



CONSTRUCTION CONTRACT

New York City
Department of
Environmental Protection

59-17 Junction Boulevard
Elmhurst, New York 11373

Emily Lloyd
Commissioner

Steven W. Lawitts
First Deputy Commissioner

Carol Fenves
Agency Chief Contracting Officer



INFORMATION FOR BIDDERS, STANDARD CONSTRUCTION CONTRACT, AND SPECIFICATIONS FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

Contract: CONTRACT CRO-334G – STRUCTURES AND EQUIPMENT
CONTRACT CRO-334E – ELECTRICAL

Description: NEW CROTON AQUEDUCT REHABILITATION

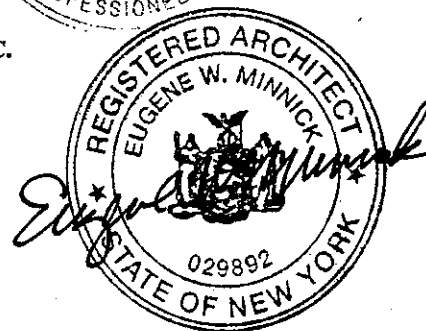
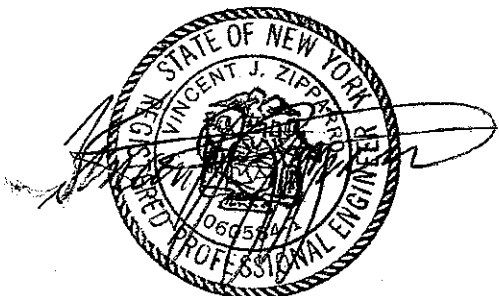


February 2008
Volume 2 of 2

Prepared by:
PARSONS BRINCKERHOFF, QUADE & DOUGLAS, INC.

In association with:
MONTGOMERY WATSON HARZA

Metcalf & Eddy ◊ Hazen and Sawyer
A Joint Venture



VOLUME 2 OF 2

TABLE OF CONTENTS

**CONTRACT CRO-334G – STRUCTURES AND EQUIPMENT
AND CRO-334E – ELECTRICAL**

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
DIVISION 1	GENERAL REQUIREMENTS	
01120	Multiple Contract Summary.....	001235
01140	Work Restrictions and Working Hours	001255
01270	Measurement and Payment	001267
01271	Project Milestones and Liquidated Damages	001291
01321	Progress Schedule.....	001295
01322	Job Photographs.....	001313
01331	Submittal Procedures for Working Drawings and Correspondence	001317
01333	Records in Paper Formats	001325
01334	Records in Microfilm Formats	001329
01335	Records in Electronic Formats	001353
01355	Hazardous Materials Control	001363
01356	Safe and Healthful Working Conditions.....	001367
	Attachment D – Contractor Selection and Management Requirements.....	001377
01410	Regulatory Requirements.....	001381
01415	Miscellaneous Project Requirements.....	001389
01420	Reference Standards	001397
01431	Quality Assurance Inspection.....	001405
01451	Contractor’s Quality Control.....	001409
01520	Temporary Construction Facilities and Equipment.....	001417
01550	Vehicular Access and Parking.....	001429
01560	Temporary Barriers and Enclosures	001435
01570	Temporary Controls.....	001439
01631	Equivalent Materials and Equipment.....	001449
01651	Transportation and Handling of Materials and Equipment	001453
01661	Protection of Materials and Equipment	001457
01732	Installation of Equipment.....	001459
01733	Construction Waste Management.....	001467
01740	Cleaning and Site Maintenance	001471
01750	Spare Parts and Maintenance Materials.....	001475

VOLUME 2 OF 2

TABLE OF CONTENTS

**CONTRACT CRO-334G – STRUCTURES AND EQUIPMENT
AND CRO-334E – ELECTRICAL**

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
01781	Project Closeout.....	001477
01811	Preliminary and Final Field Tests.....	001483
01821	Equipment Start-Up and Training	001489
01831	Operations and Maintenance Manuals.....	001499

VOLUME 2 OF 2

TABLE OF CONTENTS

CONTRACT CRO-334G – STRUCTURES AND EQUIPMENT

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
DIVISION 2 SITE CONSTRUCTION		
02105G	In-Situ Soil Sampling, Testing and Laboratory Analysis	001505
02200	Mobilization and Surface Site Preparation	001507
02222G	Demolition and Removals.....	001521
02230G	Site Clearing	001523
02240G	Dewatering	001533
02250G	Shoring and Underpinning	001537
02316G	Excavation.....	001539
02317G	Backfilling.....	001543
02318G	Rock Excavation.....	001545
02371G	Dust, Soil Erosion and Sedimentation Control	001547
02401	Shaft Covers and Gratings	001549
02402	Shaft Hoisting Systems and Logistical Support.....	001555
02403	Aqueduct Washing and Preparation for Rehabilitation	001561
02405	Aqueduct Utilities.....	001565
02411	Pumping	001569
02428	Joint/Crack Repair and Brick Replacement	001573
02432	Contact and Consolidation Grouting	001581
02481G	Footings, Foundation Piers and Foundation Walls.....	001595
02505G	Leakage Tests	001597
02506	Drilling and Installation of Weep Holes and Routing of Existing Drain Pipes.....	001599
02741G	Asphaltic Concrete Pavements.....	001601
02744	Permeable Concrete Pavers.....	001603
02771G	Concrete Curbs, Headers and Sidewalks	001611
02821G	Metal Fence	001613
02822G	Ornamental Fences and Gates	001615
02824	Noise Attenuation Fencing.....	001619
02841G	Guide Railing	001625
02890	Bollard Barrier System	001627
02910G	Planting	001629
02920G	Soil Mixes	001649
02951	Aqueduct Clean Up and Disinfection	001651

VOLUME 2 OF 2

TABLE OF CONTENTS

CONTRACT CRO-334G – STRUCTURES AND EQUIPMENT

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
02952	Sediment and Debris Removal	001665
02953	Site Restoration	001673
DIVISION 3	CONCRETE	
03100G	Concrete Formwork	001679
03210G	Reinforcing Steel	001681
03300G	Cast-in-Place Concrete.....	001683
03303	Underwater Concrete for Shaft No. 25	001687
03350G	Concrete Finishes	001693
03510	Steel Edged Concrete Roof Plank	001695
03600G	Grout	001703
03931G	Concrete Rehabilitation	001705
DIVISION 4	MASONRY	
04051G	Mortar and Masonry Grout	001707
04901G	Masonry and Stonework Restoration and Cleaning	001715
DIVISION 5	METALS	
05061G	Stainless Steel Work	001723
05081G	Galvanizing	001725
05091G	Welding	001727
05092G	Metal Fastening	001731
05120G	Structural Steel	001733
05140G	Structural Aluminum	001735
05210G	Steel Joists	001737
05501G	Metal Fabrications	001739
05521G	Welded Pipe Railing	001741
05561G	Miscellaneous Metal Castings.....	001743
05601G	Aluminum Stop Log Planks	001745

VOLUME 2 OF 2

TABLE OF CONTENTS

CONTRACT CRO-334G – STRUCTURES AND EQUIPMENT

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
DIVISION 6 WOOD AND PLASTICS		
06071G	Treated Timber and Lumber	001749
06100G	Rough Carpentry	001751
DIVISION 7 THERMAL AND MOISTURE PROTECTION		
07171	Bentonite Geotextile Waterproofing.....	001753
07321G	Roofing Tiles.....	001763
07512	Waterproofing for Shaft No. 33	001769
07575	Built-Up Coal Tar Roofing System	001771
07592	Preparation for Roofing	001781
07620G	Sheet Metal Flashing and Trim	001785
07622	Roof Drain System	001789
07710G	Manufactured Roof Specialties	001791
07900G	Caulking and Sealants.....	001793
DIVISION 8 DOORS AND WINDOWS		
08110G	Steel Doors and Frames	001797
08751G	Window Guards.....	001801
DIVISION 9 FINISHES		
09880	Protective Waterproofing Coating.....	001807
09900G	Painting	001811
09981	Epoxy Mortar Protective Coating System	001825
DIVISION 10 SPECIALTIES		
10211G	Fixed Metal Louvers.....	001835

VOLUME 2 OF 2

TABLE OF CONTENTS

CONTRACT CRO-334G – STRUCTURES AND EQUIPMENT

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
DIVISION 11 EQUIPMENT		
11310G	Requirements for All Pumping Units	001839
11321G	Submersible Pumping Units for Wet Pit Service	001841
DIVISION 13 SPECIAL CONSTRUCTION		
13281	Asbestos Removal and Disposal	001845
13421G	Gages	001859
DIVISION 14 CONVEYING SYSTEMS		
14622	Dedicated Hoist System.....	001861
DIVISION 15 MECHANICAL		
15010	General Mechanical Requirements.....	001865
15011	Temporary Ventilation.....	001867
15051G	Ductile and Cast Iron Pipe	001873
15052G	Steel and Stainless Steel Pipe.....	001875
15053G	Aluminum, Copper and Brass Pipe	001877
15054G	PVC and CPVC Pipe	001879
15056G	Pipe Couplings	001881
15060G	Hangers and Supports	001883
15076G	Piping and Equipment Identification	001885
15111G	Valves - 4 Inch and Larger.....	001887
15112G	Valves - Smaller Than 4 Inches	001889
15141G	Disinfection	001891
15810G	Ductwork and Duct Accessories	001893
15830G	Fans.....	001895
15951G	Testing, Adjusting and Balancing	001897

VOLUME 2 OF 2

TABLE OF CONTENTS

CONTRACT CRO-334G – STRUCTURES AND EQUIPMENT

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
DIVISION 16	ELECTRICAL	
16020G	Temporary Electrical System	001899
16121G	Electric Wires and Cables	001903
16131G	Electric Conduit System	001907
16221G	Electric Motors	001909

VOLUME 2 OF 2

TABLE OF CONTENTS

CONTRACT CRO-334E – ELECTRICAL

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
DIVISION 2 SITE CONSTRUCTION		
02105E	In-Situ Soil Sampling, Testing and Laboratory Analysis	001911
02201	Mobilization	001913
02222E	Demolition and Removals.....	001917
02240E	Dewatering	001919
02250E	Shoring and Underpinning	001923
02316E	Excavation.....	001925
02317E	Backfilling.....	001929
02955	Soil Removal and Disposal	001931
DIVISION 3 CONCRETE		
03100E	Concrete Formwork.....	001937
03210E	Reinforcing Steel	001939
03300E	Cast-in-Place Concrete.....	001941
DIVISION 5 METALS		
05091E	Welding	001943
05120E	Structural Steel	001947
DIVISION 9 FINISHES		
09900E	Painting	001949
DIVISION 11 EQUIPMENT		
11310E	Requirements for All Pumping Units	001963
11321E	Submersible Pumping Units for Wet Pit Service	001965

VOLUME 2 OF 2

TABLE OF CONTENTS

CONTRACT CRO-334E – ELECTRICAL

DETAILED SPECIFICATIONS

<u>Division and Section</u>	<u>Title</u>	<u>Page No.</u>
DIVISION 13	SPECIAL CONSTRUCTION	
13101E	Lightning Protection System.....	001967
DIVISION 16	ELECTRICAL	
16010E	General Electrical Requirements.....	001969
16035E	Demolition, Electrical.....	001973
16061E	Grounding.....	001975
16071E	Supporting Devices.....	001977
16076E	Labeling and Identification.....	001979
16121E	Electric Wires and Cables.....	001981
16131E	Electric Conduit System.....	001985
16133E	Underground Ducts - Ducts in Concrete.....	001987
16211E	Electric Service Entrance.....	001989
16221E	Electric Motors.....	001991
16441E	Panelboards.....	001993
16442E	Electric Control Equipment – Low Voltage A.C. Motors and Devices.....	001995
16511E	Lighting Fixtures and Devices.....	001997
16998	Field Inspection and Acceptance Tests.....	002001