February 5, 2019

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATION
DEPARTMENT OF ADMINISTRATION

DIVISION OF PURCHASES BID NO. 7598583

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

RHODE ISLAND CONTRACT NO.2018-CR-106

FEDERAL-AID PROJECT NO. FAP Nos: STP-RESF(384)

2019 Paver Placed Elastomeric Surface Treatment C2

Statewide

CITY/TOWN OF Cranston, South Kingstown, Scituate, Richmond

COUNTY OF PROVIDENCE, WASHINGTON

NOTICE TO PROSPECTIVE BIDDERS

ADDENDUM NO. 1 Prospective bidders and all concerned are hereby notified of the following changes in the Plans, Specifications, Proposal and Distribution of Quantities for this contract. These changes shall be incorporated in the Plans, Specifications, Proposal and Distribution of Quantities, and shall become an integral part of the Contract Documents.

A. Other Item Changes

1. 401.9901 - PAY ADJUSTMENTS

   Only Acceptable Bid Price Updated To "$1.00".Quantity Updated To "26000.00".

2. Table of Contents - DoQ

   Remove page Index: 1 and replace with revised page Index: 1 (R-1) attached to this Addendum 1.

B. Contract Documents

1. Special Provisions/Construction Specific

   a. General Provisions - Contract Specific

      Add to the appendix new Preliminary Rideability pages CS-7a and CS-7b attached to this Addendum 1.

   b. Specifications - Job Specific

      Delete pages JS-7 through JS-10 in their entirety and replace with revised pages JS-7 (R-1) through JS-10 (R-1) attached to this Addendum 1. The specification has been revised.

David W. Fish

RI Department of Transportation

Administrator, Division of Project Management

ADDENDUM NO. 1

ATTACHMENTS

Table of Contents - Distribution of Quantities

Project Name - 2019 Paver Placed Elastomeric Surface Treatment C2
Estimate Name - Addm to 19 PPEST C2
R.I. Contract No. - 2018-CR-106
FAP Nos: STP-RESF(384)

Distribution of Quantities

Project Name - 2019 Paver Placed Elastomeric Surface Treatment C2
Estimate Name - Addm to 19 PPEST C2
R.I. Contract No. - 2018-CR-106
FAP Nos: STP-RESF(384)

Item No.	Item Code	Description	UM	Qty.	Pay Code	Seq. No.
001	401.3100	**MODIFIED CLASS 9.5 HMA**	**TON**			
		SCITUATE				
		HARTFORD PK		6,697.00	0006	01
		Item 401.3100 Total:		**6,697.00**		
002	401.4002	**CLASS 4.75 HMA FOR LEVELLING**	**TON**			
		PROJECTWIDE				
		MOST ROADS		4,880.00	0006	01
		Item 401.4002 Total:		**4,880.00**		
003	401.4005	**CLASS 4.75 HMA FOR MISCELLANEOUS WORK**	**TON**			
		PROJECTWIDE				
		VARIOUS ROADS		150.00	0006	01
		Item 401.4005 Total:		**150.00**		
004	401.9901	**PAY ADJUSTMENTS**	**EACH**			
		PROJECTWIDE				
		ALL ROADS		26,000.00	0006	01
		Item 401.9901 Total:		**26,000.00**		
005	403.0300	**ASPHALT EMULSION TACK COAT**	**SY**			
		PROJECTWIDE				
		ALL ROADS		262,900.00	0006	01
		Item 403.0300 Total:		**262,900.00**		
006	411.9901	**PAVER PLACED ELASTOMERIC SURFACE TREATMENT**	**TON**			
		PROJECTWIDE				
		MOST ROADS		4,880.00	0006	01
		Item 411.9901 Total:		**4,880.00**		
007	707.1100	**ADJUST CATCH BASINS**	**EACH**			

Preliminary Rideability - 2019 PPEST C-2

USQUEPAUGH ROAD (Route 138 - South Kingstown) — Data collected January 25, 2019

Eastbound - from Richmond Town Line to Route 2

Start Distance (ft)	Stop Distance (ft)	Length (ft)	Left Wheel Path IRI (in/mi)	Right Wheel Path IRI (in/mi)
0.00	528.00	528.00	117	141
528.00	1056.00	528.00	175	177
1056.00	1584.00	528.00	229	308
1584.00	2112.00	528.00	200	309
2112.00	2640.00	528.00	171	168
2640.00	3168.00	528.00	203	226
3168.00	3696.00	528.00	257	234
3696.00	4224.00	528.00	240	321
4224.00	4752.00	528.00	126	202
4752.00	5280.00	528.00	166	230
5280.00	5808.00	528.00	179	150
5808.00	6336.00	528.00	192	239
6336.00	6864.00	528.00	148	172
6864.00	7392.00	528.00	194	283
7392.00	7920.00	528.00	213	216
7920.00	8448.00	528.00	219	213
8448.00	8976.00	528.00	190	180
8976.00	9504.00	528.00	190	286
9504.00	10032.00	528.00	216	242
10032.00	10560.00	528.00	263	219
10560.00	10785.08	224.25	264	359
		Overall IRI:	**196**	**229**

Westbound - from Route 2 to Richmond Town Line

Start Distance (ft)	Stop Distance (ft)	Length (ft)	Left Wheel Path IRI (in/mi)	Right Wheel Path IRI (in/mi)
0.00	528.00	528.00	187	209
528.00	1056.00	528.00	164	174
1056.00	1584.00	528.00	168	211
1584.00	2112.00	528.00	193	211
2112.00	2640.00	528.00	174	256
2640.00	3168.00	528.00	182	289
3168.00	3696.00	528.00	193	243
3696.00	4224.00	528.00	180	254
4224.00	4752.00	528.00	172	254
4752.00	5280.00	528.00	181	237
5280.00	5808.00	528.00	168	264
5808.00	6336.00	528.00	145	221
6336.00	6864.00	528.00	178	238
6864.00	7392.00	528.00	281	305
7392.00	7920.00	528.00	201	250
7920.00	8448.00	528.00	199	216
8448.00	8976.00	528.00	173	173
8976.00	9504.00	528.00	185	256
9504.00	10032.00	528.00	231	268
10032.00	10560.00	528.00	146	153
10560.00	10788.92	228.08	148	141
		Overall IRI:	**184**	**232**

KINGSTOWN ROAD (Route 138 - Richmond) — Data collected January 25, 2019

Eastbound - from Beaver River Rd to S Kingstown Line

Start Distance (ft)	Stop Distance (ft)	Length (ft)	Left Wheel Path IRI (in/mi)	Right Wheel Path IRI (in/mi)
0.00	528.00	528.00	140	153
528.00	1056.00	528.00	177	218
1056.00	1584.00	528.00	145	191
1584.00	2112.00	528.00	128	181
2112.00	2640.00	528.00	221	198
2640.00	3168.00	528.00	156	166
3168.00	3696.00	528.00	177	158
3696.00	4224.00	528.00	108	113
4224.00	4752.00	528.00	119	117
4752.00	5280.00	528.00	135	165
5280.00	5808.00	528.00	146	155
5808.00	6336.00	528.00	149	198
6336.00	6864.00	528.00	134	183
6864.00	7396.75	532.75	148	224
		Overall IRI:	**149**	**173**

Westbound - from S Kingstown Line to Beaver River Rd

Start Distance (ft)	Stop Distance (ft)	Length (ft)	Left Wheel Path IRI (in/mi)	Right Wheel Path IRI (in/mi)
0.00	528.00	528.00	202	201
528.00	1056.00	528.00	143	135
1056.00	1584.00	528.00	127	125
1584.00	2112.00	528.00	153	138
2112.00	2640.00	528.00	126	117
2640.00	3168.00	528.00	156	246
3168.00	3696.00	528.00	112	124
3696.00	4224.00	528.00	148	117
4224.00	4752.00	528.00	173	184
4752.00	5280.00	528.00	219	342
5280.00	5808.00	528.00	166	213
5808.00	6336.00	528.00	207	174
6336.00	6864.00	528.00	194	218
6864.00	7409.33	544.50	150	115
		Overall IRI:	**163**	**175**

Preliminary Rideability (continued)

SCITUATE AVENUE (Route 12 - Cranston) — Data collected January 25, 2019

Eastbound - from Pippin Orchard Rd to Comstock Pkwy

Start Distance (ft)	Stop Distance (ft)	Length (ft)	Left Wheel Path IRI (in/mi)	Right Wheel Path IRI (in/mi)
0.00	528.00	528.00	160	212
528.00	1056.00	528.00	168	156
1056.00	1584.00	528.00	167	180
1584.00	2112.00	528.00	180	246
2112.00	2640.00	528.00	219	223
2640.00	3168.00	528.00	235	192
3168.00	3696.00	528.00	218	234
3696.00	4224.00	528.00	192	195
4224.00	4752.00	528.00	156	164
4752.00	5280.00	528.00	137	142
5280.00	5808.00	528.00	118	101
5808.00	6287.08	479.08	192	267
		Overall IRI:	**178**	**192**

Westbound - from Comstock Pkwy to Pippin Orchard Rd

Start Distance (ft)	Stop Distance (ft)	Length (ft)	Left Wheel Path IRI (in/mi)	Right Wheel Path IRI (in/mi)
0.00	528.00	528.00	188	407
528.00	1056.00	528.00	107	196
1056.00	1584.00	528.00	113	121
1584.00	2112.00	528.00	129	150
2112.00	2640.00	528.00	161	151
2640.00	3168.00	528.00	138	276
3168.00	3696.00	528.00	157	161
3696.00	4224.00	528.00	188	292
4224.00	4752.00	528.00	229	451
4752.00	5280.00	528.00	147	153
5280.00	5808.00	528.00	162	189
5808.00	6310.50	502.50	197	256
		Overall IRI:	**160**	**233**

HARTFORD PIKE (Route 101 - Scituate) — Data collected January 25, 2019

Eastbound - from Route 102 to US Route 6

Start Distance (ft)	Stop Distance (ft)	Length (ft)	Left Wheel Path IRI (in/mi)	Right Wheel Path IRI (in/mi)
50.00	578.00	528.00	157	114
578.00	1106.00	528.00	115	108
1106.00	1634.00	528.00	168	241
1634.00	2162.00	528.00	169	205
2162.00	2690.00	528.00	160	179
2690.00	3218.00	528.00	172	179
3218.00	3746.00	528.00	186	347
3746.00	4274.00	528.00	216	209
4274.00	4802.00	528.00	176	189
4802.00	5330.00	528.00	234	326
5330.00	5858.00	528.00	198	222
5858.00	6386.00	528.00	172	181
6386.00	6914.00	528.00	213	191
6914.00	7442.00	528.00	157	201
7442.00	7970.00	528.00	141	241
7970.00	8498.00	528.00	173	245
8498.00	9026.00	528.00	165	131
9026.00	9554.00	528.00	176	125
9554.00	10082.00	528.00	192	138
10082.00	10610.00	528.00	145	207
10610.00	11138.00	528.00	198	144
11138.00	11666.00	528.00	152	151
11666.00	12194.00	528.00	130	102
12194.00	12722.00	528.00	133	108
12722.00	13250.00	528.00	122	121
13250.00	13778.00	528.00	108	95
13778.00	14306.00	528.00	146	112
14306.00	14834.00	528.00	144	147
14834.00	15362.00	528.00	135	143
15362.00	15890.00	528.00	136	105
15890.00	16418.00	528.00	162	144
16418.00	16946.00	528.00	199	172
16946.00	17230.42	284.42	261	208
		Overall IRI:	**166**	**173**

Westbound - from US Route 6 to Route 102

Start Distance (ft)	Stop Distance (ft)	Length (ft)	Left Wheel Path IRI (in/mi)	Right Wheel Path IRI (in/mi)
0.00	528.00	528.00	196	254
528.00	1056.00	528.00	141	154
1056.00	1584.00	528.00	144	143
1584.00	2112.00	528.00	158	158
2112.00	2640.00	528.00	168	205
2640.00	3168.00	528.00	154	198
3168.00	3696.00	528.00	172	187
3696.00	4224.00	528.00	108	149
4224.00	4752.00	528.00	107	126
4752.00	5280.00	528.00	132	207
5280.00	5808.00	528.00	142	158
5808.00	6336.00	528.00	150	130
6336.00	6864.00	528.00	238	190
6864.00	7392.00	528.00	107	121
7392.00	7920.00	528.00	153	158
7920.00	8448.00	528.00	138	160
8448.00	8976.00	528.00	138	135
8976.00	9504.00	528.00	204	278
9504.00	10032.00	528.00	143	183
10032.00	10560.00	528.00	191	247
10560.00	11088.00	528.00	132	136
11088.00	11616.00	528.00	138	213
11616.00	12144.00	528.00	149	122
12144.00	12672.00	528.00	141	170
12672.00	13200.00	528.00	149	162
13200.00	13728.00	528.00	180	251
13728.00	14256.00	528.00	152	134
14256.00	14784.00	528.00	160	188
14784.00	15312.00	528.00	111	151
15312.00	15840.00	528.00	131	161
15840.00	16368.00	528.00	118	126
16368.00	16896.00	528.00	135	118
16896.00	17165.58	268.75	113	100
		Overall IRI:	**149**	**170**

CODE 413.9901
RIDEABILITY – SURFACE COURSE
2019 PPEST C-2

413.01 Description. This specification covers pavement rideability as determined by the Engineer in accordance with the rating scale, based upon post paving rideability determination.

413.02 Materials. N/A

413.03 General. Pavement rideability, or ride quality, will be determined by the Engineer using a profiler on all travel lanes. A travel lane is defined as the primary traveled portion of the roadway excluding ramps, turn lanes, auxiliary lanes, and non-normally traveled pavement surfaces. The profiler will meet all of the equipment requirements of AASHTO M 328.

The surface course ride quality acceptance will be based on the average International Roughness Index (IRI) of three tests using a profiler, for each wheel path for each 0.1-mile section, conducted by the Engineer and reported for each travel lane.

An IRI number in inches per mile will be established using ProVAL software for each 0.1-mile long section for each wheel path in each travel lane. A 300 foot long-wavelength filter will be applied during testing for roads with posted speed limits greater than 30 mph. For roads with posted speed limits less than or equal to 30 mph a 150 foot long-wavelength filter will be applied. A 250mm short-wavelength filter will be applied during analysis using ProVAL.

The profile for each wheelpath of each 0.1 mile section in each travel lane will be considered a sublot. A standard lot is defined as 20 consecutive sublots of a single wheelpath of a single travel lane. If a road segment has less than 20 but more than 6 consecutive sublots for each wheelpath, a lot will be comprised of all of the sublots from one wheelpath. If a road segment has 6 or less consecutive sublots for each wheelpath, a lot will be comprised of all the sublots from the road segment. If the final lots include 10 or more sublots for each wheelpath, they will be considered their own lots. If the final lots are less than 10 sublots, they will be added to the preceding lots.

Areas that are excluded from testing ("leave-out" sections) include the area 15 feet before and after pavement segments with manholes, catch basins or other structures in the travel lane and the area 25 feet before and after bridge joints and project paving limits, all as determined by the Engineer. Areas excluded from testing by the profiler may, at the Engineer's discretion, be tested using a 10-foot maximum straightedge. The variation of the surface between any two contacts along the straightedge shall be not more than 1/4 inch. Humps and depressions exceeding the specified tolerance shall be subject to correction as directed by the Engineer, at no additional cost to the State.

Sections before "leave-out" sections and the section at the end of the paving limit will be added to the previous sublot if they are less than 0.05 miles or will be considered a full sublot if they are greater than or equal to 0.05 miles.

The roads for this project are classified below:

Class A Roads	Class B Roads
Scituate Avenue (Cranston)	N/A
Usquepaugh Road (South Kingstown)	
Kingstown Road (Richmond)	
Hartford Pike (Scituate)	

413.04 Method of Measurement

Calculating the percentage of work that is within specification limits (PWL) for each lot will be performed as follows:

1) The mean (X) of each lot will be determined using each sublot within the lot, calculated using the following equation:

$$X = \frac{\Sigma x}{n}$$

Where: x = the sublot IRI value
n = the number of sublots in the lot
Σ = the summation of

2) The standard deviation (s) of each lot will be determined using each sublot within the lot, calculated using the following equation:

$$s = \sqrt{\frac{n\Sigma(x^2) - (\Sigma x)^2}{n(n-1)}}$$

Where: $\Sigma(x^2)$ = summation of the squares of sublot values
$(\Sigma x)^2$ = summation of sublot values squared
n = the number of sublots in the lot

3) The upper quality index (Q_u) of each lot will be determined using the mean and standard deviation of each lot, and will be calculated using the following equation:

$$Q_u = \frac{USL - X}{s}$$

Where: USL = the upper spec limit from Table 1
X = the lot mean
s = the lot standard deviation

4) The percentage of the lot that falls below the USL (P_u) will be determined using Table 2, and the Q_u value determined above. The P_u value is determined from the table by entering the column corresponding to the number of sublots (n) in the lot, and locating the row that corresponds with the Q_u value. If Q_u is a negative value, the absolute value of Q_u will be used to determine the table value for P_u and PWL will be equal to 100 minus the table value for P_u. If Q_u is positive the percent within limits (PWL) will be equal to P_u.

5) The pay equation for determining the pay factor for each lot will be determined as follows:

$$Pay\ Factor = \frac{55 + 0.50(PWL)}{100}$$

If the PWL is greater than 90, the bonus (portion of pay factor in excess of 1.00) will be multiplied by 0.6.

6) The pay factor for each lot will be applied to the theoretical tonnage of each respective lot. The theoretical lot tonnage will be obtained by taking the measured length, multiplied by half of the design width of the travel lane, multiplied by the design thickness of the surface course, multiplied by the unit weight derived from 94% of the averages of the theoretical maximum densities for dense graded mixes or 96% of the Marshall or Gyratory densities for friction course obtained at the plant.

Table 1

Road Classification	Upper Spec Limit for IRI	Maximum IRI for Sublots
Class A	80 in/mile	150 in/mile
Class B	95 in/mile	180 in/mile

Sublots that exceed the maximum IRI value in Table 1 will be subject to corrective action. In order to produce a uniform cross section, the Engineer may require corrections to the adjoining lanes and shoulders. Corrections shall be at no cost to the State. The method of correction shall be limited to diamond grinding or another approved method.

Where corrections are made after the official Department test, the pavement will be retested by the Engineer to verify that corrections have produced an acceptable ride surface. The PWL will be recalculated after corrective action.

This rideability specification does not relieve the Contractor from responsibility concerning workmanship in accordance with the Specifications and other contract requirements.

413.05 Basis of Payment

An adjusted unit price for each lot of the surface course will be calculated by multiplying the pay factor by the unit price. The adjusted unit price will be applied to the theoretical lot tonnage to determine payment for the lot. Previous payment for respective lot tonnage at bid unit price will be deducted to determine the net pay adjustment (incentive or disincentive) for the lot.

Incentives will be addressed using Item Code 401.9901. Disincentives will be addressed using a Report of Change.

Table 2 – Values for Estimating Percentage of Lot Within Specification Limits

Pu (PWL)	Upper Quality Index (Q_U)														
	n = 3	n = 4	n = 5	n = 6	n = 7	n = 8	n = 9	n = 10 to n = 11	n = 12 to n = 14	n = 15 to n = 18	n = 19 to n = 25	n = 26 to n = 37	n = 38 to n = 69	n = 70 to n = 200	n = 201 to n = ∞
100	1.16	1.50	1.79	2.03	2.23	2.39	2.53	2.65	2.83	3.03	3.20	3.38	3.54	3.70	3.83
99		1.47	1.67	1.80	1.89	1.95	2.00	2.04	2.09	2.14	2.18	2.22	2.26	2.29	2.31
98	1.15	1.44	1.60	1.70	1.76	1.81	1.84	1.86	1.91	1.93	1.96	1.99	2.01	2.03	2.05
97		1.41	1.54	1.62	1.67	1.70	1.72	1.74	1.77	1.79	1.81	1.83	1.85	1.86	1.87
96	1.14	1.38	1.49	1.55	1.59	1.61	1.63	1.65	1.67	1.68	1.70	1.71	1.73	1.74	1.75
95		1.35	1.44	1.49	1.52	1.54	1.55	1.56	1.58	1.59	1.61	1.62	1.63	1.63	1.64
94	1.13	1.32	1.39	1.43	1.46	1.47	1.48	1.49	1.50	1.51	1.52	1.53	1.54	1.55	1.55
93		1.29	1.35	1.38	1.40	1.41	1.42	1.43	1.44	1.44	1.45	1.46	1.46	1.47	1.47
92	1.12	1.26	1.31	1.33	1.35	1.36	1.36	1.37	1.37	1.38	1.39	1.39	1.40	1.40	1.40
91	1.11	1.23	1.27	1.29	1.30	1.30	1.31	1.31	1.32	1.32	1.33	1.33	1.33	1.34	1.34
90	1.10	1.20	1.23	1.24	1.25	1.25	1.26	1.26	1.26	1.27	1.27	1.27	1.28	1.28	1.28
89	1.09	1.17	1.19	1.20	1.20	1.21	1.21	1.21	1.21	1.22	1.22	1.22	1.22	1.22	1.23
88	1.07	1.14	1.15	1.16	1.16	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.13	1.13
86	1.04	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
84	1.01	1.02	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
83	1.00	0.99	0.98	0.97	0.97	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
82	0.97	0.96	0.95	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
81	0.96	0.93	0.91	0.90	0.90	0.89	0.89	0.89	0.89	0.88	0.88	0.88	0.88	0.88	0.88
80	0.93	0.90	0.88	0.87	0.86	0.86	0.86	0.85	0.85	0.85	0.85	0.84	0.84	0.84	0.84
79	0.91	0.87	0.85	0.84	0.83	0.82	0.82	0.82	0.82	0.81	0.81	0.81	0.81	0.81	0.81
78	0.89	0.84	0.82	0.80	0.80	0.79	0.79	0.79	0.78	0.78	0.78	0.78	0.77	0.77	0.77
77	0.87	0.81	0.78	0.77	0.76	0.76	0.76	0.75	0.75	0.75	0.75	0.74	0.74	0.74	0.74
76	0.84	0.78	0.75	0.74	0.73	0.73	0.72	0.72	0.72	0.71	0.71	0.71	0.71	0.71	0.71
75	0.82	0.75	0.72	0.71	0.70	0.70	0.69	0.69	0.69	0.68	0.68	0.68	0.68	0.68	0.67
74	0.79	0.72	0.69	0.68	0.67	0.66	0.66	0.66	0.66	0.65	0.65	0.65	0.65	0.64	0.64
73	0.76	0.69	0.66	0.65	0.64	0.63	0.63	0.63	0.62	0.62	0.62	0.62	0.62	0.61	0.61
72	0.74	0.66	0.63	0.62	0.61	0.60	0.60	0.60	0.59	0.59	0.59	0.59	0.59	0.58	0.58
71	0.71	0.63	0.60	0.59	0.58	0.57	0.57	0.57	0.57	0.56	0.56	0.56	0.56	0.55	0.55
70	0.68	0.60	0.57	0.56	0.55	0.55	0.54	0.54	0.54	0.53	0.53	0.53	0.53	0.53	0.52
69	0.65	0.57	0.54	0.53	0.52	0.52	0.51	0.51	0.51	0.50	0.50	0.50	0.50	0.50	0.50
68	0.62	0.54	0.51	0.50	0.49	0.49	0.48	0.48	0.48	0.48	0.47	0.47	0.47	0.47	0.47
67	0.59	0.51	0.47	0.47	0.46	0.46	0.46	0.45	0.45	0.45	0.45	0.44	0.44	0.44	0.44
66	0.56	0.48	0.45	0.44	0.44	0.43	0.43	0.43	0.42	0.42	0.42	0.42	0.41	0.41	0.41
65	0.52	0.45	0.43	0.41	0.41	0.40	0.40	0.40	0.40	0.39	0.39	0.39	0.39	0.39	0.39
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37	0.37	0.37	0.37	0.36	0.36	0.36	0.36	0.36
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.33
62	0.43	0.36	0.34	0.33	0.32	0.32	0.32	0.32	0.31	0.31	0.31	0.31	0.31	0.31	0.31
61	0.39	0.33	0.31	0.30	0.30	0.29	0.29	0.29	0.29	0.29	0.28	0.28	0.28	0.28	0.28
60	0.36	0.30	0.28	0.27	0.27	0.27	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.25	0.25
59	0.32	0.27	0.25	0.25	0.24	0.24	0.24	0.24	0.23	0.23	0.23	0.23	0.23	0.23	0.23
58	0.29	0.24	0.23	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.20	0.20	0.20	0.20
57	0.25	0.21	0.20	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
56	0.22	0.18	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15
55	0.18	0.15	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
54	0.14	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
53	0.11	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
52	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
51	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: If the calculated value of Q_u does not correspond exactly to a value in the table, the next lower value will be used.