. Should project specific documents be provided electronically through a for fee service, the client will be responsible for providing access and paying any fees for the service.

Project Site Facilities

Prices quoted assume that initial curing facilities for test samples that comply with relevant test standards and project requirements and desk space for inspection staff are provided by others. Additional costs will apply should Twining be required to provide such facilities.

Subsistence

Subsistence on remote jobs will be charged per quotation.

Laboratory Testing Hours

Please note that laboratory testing will be billed on an hourly basis for non-standard tests. If testing is required to be performed on Saturdays, Sundays, holidays, or before 5:30 a.m. or after 4:00 p.m. on weekdays, an additional hourly charge with a minimum of one hour will be applied for the laboratory technician. 1.5 x regular test rate will be charged for rush testing.



Charges for Subcontracted Services

Material sent to outside laboratory for testing:	Cost
Material sent to outside fabricator or machine shop: Glu-	Cost
Lam beam inspection:	Cost
Other subcontractors:	Cost
Project exclusive equipment purchase:	Cost

Limit of Liability

Insurance will be kept current as with all coverage as specified in RFP PW16-138

Certified Payroll

Certified payroll will be provided, upon request, at an additional charge of \$100.00/month.

Final Reports Required by Jurisdiction

If a final report or affidavit is required, cost will be billed hourly.

Terms of Payment

Fees charged are for professional and technical services and are due within 30 days.

Specimen Disposal

Specimens will be discarded after testing unless Twining has been notified prior to testing that the customer wishes to retrieve the specimens or storage arrangements are made.

Oversize Specimens

An extra charge will be made when test specimens require more than one person to handle due to size or weight.

NOTE: Field inspection work conditions are established by contract with Operating Engineers, Local 12.

NOTE: A minimum of 24 hours notice is required for testing and inspection services.

NOTE: For projects subject to a Project Labor Agreement (PLA), if terms/conditions of the PLA are more restrictive those terms/conditions will apply.