INVITATION FOR BID (IFB)
IFB NO. GSWA-002-13

ORDOT DUMP CLOSURE CONSTRUCTION AND DERO ROAD SEWER IMPROVEMENTS ADDENDUM NO. 7

August 7, 2013

ALL BIDDERS MUST ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE SPACE PROVIDED BELOW, AND RETURN TO GSWA BY EITHER E-MAIL, lindaibanez@gmail.com, OR BY FAX, 671-649-3777.

NAME OF PROPOSER: _____
AUTHORIZED SIGNATURE: _____
PRINT NAME: _____
DATE: _____

RECEIVER/GSWA
542 N. Marine Corps Dr.,
Tamuning, Guam 96913

ORDOT DUMP CLOSURE CONSTRUCTION AND DERO ROAD SEWER IMPROVEMENTS

Project No. GSWA-002-13

August 7, 2013

ADDENDUM NO. 7

This addendum shall form part of the Contract Documents. Failure by any proposer to acknowledge receipt of this addendum in its proposal shall be grounds for disqualification of its proposal.

NOTICE TO BIDDERS: The Bid Documents of the above project are herby amended as follows:

Modified	Add or Replaced With	Description
I. BID DOCUMENTS		
Table of Contents	Replace with Table of Contents (AD-7)	Added "Temporary Leachate Pond Operation & Maintenance Manual" after Item 25 in the Table of Contents.
Bid Schedule of Values	Replace with Bid Schedule of Values (AD-7).	Revised Bid Item 2 to LS, provided a fixed amount for Bid Item 5 and made revisions to all the notes at the end of the SOV table.
Section 01025 Measurement and Payment	Replace with Section 01025 Measurement and Payment (AD-7)	Revised Sections 1.4.B, 1.6.A, 1.9.B.1, 1.9.C.1, and the following Bid Item descriptions in Section 1.10: Bid Items 1, 2, 3, 5, 10, 11, 12, 13, 14, 15, 17, 18, and 53.
Section 02222 Engineered and Random Fill Utility and Anchor Trench Backfill	Replace with Section 02222 Engineered and Random Fill Utility and Anchor Trench Backfill (AD-7)	Revised Section 1.1 to clarify the requirements for this work.
Attachments to Bid Documents	Add Temporary Leachate Pond Operation & Maintenance Manual	Added "Temporary Leachate Pond Operation & Maintenance Manual" to Bid Documents Attachments

Note, the summaries above are not comprehensive and it is the Contractors' responsibility to ensure they incorporate all the changes in this Addendum, whether or not they are specifically listed in the table above.

RECEIVER/GSWA
542 N. Marine Corps Dr.,
Tamuning, Guam 96913

II. RESPONSES TO BIDDER'S QUESTIONS

None.

ATTACHMENTS:

Table of Contents (AD-7)
Bid Schedule of Values (AD-7)
Section 01025 Measurement and Payment (AD-7)
Section 02222 Engineered and Random Fill Utility and Anchor Trench Backfill
Temporary Leachate Pond Operation & Maintenance Manual

-END OF ADDENDUM No. 7-

ORDOT DUMP CLOSURE CONSTRUCTION AND DERO ROAD SEWER IMPROVEMENTS
PROJECT NO. GSWA-002-13

TABLE OF CONTENTS

ATTACHMENTS

THE FOLLOWING ARE FOR INFORMATION ONLY

BID SCHEDULE OF VALUES
ORDOT DUMP CLOSURE CONSTRUCTION AND DERO ROAD SEWER IMPROVEMENTS
PROJECT NO. GSWA-002-13

Bid Item	Description	Unit	Quantity	Estimated Unit Cost	Estimated Total Cost
General Requirements					
1	Mobilization and Demobilization	LS	**1**		
2	Bonding and Insurance	LS	**1**		
3	Surveying	LS	**1**		
4	Demolition	LS	**1**		
5	Site Clean-up of Scattered Waste (Outside the Final Waste Limits)	LS	**1**	**$200,000**	**$200,000**
6	Unexploded Ordnance (UXO) Monitoring	LS	**1**		
7	Health and Safety	LS	**1**		
Earthworks					
8	Clearing and Stripping (Inside Existing Waste Limits)	AC	**44**		
9	Waste Relocation (Outside the Final Waste Limits)	CY	**9,200**		
9A	Waste Relocation Contingency (Outside the Final Waste Limits)	CY	**4,600**		
10	Waste Relocation (Inside of Final Waste Limits) [(5)]	CY	**181,400**		
11	Supply and Install Random Fill (Inside of Final Waste Limits) [(5)]	CY	**90,100**		
12	Excavation of On-Site Soil (Outside of Final Waste Limits) [(5)]	CY	**35,000**		
13	Supply and Install Engineered Fill (From On-Site Excavation [(5)])	CY	**35,000**		
14	Supply and Install Engineered Fill (Imported Material) [(5)]	CY	**1,000**		
15	Supply and Install Geocell Backfill	CY	**32,100**		
16	Supply and Install Geocell Concrete Backfill	CY	**10,300**		
17	Supply and Install Foundation Layer [(5)]	CY	**67,000**		
18	Supply and Install Protective Cover Layer on Benches and Roads	CY	**49,900**		
19	Supply and Install Protective Cover Layer on Top Deck	CY	**11,900**		
20	Supply and Install Protective Cover Temporary Berm	LF	**370**		
21	Excavate and Backfill Anchor Trench	LF	**5,400**		
22	Excavate and Backfill Temporary Anchor Trench	LF	**1,500**		
23	Supply Coral Drainage Material for Water Diversion Trench	CY	**580**		
24	Supply Corrugated 12" Perforated Dual-Wall HDPE Pipe for Water Diversion Trench	LF	**500**		
25	Supply Corrugated 12" Non-Perforated Dual-Wall HDPE Pipe for Water Diversion Trench	LF	**590**		
26	Install Water Diversion Trench	LF	**1,100**		

Bid Item	Description	Unit	Quantity	Estimated Unit Cost	Estimated Total Cost
27	Supply and Install Water Diversion Trench Outfall	LS	**1**		
Leachate Collection					
28	Supply Drainage Material for Perimeter Leachate Collection Trench [(2)]	CY	**1,800**		
29	Supply Corrugated 12" Perforated Dual-Wall HDPE Pipe for Perimeter Leachate Collection Trench	LF	**5,300**		
30	Supply Corrugated 12" Non-Perforated Dual-Wall HDPE Pipe for Perimeter Leachate Collection Trench	LF	**0**		
31	Install Perimeter Leachate Collection Trench	LF	**5,300**		
32	Supply Leachate Manholes	Each	**17**		
33	Supply Gravel Fill Around Leachate Manholes	CY	**260**		
34	Supply and Install Drainage Material for Leachate Seep Drains [(2)]	CY	**30**		
35	Supply Corrugated 3" Non-Perforated HDPE Pipe for Seep Drains	LF	**1,840**		
36	Supply Corrugated 3" Perforated HDPE Pipe for Seep Drains	LF	**80**		
37	Install Corrugated 3" Non-Perforated HDPE Pipe for Seep Drains	LF	**1,840**		
38	Supply Drainage Material for Leachate Interceptor Trench [(2)]	CY	**1,130**		
39	Supply Corrugated 12" Perforated Dual-Wall HDPE Pipe for Leachate Interceptor Trench	LF	**680**		
40	Install Leachate Interceptor Trench	LF	**680**		
41	Supply Corrugated 12" Non-Perforated Dual-Wall HDPE Pipe for Leachate interceptor Trench	LF	**1,290**		
42	Install Leachate Interceptor Trench with Non-Perforated Pipe	LF	**1,290**		
43	Supply and Install Phase 1 Intermediate Transfer Pumps & Piping	Each	**6**		
Temporary Leachate Storage Pond					
44	Excavation of Temporary Leachate Storage Pond	CY	**10,200**		
45	Install Geomembrane Liner for Pond Bottom	SF	**26,600**		
46	Install Floating Cover	SF	**27,900**		
47	Install Geocomposite Vent Strips	LF	**750**		
48	Excavate and Backfill Anchor Trenches	LF	**1,260**		
49	Supply and Install Protective Cover	CY	**150**		
50	Supply 4" Solid Wall HDPE Leachate Pipe	LF	**80**		
51	Install 4" Solid Wall HDPE Leachate Pipe	LF	**80**		
52	Temporary Pipe Inlet	LS	**1**		
53	Temporary Leachate Storage Pond Operations and Maintenance	LS	**1**		

Bid Item	Description	Unit	Quantity	Estimated Unit Cost	Estimated Total Cost
54	Leachate Removal Sump and Riser	LS	**1**		
55	Temporary Leachate Storage Pond Stormwater Emergency Spillway	LS	**1**		
56	Demolish Pond During Phase 2 Construction	LS	**1**		
Geosynthetics					
57	Supply Geomembrane for Final Cover and Leachate Pond Bottom Liner	SF	**2,354,000**		
58	Install Geomembrane for Final Cover	SF	**2,050,300**		
59	Supply Floating Cover	SF	**30,690**		
60	Supply Lower Geocomposite	SF	**2,262,700**		
61	Install Lower Geocomposite	SF	**2,057,000**		
62	Supply Upper Geocomposite	SF	**2,258,960**		
63	Install Upper Geocomposite	SF	**2,053,600**		
64	Supply Geotextile	SF	**139,700**		
65	Supply 6" Geocell	SF	**780,230**		
66	Supply 8" Geocell	SF	**1,311,200**		
67	Supply Polyester Tendons	LF	**981,750**		
68	Supply Kevlar Tendons	LF	**678,260**		
69	Install Geocell System	SF	**1,901,300**		
Stormwater					
70	Supply and Install Perimeter Road Box Culvert with Headwall (2' x 4')	LF	**190**		
71	Supply and Install Perimeter Road Box Culvert with Headwall (3' x 6')	LF	**250**		
72	Drainage Dissipator/Redirector	EA	**14**		
73	Bench Channel Dissipator	EA	**3**		
74	Supply 36" HDPE Storm Drain Pipe	LF	**380**		
75	Install 36" HDPE Storm Drain	LF	**380**		
76	Supply 48" HDPE Storm Drain Pipe	LF	**290**		
77	Install 48" HDPE Storm Drain	LF	**290**		
78	Supply 60" HDPE Storm Drain Pipe	LF	**1,970**		
79	Install 60" HDPE Storm Drain	LF	**1,970**		
80	Supply 60" HDPE Pond 2 Down Drain Pipe	LF	**70**		
81	Install 60" HDPE Pond 2 Down Drain Pipe with Energy Dissipator	LF	**70**		
82	Supply 60" HDPE Pond 3 Down Drain Pipe	LF	**100**		
83	Install 60" HDPE Pond 3 Down Drain with Energy Dissipator	LF	**100**		
84	Supply and Install Box Manhole (8'x8'x10')	EA	**10**		
85	Supply and Install Energy Dissipator Manhole (8'x10'x11')	EA	**2**		

Bid Item	Description	Unit	Quantity	Estimated Unit Cost	Estimated Total Cost
86	East Side Grouted Rip Rap Channel	SF	**12,000**		
87	Supply and Install Top Deck Berm	LF	**1,470**		
Erosion Control					
88	Supply Erosion Control Mat	SF	**20,570**		
89	Install Erosion Control Mat	SF	**20,570**		
90	Silt Fence	LF	**8,230**		
91	Silt Fence Check Dam	EA	**14**		
92	Stabilized Construction Entrance	EA	**2**		
93	Straw Wattles	LF	**19,400**		
94	Placement of Clearing and Stripping Mulch	SF	**205,270**		
Miscellaneous					
95	Security Fence	LF	**6,920**		
96	New Electrical Service	LS	**1**		
97	Supply and Install Engineered Fill and Drainage Culverts for Access Road	LS	**1**		
98	Supply and Install Protective Cover for Access Road	CY	**600**		
Landfill Gas					
99	Supply 6” solid SDR-17 HDPE pipe for Landfill Gas Collection Laterals and Vertical Landfill Gas Extraction Wells	LF	**5,625**		
100	Supply 8” perforated SDR-17 HDPE pipe for Vertical Landfill Gas Extraction Wells	LF	**465**		
101	Supply 8” solid SDR-17 HDPE pipe for Landfill Gas Collection Header	LF	**3,900**		
102	Supply and install Landfill Gas Wellheads for Vertical Landfill Gas Extraction Wells and Horizontal Collector Trenches	EA	**37**		
103	Install 8” solid SDR-17 HDPE pipe for Landfill Gas Collection Headers	LF	**3,900**		
104	Supply and install 8” Valves for Landfill Gas Collection Headers	EA	**8**		
105	Supply and install Access/Monitoring Ports for Landfill Gas Collection Header	EA	**7**		
106	Install 6” solid SDR-17 HDPE pipe for Landfill Gas Collection Laterals	LF	**4,710**		
107	Supply and install Horizontal Collector Trenches	LF	**3,800**		
108	Supply and install Access/Monitoring Ports for Horizontal Collection Trenches	EA	**4**		
109	Drill Vertical Landfill Gas Extraction Wells	LF	**1,305**		
110	Supply Drainage Material for Vertical Landfill Gas Extraction Wells	CY	**150**		
111	Install Vertical Landfill Gas Extraction Wells	LF	**1,305**		

Bid Item	Description	Unit	Quantity	Estimated Unit Cost	Estimated Total Cost
112	Supply and install Phase 1 Condensate Sump and tie-in to Leachate Collection Trench Manhole	LS	**1**		
113	Supply and install Flare Station Condensate Drop-Out Structure	LS	**1**		
114	Supply 6” perforated SDR-17 HDPE pipe for Migration Control Trench	LF	**1,700**		
115	Supply 8” solid SDR-17 HDPE pipe for Migration Control Trench Header	LF	**2,025**		
116	Supply and install Landfill Gas Wellheads for Migration Control Trench	EA	**8**		
117	Supply Drainage Material for Migration Control Trench	CY	**1,765**		
118	Install Migration Control Trench	LF	**1,700**		
119	Install 8” solid SDR-17 HDPE pipe for Landfill Gas Migration Control Trench Header	LF	**2,025**		
120	Supply and install Phase 2 Condensate Sump and tie-in to Leachate Collection Trench Manhole	LS	**1**		
121	Supply and install 8” Valves for Migration Control Trench	EA	**1**		
122	Supply and install Access/Monitoring Ports for Migration Control Trench	EA	**8**		
123	Supply and install Landfill Gas Flare	LS	**1**		
124	Electrical Supply to LFG Flare	LS	**1**		
Leachate Storage and Pumping Station					
125	16,000 gal Bolted Steel Tank on Slab on Grade	EA	**3**		
126	Supply and Install 10HP Leachate Pumps and Piping	LS	**1**		
127	Supply and Install Leachate Secondary Containment	CY	**73**		
128	Supply and Install Concrete Pipe Supports	EA	**7**		
129	Electrical Supply and Site Lighting to Leachate Pumps	LS	**1**		
130	Supply and Install 4" PVC or HDPE Forcemain Pipe onsite	LF	**2,537**		
131	Supply and Install 2" Air Vacuum Valve Assembly	EA	**2**		
132	Supply and Install Sanitary Sewer Forcemain Clean-out	EA	**5**		
Stormwater Pond Construction					
133	Pond 1 Excavation	CY	**5,900**		
134	Pond 2 Excavation	CY	**8,900**		
135	Pond 3 Excavation	CY	**15,400**		
136	Pond 4 Excavation	CY	**5,400**		
137	Keyway Excavation	CY	**1,080**		
138	Supply and Install Low Permeability Soil Keyway	CY	**1,080**		
139	Stormwater Pond Berm	CY	**2,300**		

Bid Item	Description	Unit	Quantity	Estimated Unit Cost	Estimated Total Cost
140	Supply and Install Outlet Risers	EA	**4**		
141	Supply and Install 12" HDPE Pipe from Energy Dissipator Manholes to Pond 2 and 3	LF	**50**		
142	Supply and Install 24" Outlet Pipe	LF	**42**		
143	Supply and Install 30" Outlet Pipe	LF	**180**		
144	Supply and Install 36" Outlet Pipe	LF	**48**		
145	Supply and Install Concrete Anti-Seep Collars	EA	**8**		
146	Supply and Install Pond Outfall and Rip Rap Apron for Pond 1,2, and 3	EA	**3**		
147	Supply and Install Grouted Rip Rap Swale and Pad	CY	**7,100**		
148	Supply and Install Spillway Rip Rap	CY	**450**		
149	Supply and Install Concrete Emergency Spillway	EA	**2**		
150	Supply and Install Stormwater Pond Access Road	SY	**1,800**		
151	Level Spreader	EA	**2**		
152	Supply and Install Planting for Stormwater Ponds	LS	**1**		
Dero Road Sewer and Pump Station					
153	Traffic Control, Coordination and Pot Holing	LS	**1**		
154	Supply and Install 4' Diameter Manhole	EA	**21**		
155	Supply and Install 8" PVC SDR-25 Pipe	LF	**3,339**		
156	Supply and Install 6" PVC or HDPE Forcemain Pipe from GWA Pump Station	LF	**273**		
157	Concrete Encasement	LF	**227**		
158	Lateral Sewer Lines	EA	**12**		
159	Temp Asphalt Patch	LF	**3,544**		
160	Pump Station Site Work	LS	**1**		
161	Pump Station Generator Enclosure Building	LS	**1**		
162	Pump Station Electrical Supply, Site Lighting and Generator for Pump Station	LS	**1**		
163	Pump Station Wetwell & Valve Vault	LS	**1**		
164	Pump Station 1.2 HP Pumps, Piping & Controls	LS	**1**		
165	Pump Station Water Service	LS	**1**		
Western Channel Relocation					
166	Mobilization and Demobilization	LS	**1**		
167	Surveying	LS	**1**		
168	Clearing and Stripping	AC	**1.1**		
169	Tree Protection	LF	**1,020**		
170	Excavation of On-SiteTopsoil (Inside Limits of Channel Relocation)	CY	**1,220**		
171	Excavation of On-Site Soil (Inside Limits of Channel Relocation)	CY	**1,600**		

Bid Item	Description	Unit	Quantity	Estimated Unit Cost	Estimated Total Cost
172	Excavation of Rock (Inside Limits of Channel Relocation)	CY	**800**		
173	Supply and Install Topsoil (From On-Site Topsoil Excavation)	CY	**1,220**		
174	Supply and Install Engineered Fill (From On-Site Excavation)	CY	**85**		
175	Boulder Step-Pool Cross Vane	EA	**3**		
176	Boulder Vane	EA	**3**		
177	Constructed Rock/Riffle Pool Complex	LF	**200**		
178	Temporary Channel Crossing	EA	**1**		
179	Temporary Diversion Dike	LF	**545**		
180	Silt Fence	LF	**905**		
181	Stabilized Construction Entrance	EA	**1**		
182	Temporary Seed Mix	AC	**0.6**		
183	Native Seed Mix	AC	**0.6**		
184	Supply Channel Stabilization Blanket	SF	**22,550**		
185	Install Channel Stabilization Blanket	SF	**22,550**		
186	Shrubs-#2 Cont.	EA	**30**		
187	Tublings	EA	**217**		
188	Plug Containers	EA	**3,300**		
189	Allowance for Excavation of Rock (Inside Limits of Channel Relocation)	CY	**800**		
Abandonment and Installation of Monitoring Wells					
190	Abandonment of Monitoring Wells (Both Groundwater and Landfill Gas Wells)	LS	**1**		
191	Installation of New Monitoring Wells (Both Groundwater and Landfill Gas Wells)	LS	**1**		
Other					
192	Contingency for Unforeseen Conditions	LS	**1**	**$300,000.00**	**$300,000.00**
Total Bid					**$**

Notes:

1. CONTRACTOR shall provide unit costs to increase size of the gravity sewer line along Dero Road from 8" to 12" from SMH-12 at STA 20+25 to the wet well at STA 33+19. Insert here: **Additive: $_____ per linear foot of pipe installed. Not to be included in Total Bid.**
2. CONTRACTOR shall provide unit costs for the alternative use of shredded tires instead of gravel in the perimeter leachate collection trench, leachate interceptor trench and seep drains provided for in Bid Item 28, 34, and 38. Insert Here: **Additive or Deductive- $_____ per cubic yard. Not to be included in Total Bid.** Note: Pyramid Recycling (contact: Eric Hsueh (671) 727-8130) has demonstrated the ability to produce a product that meets the requirements of Section 02227 of the specifications and is a potential source for the shredded tires.
3. CONTRACTOR shall submit, along with this Bid Schedule of Values, his major subcontractor(s) standard rates for employees, equipment, overhead, profit, etc. These standard rates shall be used for negotiating any Change Orders that may arise.

4. The BIDDER shall prepare its own estimate to correspond to the required scope of work and quantities for all work required to complete the Project, based on the Contract plans, specifications, and documents.
5. It is the CONTRACTOR's responsibility to verify to their satisfaction the quantities for all final pay items prior to starting work. Any modifications to the final pay items due to differing site conditions will be made by the ENGINEER or OWNER based on a preconstruction survey provided by the CONTRACTOR in accordance with the Specifications. The CONTRACTOR must agree to the Final Pay Item quantity in writing prior to construction activities.
6. The Bid Schedule of Values is intended principally to serve as a guide in evaluating and comparing the bids. The Bidder awarded the Contract shall prepare a more detailed Schedule of Values for the purpose of progress billings.
7. All other items of work not qualified and not listed in the Bid Schedule of Values are to be included in the item with which it is closely associated. CONTRACTOR's overhead, profit, taxes, and other non-listed expenses are to be included in the items of the Bid Schedule of Values.
8. As an option, the CONTRACTOR may utilize the Guam Department of Public Works (DPW) Dededo Quarry as a source of coral rock for this project. In-place coral rock will be made available to the contractor at no cost. CONTRACTOR is responsible for all costs associated with excavation, screening, grading, processing, and hauling material for the project. CONTRACTOR is also responsible for coordinating all operations with DPW. Additionally, the DPW operates the quarry Monday through Friday, 7 am to 3 pm. Any work performed by the CONTRACTOR outside the quarry's operating hours will require the CONTRACTOR to pay for the hourly wage of one DPW employee. Contact Linda Ibnanez for information on visiting the site prior to bid submittal.
9. Hauling leachate from the Temporary Leachate Storage Pond will be conducted by the CONTRACTOR in accordance with the Temporary Leachate Storage Pond Operations and Maintenance Plan. Payment will be in accordance with Section 8.9 of the General Conditions, Changes in Work (**not to be included in Total Bid**).

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Measurement and payment methods for contract bid items.

1.2 MEASUREMENT OF QUANTITIES

A. Performed according to United States Measures.

B. Based on actual units installed or neat line dimensions of work completed as follows:

1. Measurement by Volume: Measurement shall be by the cubic dimensions using mean lengths, widths, and heights or thickness, or by average end area method. Where applicable, all measurement shall be the difference between the original ground surface and the construction record ("As-Built") dimensions and grades or the design ("Neat-Line") dimensions and grades.

2. Measurement by Area: Measurement shall be by the square dimension using mean lengths and widths and/or radius. Where applicable, all measurement shall be the difference between the original ground surface and the construction record ("As-Built") dimensions and grades or the design ("Neat-Line") dimensions and grades.

3. Linear Measurement: Measurement shall be by the linear dimension, at the item centerline or mean chord. Where applicable, all measurement shall be the difference between the original ground surface and the construction record ("As-Built") dimensions and grades or the design ("Neat-Line") dimensions and grades.

4. Stipulated Lump Sum Measurement: Items shall be measured as a percentage by time, weight, volume, area, or linear means or combination, as appropriate, of completed item or unit of work.

1.3 CALCULATION OF QUANTITIES

A. Progress and Final Payment Quantities:

1. A surveyor, licensed in Guam, hired by the CONTRACTOR, will take all measurements and compute quantities accordingly. All measurements, cross-sections and quantities shall be stamped and certified by the licensed surveyor and submitted to the OWNER. OWNER or OWNER'S representative may verify all quantities of work performed, or materials and equipment delivered to the site for progress payment purposes.

1.4 UNIT QUANTITIES SPECIFIED

A. Quantities and measurements indicated in the Bid Schedule are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the OWNER or OWNER'S representative shall determine payment. If the actual work requires more or fewer quantities than those quantities indicated, the CONTRACTOR shall provide the required quantities at the lump sum and unit prices contracted for unless modified elsewhere in this Contract. No adjustment of unit prices will be made for any increases or decreases in the quantities of any of the bid items. Bid items 10, 11, 12, 13, 14, and 17 are Final Pay Items.

B. A Final Pay Item is defined as an item where the CONTRACTOR will be paid for the exact quantity shown on the Bid Schedule, unless the ENGINEER or OWNER orders a change in the dimensions of the Work or the CONTRACTOR demonstrates to the satisfaction of the OWNER differing quantities through a preconstruction survey prior to the start of work. The CONTRACTOR will not be provided additional payment for quantities that exceed those shown on the Bid Schedule following the start of work. The OWNER may adjust the Bid Schedule quantity if site conditions (i.e. changes in topography) are different than those shown on the Construction Drawings. As such, a new Final Pay Item quantity will then be established by the OWNER. It is the CONTRACTOR's responsibility to verify to their satisfaction the quantities for all final pay items prior to starting work. Any modifications to the final pay items due to differing site conditions will be made by the ENGINEER or OWNER based on a preconstruction survey provided by the CONTRACTOR. The preconstruction survey shall establish the existing grades at a maximum 50 foot grid and established major grade breaks. The Contractor must agree to the Final Pay Item quantity in writing prior to construction activities.

C. Volume quantities listed in the project documents and drawings are theoretical embanked quantities and do not consider soil shrinkage, subsidence, or swell.

D. All taxes shall be included in each bid item as appropriate.

1.5 PAYMENT

A. In accordance with lump sum, unit prices, or force account rates shown on the Bid Form.

B. Includes all costs for overhead and profit and for supplying materials, permits, labor, equipment, and tools, necessary to complete the Work in accordance with the Specifications, Construction Drawings, and Contract Conditions.

C. All items of work called out for in the Construction Drawings and Specifications that are not specifically included under Section 1.10, shall be considered included in all the items of work and no separate payment shall be made.

1.6 VALUES OF UNIT PRICES

A. The number of units and quantities contained in the Bid Schedule are approximate only, and final payment will be made for the actual number of units and quantities incorporated in the work or made necessary to complete the project. No quantity adjustments will be made for Final Pay Items except as indicated in Section 1.4(B.) above.

B. In the event that work and materials or equipment are required to be furnished to a greater or lesser extent than is indicated by the Contract Documents, such work and materials or equipment shall be furnished in greater or lesser quantities.

1.7 CHANGES AND EXTRA WORK

A. Changes and extra work will be measured and paid for in accordance with the requirements of this Section.

1.8 REJECTED MATERIALS

A. Quantities of material wasted or disposed in a manner not called for in the Specifications; rejected loads of material, including material rejected after it has been placed by reasons of the failure of CONTRACTOR to conform to the provisions of the Specifications; material not unloaded from the transporting vehicle; material placed outside the limits indicated by the Construction Drawings or established by OWNER; or material remaining on hand after completion of the Work, will not be paid for, and such quantities will not be included in the final total quantities. No compensation will be made for loading, hauling, and disposing of rejected material.

1.9 FORCE ACCOUNT WORK

A. Payment for Force Account work will be determined as follows:

B. Labor.

1. Payment for labor will be based on Section 8.4 (Contract Schedule of Values) and Section 8.9 (Changes in Work) of the General Conditions.

2. Payment constitutes full compensation for labor including wages, benefits, overhead, and profit for each individual.

C. Equipment.

1. Payment for equipment will be based on Section 8.4 (Contract Schedule of Values) and Section 8.9 (Changes in Work) of the General Conditions.
2. Payment constitutes full compensation for supplying equipment and includes all costs for maintenance, fuel, insurance, overhead, profit and any other costs necessary to provide and operate the equipment. Payment does not include operator labor cost.

D. Materials

1. Payment for materials will be paid for at CONTRACTOR'S invoiced cost plus 10 percent inclusive of all taxes.

2. Payment will be based on invoices from suppliers documenting cost to CONTRACTOR.

3. Where invoices are not available a unit cost must be approved by the OWNER prior to supply of material.

1.10 PAY ITEMS

General Requirements

Mobilization and Demobilization **(Bid Item 1)**

a. Measurement by the lump sum (LS) for mobilizing of equipment and labor to perform work and demobilizing from and cleaning the site after all work and testing has been performed and accepted by the OWNER.

b. Payment as follows: 50 percent of lump sum amount upon completion of 10 percent of the Work, and 50 percent for demobilization and site cleanup; Payment includes all costs for mobilizing and demobilizing equipment, living expenses, supply CM/CQA field offices, office and field overhead and utilities, subcontractor management, preparation of work plans, permits and approvals, reports, operations and maintenance of temporary facilities, protection of wetlands and cultural resources, and

any other administrative costs necessary to complete the Work as described in the Contract Documents. Payment also includes all temporary environmental controls and site security.

Bonding and Insurance **(Bid Item 2)**

a. Measurement by the lump sum (LS) based on the initial contract price for purchasing the bonding and insurance as required and accepted by the OWNER.

b. Payment as follows: 50 percent of lump sum amount upon completion of 10 percent of the Work, and 50 percent for demobilization and site cleanup; Payment includes all costs for acquisition of the bonding and insurance and any other administrative costs associated with bonding and insurance as described the Contract Documents.

Surveying **(Bid Item 3)**

a. Measurement by the lump sum (LS) for the surveying to carry out the Work as described in the Contract Documents.

b. Payment as follows: Based on estimated completion of work. Payment includes all costs for surveying, staking, installation of monuments and markers as necessary for construction, preconstruction surveys, record surveys, and measurement and payment to complete the Work as described in the Contract Documents.

Demolition **(Bid Item 4)**

a. Measurement by the lump sum (LS) for the demolition, abandonment, and disposal of structures to carry out the Work as described in the Contract Documents.

b. Payment as follows: Based on estimated completion of work. Payment includes all costs for demolition, abandonment, and disposal of structures including but not limited to the buildings, foundations, concrete and asphalt slabs, scale facility, septic tank, piping and leach field, steel container, old steel weighbridge, and utilities. Costs also include all necessary health and safety, and permits, to complete the Work as described in the Contract Documents.

Site Clean-Up of Scattered Waste (Outside the Final Waste Limits) **(Bid Item 5)**

a. This item is an allowance that all Bidders shall include in their Bid with a value of $200,000 to be used for the clean-up of miscellaneous scattered waste outside of the final waste limits to carry out the Work as described in the Contract Documents.

b. Payment includes the pickup, loading, and removing of miscellaneous scattered waste from outside the final waste limits and hauling, placement, and compaction of waste within the final waste limits. Payment also includes any processing such as cutting, crushing, or otherwise preparing the waste and any recyclable materials for transport to their final location and to complete the Work as described in the Contract Documents. The costs for the site clean-up shall be in accordance with the Contract Schedule of Values listed in Section 8.4 of the General Conditions and shall be paid based on actual costs incurred for labor (including foreman), materials, equipment, power and consumable supplies, insurance, and fixed fee covering supervision, overhead, bond, profit, and general expenses not exceeding 15%.

Unexploded Ordnance (UXO) Monitoring **(Bid Item 6)**

a. Measurement by the week (week) for the monitoring of the waste relocation and grading of the dump within the project area for the presence of UXO as described in the Contract Documents.

b. Payment includes all costs to perform the UXO monitoring including but limited to labor, materials, equipment, preparation of the UXO monitoring and Emergency Response Plans, health and safety activities, management of associated subcontractors, training, scheduling, insurance and bonding to complete the Work as described in the Contract Documents.

Health and Safety **(Bid Item 7)**

a. Measurement by the lump sum (LS) for the management of the health and safety activities to carry out the Work as described in the Contract Documents.

b. Payment based on estimated completion of work. Payment includes all costs to perform the management of health and safety including but limited to labor, materials, equipment, preparation the Health and Safety Plan, submission of training and other related records, environmental monitoring, management of associated subcontractors, training, scheduling, insurance and bonding to complete the Work as described in the Contract Documents.

Earthworks

Clearing and Stripping (Inside Existing Waste Limits) **(Bid Item 8)**

a. Measurement by the acre (AC) of the clearing and stripping will be based on a perimeter survey of the existing waste limits area as shown on the Construction Drawings. Measurement shall be based on the horizontal projection of the surveyed area.

b. Payment includes all costs to clear and strip (as necessary) the construction area of vegetation, transport to a designated location, and chip wood materials for use as erosion control materials as described in Contract Documents and as shown on the Construction Drawings.

Waste Relocation (Outside of Final Waste Limits) **(Bid Item 9)**

a. Measurement by the cubic yard (CY) of waste relocation will be made by comparing pre-construction topography of the waste excavation area outside of the proposed final waste limits with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation within the area. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of the excavation and prior to placement of engineered fill or other grading operations (pond, roads, and drainage construction, etc). Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate waste from outside the final waste limits, then load, haul, place, compact, and cover the waste with daily cover soil in designated areas within the final waste limits as described in the Contract Documents. Unit rate shall apply up to a maximum of 10% over the original estimated quantity describe in the Contract Documents and shown on the Construction Drawings.

Waste Relocation Contingency (Outside of Final Waste Limits) **(Bid Item 9A)**

a. Measurement by the cubic yard (CY) of waste relocation will be made by comparing pre-construction topography of the waste excavation area outside of the proposed final waste limits with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation within the area.

Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of the excavation and prior to placement of engineered fill or other grading operations (pond, roads, and drainage construction, etc). Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate waste from outside the final waste limits, then load, haul, place, compact, and cover the waste with daily cover soil in designated areas within the final waste limits as described in the Contract Documents. Unit rate shall apply to the quantity of waste more than 10% above the original estimated quantity described in the Contract Documents and shown on the Construction Drawings.

Waste Relocation (Inside of Final Waste Limits) **Final Pay Item** **(Bid Item 10)**

a. Measurement for waste relocation inside of the final waste limits shall be based on the Final Pay Item quantity shown on the Bid Schedule. There shall be no separate measurement of the quantity for waste relocation inside of the final waste limits following the start of work. The quantity is based on the waste excavation quantity determined by comparing the existing topography and the foundation layer design grades (shown on Drawings C10 and C20) lowered by one (1) foot vertically. At the option of the CONTRACTOR, he may conduct his own preconstruction survey of the existing topography and compare that to the foundation layer design grades lowered by one (1) foot vertically. The preconstruction survey shall establish the existing grades at a maximum 50-foot grid and establish major grade breaks. Calculations shall be made on an average end area basis vertically by 2-foot contour interval. Should the quantity using the preconstruction survey differ from that listed in the Bid Item, the CONTRACTOR shall present his information and request for a modification to the Bid Item quantity in writing to the OWNER prior to the start of work. If approved by the OWNER in writing, the Final Pay Item quantity will be adjusted.

b. Payment for waste relocation inside of the final waste limits shall be based on the Final Pay Item price on the Bid Schedule. Payment includes all costs to excavate waste from inside the final waste limits, then load, haul, place, compact, and finish grade waste in designated areas within the final waste limits as described in the Contract Documents and as

shown on the Construction Drawings. Payment also includes all costs to cover waste as described in the contract documents.

Supply and Install Random Fill (Inside Final Waste Limits) **Final Pay Item (Bid Item 11)**

a. Measurement for the supply and install of random fill shall be based on the Final Pay Item quantity shown on the Bid Schedule. Random fill consists of all "non-waste" fills placed inside the final waste limits to reach the foundation layer design grade lowered by one (1) foot vertically. There shall be no separate measurement of the quantity for supply and install of random fill following the start of work. The quantity of random fill is the amount of fill required to meet the foundation layer design grades (shown on Drawings C10 and C20) lowered by one (1) foot vertically minus the quantity of waste fill determined in Bid Item 10 above. At the option of the CONTRACTOR, he may conduct his own preconstruction survey of the existing topography and compare that to the foundation layer design grades lowered by one (1) foot vertically. The preconstruction survey shall establish the existing grades at a maximum 50-foot grid and establish major grade breaks. Calculations shall be made on an average end area basis vertically by 2-foot contour interval. Should the quantity using the preconstruction survey differ from that listed in the Bid Item, the CONTRACTOR shall present his information and request for a modification to the Bid Item quantity in writing to the OWNER prior to the start of work. If approved by the OWNER in writing, the Final Pay Item quantity will be adjusted.

b. Payment for supply and install of random fill shall be based on the Final Pay Item price on the Bid Schedule. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact and finish grade) random fill in areas within the final waste limits as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Excavation of On-Site Soil (Outside of Final Waste Limits) **Final Pay Item (Bid Item 12)**

a. Measurement for the excavation of on-site soil (outside of final waste limits) shall be based on the Final Pay Item quantity shown on the Bid Schedule. There shall be no separate measurement of the quantity for the excavation of on-site soil (outside of final waste limits) following the start of work. The quantity is based on the excavation quantity (outside

of the final waste limits) as determined by comparing the existing topography and the foundation layer design grades (shown on Drawings C10 and C20). At the option of the CONTRACTOR, he may conduct his own preconstruction survey of the existing topography and compare that to the foundation layer design grades. The preconstruction survey shall establish the existing grades at a maximum 50-foot grid and establish major grade breaks. Calculations shall be made on an average end area basis vertically by 2-foot contour interval. Should the quantity using the preconstruction survey differ from that listed in the Bid Item, the CONTRACTOR shall present his information and request for a modification to the Bid Item quantity in writing to the OWNER prior to the start of work. If approved by the OWNER in writing, the Final Pay Item quantity will be adjusted.

b. Payment for excavation of on-site soil (outside of final waste limits) shall be based on the Final Pay Item price on the Bid Schedule. Payment includes all costs to excavate soil within the project area, screen, load, haul, and place in areas requiring engineered fill as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Engineered Fill (From On-Site Excavation) **Final Pay Item (Bid Item 13)**

a. Measurement for the install of engineered fill (from on-site excavation) shall be based on the Final Pay Item quantity shown on the Bid Schedule. There shall be no separate measurement of the quantity for the install of engineered fill (from on-site excavation) following the start of work. The quantity is based on the excavation quantity from bid item 12. The Final Pay Item quantity will be adjusted by the OWNER based on adjustments made to Bid Item 12.

b. Payment for install of engineered fill (from on-site excavation) shall be based on the Final Pay Item price on the Bid Schedule. Payment includes all costs to install (process, compact and finish grade) engineered fill in areas outside the final waste limits as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the placement areas on-site as necessary, dust control, keying fill into native grade, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Engineered Fill (Imported Material) **Final Pay Item** **(Bid Item 14)**

a. Measurement for the supply and install of engineered fill (import material) shall be based on the Final Pay Item quantity shown on the Bid Schedule. There shall be no separate measurement of the quantity for the supply and install of engineered fill (imported material) following the start of work. The quantity is based on the fill quantity (outside of the final waste limits) minus the quantity of engineered fill from on-site excavations described in Bid Item 13, as determined by comparing the existing topography and the foundation layer design grades (shown on Drawings C10 and C20). At the option of the CONTRACTOR, he may conduct his own preconstruction survey of the existing topography and compare that to the foundation layer design grades. The preconstruction survey shall establish the existing grades at a maximum 50-foot grid and establish major grade breaks. Calculations shall be made on an average end area basis vertically by 2-foot contour interval. Should the quantity using the preconstruction survey differ from that listed in the Bid Item, the CONTRACTOR shall present his information and request for a modification to the Bid Item quantity in writing to the OWNER prior to the start of work. If approved by the OWNER in writing, the Final Pay Item quantity will be adjusted.

b. Payment for supply and install of engineered fill (import material) shall be based on the Final Pay Item price on the Bid Schedule. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact and finish grade) engineered fill in areas outside the final waste limits as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow and fill areas off-site as necessary, dust control, keying fill into native grade, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Geocell Backfill **(Bid Item 15)**

a. Measurement by the cubic yard (CY) of geocell backfill will be made by multiplying the square feet of area surveyed with 8-inch and 6-inch geocell by the neat-line design thickness of geocell to be backfilled with crushed coral. Measurement of the geocell area will be based on a perimeter survey of the completed installation minus the area of geocell containing concrete backfill. The area will be adjusted for slopes; however, no adjustment will be made for uneven contours.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, and finish grade) geocell backfill as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Geocell Concrete Backfill **(Bid Item 16)**

a. Measurement by the cubic yard (CY) of geocell concrete backfill will be made by multiplying the square feet of area surveyed with 8-inch and 6-inch geocell by the neat-line design thickness of geocell to be backfilled with concrete. Measurement of the geocell area will be based on a sum of the perimeter surveys of the completed installation areas. The area will be adjusted for slopes and for increased thicknesses for the construction of design features such as energy dissipators within the geocell area; however, no adjustment will be made for uneven contours underlying the concrete.

b. Payment includes all costs to supply and install (purchase from an off-site source, load, haul, place, process, and finish) geocell concrete backfill including anchors, down chutes, channels, bench swales, road swales, and dissipators as described in the Contract Documents and as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Foundation Layer **Final Pay Item** **(Bid Item 17)**

a. Measurement for the supply and install of foundation layer shall be based on the Final Pay Item quantity shown on the Bid Schedule. There shall be no separate measurement of the quantity for the supply and install of foundation layer following the start of work. The quantity is based on multiplying the square feet of area on the Construction Drawings (adjusted for slopes) within the final waste limits by 1.1 feet. At the option of the CONTRACTOR, he may elect to verify this quantity. Should the quantity determined by the CONTRACTOR differ from that listed in the Bid Item, the CONTRACTOR shall present his information and request for a modification to the Bid Item quantity in writing to the OWNER prior to the start of work. If approved by the OWNER in writing, the Final Pay Item quantity will be adjusted.

b. Payment for supply and install of foundation layer shall be based on the Final Pay Item price on the Bid Schedule. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact, and finish grade) the foundation layer as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Protective Cover on Benches and Roads **(Bid Item 18)**

a. Measurement by the cubic yard (CY) of protective cover on benches and roads will be made by comparing the foundation layer as-built survey (grades shown on Drawings C10 and C20) with the top of protective cover as-built survey (grades shown on Drawings C12 and C22). The foundation layer as-built survey and the top of protective cover as-built survey will be established by field survey of existing grades after completion of each component of the Work. Survey will establish existing grades at a maximum 50-foot grid and establish major grade breaks. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact, and finish grade) the protective cover on the benches and roads as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Protective Cover on Top Deck **(Bid Item 19)**

a. Measurement by the cubic yard (CY) of protective cover will be made by multiplying the square feet of area surveyed for the top deck by the neat-line thickness of 2.0 feet. The area will be adjusted for slopes; however, no adjustment will be made for uneven contours.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact, finish grade, and settlement monuments) the protective cover on the top deck as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture

conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Protective Cover Temporary Berm (**Bid Item 20**)

a. Measurement by the linear foot (LF) based on actual length of installed protective cover temporary berm based on field survey.

b. Payment includes all costs to locate, excavate, and construct the protective cover temporary berm on the top deck as described in the Contract Documents and as shown on the Construction Drawings.

Excavate and Backfill Anchor Trench (**Bid Item 21**)

a. Measurement by the linear foot (LF) based on actual length of installed anchor trench based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the anchor trenches as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the backfill and complete the construction to the lines, grades, and dimensions as described in the Contract Documents and as shown on the Construction Drawings.

Excavate and Backfill Temporary Anchor Trench (**Bid Item 22**)

a. Measurement by the linear foot (LF). Measurement shall be based on actual length of installed temporary anchor trench based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact, place plywood cover and otherwise construct the temporary anchor trenches as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the backfill materials and complete the construction to the lines, grades, and dimensions as described in the Contract Documents and as shown on the Construction Drawings.

Supply Coral Drainage Material for Water Diversion Trench **(Bid Item 23)**

a. Measurement by the cubic yard (CY) of coral drainage material will be made by multiplying the linear feet of trench (where drainage material is to be placed) surveyed by the average depth of the trench minus the top 2 feet of compacted trench backfill times the neat-line design width (trench cross-section) minus the collection pipe cross section shown on the Construction Drawings.

b. Payment includes all costs to supply the coral drainage material in the water diversion trench as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the drainage material.

Supply Corrugated 12" Perforated Dual-Wall HDPE Pipe for Water Diversion Trench (**Bid Item 24**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Supply Corrugated 12" Non-Perforated Dual-Wall HDPE Pipe for Water Diversion Trench (**Bid Item 25**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install Water Diversion Trench (**Bid Item 26**)

a. Measurement by the linear foot (LF) based on actual length of installed water diversion trench based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the water diversion trench as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to

supply the utility trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Water Diversion Trench Outfall (**Bid Item 27**)

a. Measurement by the lump sum (LS) for the water diversion trench outfall.

b. Payment includes all costs to purchase, supply, excavate, grade, and install the rip-rap, geotextile, and concrete for the water diversion trench outfall as described in the Contract Documents and as shown on the Construction Drawings.

Leachate Collection

Supply Drainage Material for Perimeter Leachate Collection Trench **(Bid Item 28)**

a. Measurement by the cubic yard (CY) of drainage material will be made by multiplying the linear feet of trench surveyed by the average depth of the trench times the neat-line design width (trench cross-section) minus the collection pipe cross section shown on the Construction Drawings.

b. Payment includes all costs to supply the drainage material in the perimeter leachate collection trench as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the drainage material.

Supply Corrugated 12” Perforated Dual-Wall HDPE Pipe for Perimeter Leachate Collection Trench (**Bid Item 29**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Supply Corrugated 12” Non-Perforated Dual-Wall HDPE Pipe for Perimeter Leachate Collection Trench (**Bid Item 30**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract

Documents and as shown on the Construction Drawings.

Install Perimeter Leachate Collection Trench (**Bid Item 31**)

a. Measurement by the linear foot (LF) based on actual length of installed leachate collection trench based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the leachate collection trench as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also includes the installation of the manholes and bases, the geosynthetic materials, liner boots, and corrugated 12" perforated and non-perforated dual-wall HDPE Pipe as described in the Contract Documents and as shown on the Construction Drawings.

Supply Leachate Manholes (**Bid Item 32**)

a. Measurement by each (EA) each manhole supplied and installed.

b. Payment includes all costs to purchase and supply each manhole and the concrete base and concrete bottom (infill) materials as described in the Contract Documents and as shown on the Construction Drawings.

Supply Gravel Fill Around Leachate Manholes **(Bid Item 33)**

a. Measurement by the cubic yard (CY) of gravel will be made by multiplying neat-line volume of the gravel times the number of manholes shown on the Construction Drawings.

b. Payment includes all costs to supply the gravel around the leachate manholes as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the gravel.

Supply and Install Drainage Material for Leachate Seep Drains **(Bid Item 34)**

a. Measurement by the cubic yard (CY) of gravel will be made by field measuring the area of the seep excavation and multiplying it times the neat-line depth of excavation made for the seep.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact, and finish grade) the drainage materials as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the stockpile areas as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also include the installation of the geotextile and corrugated 3" perforated HDPE pipe as described in the Contract Documents and as shown on the Construction Drawings.

Supply Corrugated 3" Non-perforated HDPE Pipe for Leachate Seep Drains (**Bid Item 35**)

a. Measurement by the linear foot (LF). Measurement shall be based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Supply Corrugated 3" Perforated HDPE Pipe for Leachate Seep Drains (**Bid Item 36**)

a. Measurement by the linear foot (LF). Measurement shall be based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install Corrugated 3" Non-perforated HDPE Pipe for Leachate Seep Drains (**Bid Item 37**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to install (excavate, screen, load, haul, place, process, compact, and finish grade) the pipe and backfill materials as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply Drainage Material for Leachate Interceptor Trench **(Bid Item 38)**

a. Measurement by the cubic yard (CY) of drainage material will be made by multiplying the linear feet of trench surveyed by the average depth of the trench times the neat-line design width (trench cross-section) minus the collection pipe cross section shown on the Construction Drawings.

b. Payment includes all costs to supply the drainage material in the leachate interceptor trench as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the drainage material.

Supply Corrugated 12" Perforated Dual-Wall HDPE Pipe for Leachate Interceptor Trench (**Bid Item 39**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install Leachate Interceptor Trench with Perforated Pipe (**Bid Item 40**)

a. Measurement by the linear foot (LF) based on actual length of installed leachate interceptor trench with perforated pipe based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the leachate interceptor trench as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the utility trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also includes the installation of the geotextile materials and corrugated 12" Perforated Dual-Wall HDPE Pipe as described in the Contract Documents and as shown on the Construction Drawings.

Supply Corrugated 12" Non-Perforated Dual-Wall HDPE Pipe for Leachate Interceptor Trench (**Bid Item 41**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract

Documents and as shown on the Construction Drawings.

Install Leachate Interceptor Trench with Non-Perforated Pipe (**Bid Item 42**)

a. Measurement by the linear foot (LF) based on actual length of installed leachate interceptor trench with non-perforated pipe based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the leachate conveyance trench as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the utility trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also includes the installation of the corrugated 12" Non-Perforated Dual-Wall HDPE Pipe as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Phase 1 Intermediate Transfer Pumps and Piping (**Bid Item 43**)

a. Measurement by each (EA) pump supplied and installed.

b. Payment includes all costs to purchase, supply, and install each pump, electrical power source, and associated piping as described in the Contract Documents and as shown on the Construction Drawings.

Temporary Leachate Storage Pond

Excavation of Temporary Leachate Storage Pond **(Bid Item 44)**

a. Measurement by the cubic yard (CY) of excavation of soil from the temporary leachate storage pond will be made by comparing pre-construction topography of the construction area with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate soil within the project area, screen, load, haul, and place in areas requiring engineered fill as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, dewatering (if necessary), grading, and subgrade preparation as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Install Geomembrane Liner for Pond Bottom (**Bid Item 45**)

a. Measurement by the square foot (SF) based on a perimeter survey, slope corrected, of the completed pond installation. No adjustment will be made for uneven contours or for overlap at seams or wastage. No measurement will be made for geomembrane lost due to damage resulting from either the fault or the negligence of the CONTRACTOR. The measured area shall include geomembrane placed in the anchor trenches in accordance with the Specifications and to the neat line dimensions shown on the Construction Drawings.

b. Payment includes all costs to install geomembrane, geomembrane vents, and pipe boots as described in the Contract Documents and as shown on the Construction Drawings.

Install Floating Cover (**Bid Item 46**)

a. Measurement by the square foot (SF) based on a perimeter survey, slope corrected, of the completed cover installation. No adjustment will be made for uneven contours or for overlap at seams or wastage. No measurement will be made for geomembrane lost due to damage resulting from either the fault or the negligence of the CONTRACTOR. The measured area shall include geomembrane placed in the anchor trenches in accordance with the Specifications and to the neat line dimensions shown on the Construction Drawings.

b. Payment includes all costs to install geomembrane, geomembrane vents, pipe boots, and sand tubes as described in the Contract Documents and as shown on the Construction Drawings.

Install Geocomposite Vent Strips (**Bid Item 47**)

a. Measurement by the linear foot (LF) of geocomposite vent strips installed. Measurement based on as-built survey along the lines of the completed geocomposite vent strips.

b. Payment includes all costs to install the geocomposite vent strips as described in the Contract Documents and as shown on the Construction Drawings.

Excavate and Backfill Anchor Trenches (**Bid Item 48**)

a. Measurement by the linear foot (LF) of the floating cover and bottom liner anchor trenches installed. Measurement shall be based on actual length of the installed anchor trenches based on field survey.

b. Payment includes all costs to locate, excavate, and backfill the geomembrane terminations and anchor trenches as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Protective Cover **(Bid Item 49)**

a. Measurement by the cubic yard (CY) of protective cover will be made by multiplying the square feet of area of placed protective cover by the neat-line thickness shown on the Construction Drawings. The area will be adjusted for slopes; however, no adjustment will be made for uneven contours.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact, and finish grade) the protective cover on perimeter roads and benches around the pond as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply 4” Solid Wall HDPE Leachate Pipe (**Bid Item 50**)

a. Measurement by the linear foot (LF) based on actual length of pipe installed based on field survey.

b. Payment includes all costs to purchase and supply 4” solid wall HDPE leachate pipe, as described in the Contract Documents and as shown on the Construction Drawings.

Install 4” Solid Wall HDPE Leachate Pipe (**Bid Item 51**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe trench based on field survey.

b. Payment includes all costs to install 4" solid wall HDPE leachate pipe, furnish equipment and labor to excavate, backfill and otherwise construct the pipe and trench as described in the Contract Documents and as shown on the Construction Drawings.

Temporary Pipe Inlet (**Bid Item 52**)

a. Measurement by lump sum (LS).

b. Payment includes all costs to supply and install pipe, install liner boot, furnish equipment and labor to excavate, backfill and otherwise construct the pipe inlet as described in the Contract Documents and as shown on the Construction Drawings.

Temporary Leachate Storage Pond Operations and Maintenance (**Bid Item 53**)

a. Measurement by lump sum (LS).

b. Payment includes all costs necessary to operate and maintain the Temporary Leachate Storage Pond in accordance with the Temporary Leachate Storage Pond Operations and Maintenance Plan including but not limited to, purchase and supply rain water and leachate pumps, electrical power source, and associated piping as described in the Contract Documents. Payment also includes all costs to manage stormwater and leachate in accordance with the Temporary Leachate Storage Pond Operations and Maintenance Plan. Trucking of leachate (if necessary) is not included in this Bid Item and will be addressed per Note 9 of the Bid Schedule of Values.

Leachate Removal Sump and Riser (**Bid Item 54**)

a. Measured by lump sum (LS).

b. Payment includes all costs to purchase, supply, and install the drainage gravel, HDPE riser, riser support structure, and concrete containment/spill area. Payment shall also include the of the geotextile cushion/wrap as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include installation of temporary pumps (as needed) for leachate removal and transport to Dero Road sewer line.

Temporary Leachate Storage Pond Stormwater Emergency Spillway (**Bid Item 55**)

a. Measured by lump sum (LS).

b. Payment includes all costs associated with the supply and installation of the rip rap and geotextile, and to excavate and finish grade for the temporary leachate pond stormwater emergency spillway as described in the Contract Documents and as shown on the Construction Drawings.

Demolish Pond during Phase 2 Construction (**Bid Item 56**)

a. Measured by lump sum (LS).

b. Payment includes all costs associated with removing and disposing of leachate to the Dero Road sewer, geosynthetics, sandbag ballasts, sediments, drainage gravel, piping, concrete and support structures, and anchor trenches in order to prepare the area for the construction of the Phase 2 stormwater pond as described in the Contract Documents and as shown on the Construction Drawings.

Geosynthetics

Supply Geomembrane for Final Cover and Temporary Leachate Storage Pond Bottom Liner (**Bid Item 57**)

a. Measurement by the square foot (SF) of geomembrane material installed plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value including but not limited to material lost or damaged during the shipping process to the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all geomembrane necessary for the completion of the project as described in the Contract Documents and as shown on the Construction Drawings.

Install Geomembrane for Final Cover (**Bid Item 58**)

a. Measurement by the square foot (SF) of area installed based on a perimeter survey of the completed installation. No adjustment will be made for uneven contours or for overlap at seams or wastage. No measurement will be made for geomembrane lost due to damage resulting from either the fault or the negligence of the CONTRACTOR. The perimeter is defined as the neat line dimension shown on the perimeter details. The measured area includes geomembrane placed in

the anchor trenches in accordance with the Specifications and to the neat line dimensions shown on the Construction Drawings.

b. Includes all costs to install geomembrane as described in the Contract Documents and as shown on the Construction Drawings.

Supply Floating Cover for the Temporary Leachate Storage Pond (**Bid Item 59**)

a. Measurement by the square foot (SF) of floating cover material installed for the temporary leachate pond plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value including but not limited to material lost or damaged during the shipping process to the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all floating cover materials necessary for the completion of the temporary leachate pond as described in the Contract Documents and as shown on the Construction Drawings.

Supply Lower Geocomposite (**Bid Item 60**)

a. Measurement by the square foot (SF) of lower geocomposite material installed plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value including but not limited to material lost or damaged during the shipping process to the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all geocomposite necessary for the completion of the project as described in the Contract Documents and as shown on the Construction Drawings.

Install Lower Geocomposite (**Bid Item 61**)

a. Measurement by the square foot (SF) of area installed based on a perimeter survey of the completed installation. No adjustment will be made for uneven contours or for overlap at seams or wastage. No measurement will be made for geocomposite lost due to damage resulting from either the fault or the negligence of the CONTRACTOR.

The perimeter is defined as the neat line dimension shown on the perimeter details. The measured area includes geocomposite placed in the anchor trenches in accordance with the Specifications and to the neat line dimensions shown on the Construction Drawings.

b. Includes all costs to install geocomposite as described in the Contract Documents and as shown on the Construction Drawings.

Supply Upper Geocomposite (**Bid Item 62**)

a. Measurement by the square foot (SF) of upper geocomposite material installed plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value including but not limited to material lost or damaged during the shipping process to the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all geocomposite necessary for the completion of the project as described in the Contract Documents and as shown on the Construction Drawings.

Install Upper Geocomposite (**Bid Item 63**)

a. Measurement by the square foot (SF) of area installed based on a perimeter survey of the completed installation. No adjustment will be made for uneven contours or for overlap at seams or wastage. No measurement will be made for geocomposite lost due to damage resulting from either the fault or the negligence of the CONTRACTOR. The perimeter is defined as the neat line dimension shown on the perimeter details. The measured area includes geocomposite placed in the anchor trenches in accordance with the Specifications and to the neat line dimensions shown on the Construction Drawings.

b. Includes all costs to install geocomposite as described in the Contract Documents and as shown on the Construction Drawings.

Supply Geotextile (**Bid Item 64**)

a. Measurement by the square foot (SF) of geotextile material installed plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value including but not limited to material lost or damaged during the shipping process to

the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all geotextile necessary for the completion of the project as described in the Contract Documents and as shown on the Construction Drawings.

Supply 6" Geocell (**Bid Item 65**)

a. Measurement by the square foot (SF) of 6" geocell material installed plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value including but not limited to material lost or damaged during the shipping process to the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all 6" geocell necessary for the completion of the project as described in the Contract Documents and as shown on the Construction Drawings.

Supply 8" Geocell (**Bid Item 66**)

a. Measurement by the square foot (SF) of 8" geocell material installed plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value including but not limited to material lost or damaged during the shipping process to the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all 8" geocell necessary for the completion of the project as described in the Contract Documents and as shown on the Construction Drawings.

Supply Polyester Tendons (**Bid Item 67**)

a. Measurement by the linear foot (LF) based on actual length of installed polyester tendons based on field survey.

b. Payment includes all costs to purchase the polyester tendons as described in the Contract Documents and as shown on the Construction Drawings.

Supply Kevlar Tendons (**Bid Item 68**)

a. Measurement by the linear foot (LF) based on actual length of installed Kevlar tendons based on field survey.

b. Payment includes all costs to purchase the Kevlar tendons as described in the Contract Documents and as shown on the Construction Drawings.

Install Geocell System (**Bid Item 69**)

a. Measurement by the square foot (SF) of area installed based on a perimeter survey of the completed installation. No adjustment will be made for uneven contours or for overlap at seams or wastage. No measurement will be made for geocell lost due to damage resulting from either the fault or the negligence of the CONTRACTOR. The perimeter is defined as the neat line dimension shown on the perimeter details. The measured area includes geocell placed in the anchor trenches in accordance with the Specifications and to the neat line dimensions shown on the Construction Drawings.

b. Includes all costs to install geocell including tendons and anchorage as described in the Contract Documents and as shown on the Construction Drawings.

Stormwater

Supply and Install Perimeter Road Box Culvert with Headwall (2'x4') (**Bid Item 70**)

a. Measurement by the linear foot (LF) based on actual length of installed culvert based on field survey.

b. Payment includes all costs to purchase, supply, and install precast box culverts including trenching, backfill, bedding, formwork, reinforcement, concrete, shaping, and finishing headwalls, inlets and outlets as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Perimeter Road Box Culvert with Headwall (3'x6') (**Bid Item 71**)

a. Measurement by the linear foot (LF) based on actual length of installed culvert based on field survey.

b. Payment includes all costs to purchase, supply, and install precast box culverts including trenching, backfill, bedding, formwork, reinforcement, concrete, shaping, and finishing headwalls, inlets and outlets as described in the Contract Documents and as shown on the Construction Drawings.

Drainage Dissipator/Redirector (**Bid Item 72**)

a. Measurement by each (EA) dissipator or redirector supplied and installed.

b. Payment includes all costs to purchase, supply, and install formwork, reinforcement, concrete, half pipe, shape, and finish each dissipator or redirector as described in the Contract Documents and as shown on the Construction Drawings.

Bench Channel Dissipator (**Bid Item 73**)

a. Measurement by each (EA) bench channel dissipator supplied and installed.

b. Payment includes all costs to purchase, supply, and install rip rap and geotextile and finish each bench channel dissipator as described in the Contract Documents and as shown on the Construction Drawings.

Supply 36” HDPE Storm Drain Pipe (**Bid Item 74**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install 36” HDPE Storm Drain (**Bid Item 75**)

a. Measurement by the linear foot (LF) based on actual length of installed storm drain based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the storm drain as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply and install the utility trench backfill, connect to the manholes and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply 48" HDPE Storm Drain Pipe (**Bid Item 76**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install 48" HDPE Storm Drain (**Bid Item 77**)

a. Measurement by the linear foot (LF) based on actual length of installed storm drain based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the storm drain as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply and install the utility trench backfill, connect to the manholes and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply 60" HDPE Storm Drain Pipe (**Bid Item 78**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install 60" HDPE Storm Drain (**Bid Item 79**)

a. Measurement by the linear foot (LF) based on actual length of installed storm drain based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the storm drain as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply and install the utility trench backfill, connect to the manholes and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply 60" HDPE Pond 2 Down Drain Pipe (**Bid Item 80**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install 60" HDPE Pond 2 Down Drain Pipe with Energy Dissipator (**Bid Item 81**)

a. Measurement by the linear foot (LF) based on actual length of installed storm drain based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the down drain as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply and install the utility trench backfill, connect to the manholes and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply 60" HDPE Pond 3 Down Drain Pipe (**Bid Item 82**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install 60" HDPE Pond 3 Down Drain Pipe with Energy Dissipator (**Bid Item 83**)

a. Measurement by the linear foot (LF) based on actual length of installed storm drain based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the storm drain as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of stockpile areas as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, dewatering as necessary to supply and install the utility trench backfill, connect to the manholes and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Box Manholes (8'x8'x10') (**Bid Item 84**)

a. Measurement by each (EA) each manhole supplied and installed.

b. Payment includes all costs to purchase and supply, bedding and backfill and each precast manhole, including the concrete base, risers, manhole covers, and concrete bottom (infill) materials as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Energy Dissipator Manholes (8'x10'x11') (**Bid Item 85**)

a. Measurement by each (EA) each manhole supplied and installed.

b. Payment includes all costs to purchase and supply and backfill each precast manhole, the concrete base, risers, manhole covers, and including concrete bottom (infill) materials as described in the Contract Documents and as shown on the Construction Drawings.

East Side Grouted Rip Rap Channel (**Bid Item 86**)

a. Measurement by the square foot (SF) of area installed based on a perimeter survey of the completed installation. No adjustment will be made for uneven contours. The perimeter is defined as the neat line dimension shown on the details.

b. Payment includes all costs to excavate, and grade channel, purchase, supply, and place geotextile, rip rap and grout and to supply and install concrete formwork, reinforcement, concrete, shape, finish, and backfill the grouted rip rap channel including inlets, transitions, headwalls, and outlets as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Top Deck Berm (**Bid Item 87**)

a. Measurement by the linear foot (LF) based on actual length of installed berm based on field survey.

b. Payment includes all costs to supply and install soil and down chutes for the top deck berms including furnishing equipment and labor to excavate, haul, place, process and compact the berm materials as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Erosion Control

Supply Erosion Control Mat (**Bid Item 88**)

a. Measurement by the square foot (SF) of erosion control mat material installed plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value including but not limited to material lost or damaged during the shipping process to the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all erosion control mat necessary for the completion of the project as described in the Contract Documents and as shown on the Construction Drawings.

Install Erosion Control Mat (**Bid Item 89**)

a. Measurement by the square foot (SF) of area installed based on a perimeter survey of the completed installation. No adjustment will be made for uneven contours or for overlap at seams or wastage. No measurement will be made for erosion mat lost due to damage resulting from either the fault or the negligence of the CONTRACTOR. The perimeter is defined as the neat line dimension shown on the perimeter details. The measured area includes erosion mat placed in the anchor trenches in accordance with the Specifications and to the neat line dimensions shown on the Construction Drawings.

b. Payment includes all costs to supply and install geotextile fabric, stakes, and staples, and to excavate and backfill trenches for the erosion control mat as described in the Contract Documents and as shown on the Construction Drawings.

Silt Fence (**Bid Item 90**)

a. Measurement by the linear foot (LF) based on actual length of installed silt fence based on field survey.

b. Payment includes all costs to supply and install geotextile fabric, fencing, and posts, and to excavate and backfill trenches for the silt fence as described in the Contract Documents and as shown on the Construction Drawings.

Silt Fence Check Dam (**Bid Item 91**)

a. Measurement by each (EA) silt fence check dam supplied and installed.

b. Payment includes all costs to supply and install geotextile fabric, cobble material, fencing, and posts, and to excavate and backfill trenches for the check dams as described in the Contract Documents and as shown on the Construction Drawings.

Stabilized Construction Entrances (**Bid Item 92**)

a. Measurement by each (EA) for the stabilized construction entrance supplied and installed.

b. Payment includes all costs to supply and install geotextile fabric and quarry spalls and to excavate and backfill the stabilized construction entrance shown on the Construction Drawings.

Straw Wattles (**Bid Item 93**)

a. Measurement by the linear foot (LF) based on actual length of straw wattles based on field survey.

b. Payment includes all costs to supply and install wattles and stakes for the straw wattles as described in the Contract Documents and as shown on the Construction Drawings.

Placement of Clearing and Stripping Mulch (**Bid Item 94**)

a. Measurement by the square foot (SF) of area installed based on a perimeter survey of the completed installation. No adjustment will be made for uneven contours or wastage. No measurement will be made for placing mulch due to damage resulting from either the fault or the negligence of the CONTRACTOR.

b. Includes all costs to load, haul, place, and install the mulch as described in the Contract Documents and as shown on the Construction Drawings.

Miscellaneous

Security Fence (**Bid Item 95**)

a. Measurement by the linear foot (LF) based on actual length of security fence installed based on field survey.

b. Payment includes all costs to supply and install fence, posts, footings, concrete pig barrier, barbed wire, wire arms, entrance and man gates, and appurtenances for the security fence as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing of vegetation in a 20-foot wide strip on each side of the security fence.

New Electrical Service (**Bid Item 96**)

a. Measurement by lump sum (LS) for electrical equipment supplied and installed.

b. Payment includes all costs to purchase, supply and install electrical conduit, pull- and junction-boxes, fittings, cables and wire and labor to excavate, backfill, compact and otherwise construct electrical trenching to supply electrical power to the new electrical service entrance equipment as shown on the Construction Drawings. Payment shall also include all costs to purchase and install utility meter socket, main electrical disconnect and unit substation, including all grounding, convenience and maintenance power receptacles, and electrical appurtenances required by Code as shown on the Construction Drawings. Payment shall also include all costs and fees required for coordination with Guam Power Authority to install and activate new electrical service.

Supply and Install Engineered Fill and Drainage Culverts for Access Road (**Bid Item 97**)

a. Measurement by lump sum (LS) for construction of engineered fill for the access road on the northeast side of the dump.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact and finish grade) engineered fill and corrugated double-wall smooth interior HDPE pipe drainage culverts for the access road on the northeast side of the property shown on Drawing C04 and as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the road and borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), concrete headwalls, riprap, and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Protective Cover for Access Road **(Bid Item 98)**

a. Measurement by the cubic yard (CY) of protective cover will be made by multiplying the square feet of area surveyed for the road by 1 foot. The

area will be adjusted for slopes; however, no adjustment will be made for uneven contours.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact, and finish grade) the protective cover on the access road on the northeast side of the property shown on Drawing C04 and as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Landfill Gas Collection System

Supply 6" solid SDR-17 HDPE pipe for Landfill Gas Collection Laterals and Vertical Landfill Gas Extraction Wells (**Bid Item 99**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply 6" perforated SDR-17 HDPE pipe for Vertical Landfill Gas Extraction Wells (**Bid Item 100**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply 8" solid SDR-17 HDPE pipe for Landfill Gas Collection Header (**Bid Item 101**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe, fitting and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install Landfill Gas Wellheads for Vertical Landfill Gas Extraction Wells and Horizontal Collector Trenches (**Bid Item 102**)

a. Measurement by each (EA) landfill gas wellhead supplied and installed.

b. Payment includes all costs to purchase, supply and install each landfill gas wellhead as described in the Contract Documents and as shown on the Construction Drawings. Payment includes connection to landfill gas collection laterals, connection to horizontal collector trenches and vertical landfill gas extraction wells, and fittings and incidentals.

Install 8" solid SDR-17 HDPE pipe for Landfill Gas Collection Headers (**Bid Item 103**)

a. Measurement by the linear foot (LF) based on actual length of installed landfill gas collection header based on field survey.

b. Payment includes all costs to locate, excavate, supply and install backfill, compact and otherwise construct the landfill gas collection header as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also include the installation of metallic warning ribbon, liner boots, and 8" solid SDR-17 HDPE Pipe, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install 8" Valves for Landfill Gas Collection Headers (**Bid Item 104**)

a. Measurement by each (EA) landfill gas collection header valve supplied and installed.

b. Payment includes all costs to purchase, supply and install each landfill gas collection header valve as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install Access/Monitoring Ports for Landfill Gas Collection Header (**Bid Item 105**)

a. Measurement by each (EA) landfill gas collection header access/monitoring port supplied and installed.

b. Payment includes all costs to purchase, supply and install each landfill gas collection header access/monitoring port as described in the Contract Documents and as shown on the Construction Drawings.

Install 6” solid SDR-17 HDPE pipe for Landfill Gas Collection Laterals (**Bid Item 106**)

a. Measurement by the linear foot (LF) based on actual length of installed landfill gas collection lateral based on field survey.

b. Payment includes all costs to locate, excavate, supply and install backfill, compact and otherwise construct the landfill gas collection lateral as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also include the installation of connection to landfill gas wellheads and landfill gas collection headers, metallic warning ribbon, liner boots, and 6” solid SDR-17 HDPE Pipe, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install Horizontal Collector Trenches (**Bid Item 107**)

a. Measurement by linear foot (LF) based on actual length of installed horizontal collector trench based on field survey.

b. Payment includes all costs to locate, excavate, supply and install 6” N-12 ADS perforated gas collection pipe, supply and install backfill, compact and otherwise construct the horizontal collector trenches as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also include the installation of connection to landfill gas wellheads and landfill gas collection headers, metallic warning ribbon, liner boots, and 6” N-12 ADS Pipe, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install Access/Monitoring Ports for Horizontal Collection Trenches (**Bid Item 108**)

a. Measurement by each (EA) horizontal collection trench access/monitoring port supplied and installed.

b. Payment includes all costs to purchase, supply and install each horizontal collection trench access/monitoring port as described in the Contract Documents and as shown on the Construction Drawings.

Drill Vertical Landfill Gas Extraction Wells (**Bid Item 109**)

a. Measurement by linear foot (LF) based on the actual depth of 24" diameter borehole drilled for vertical landfill gas extraction wells.

b. Payment includes all costs to locate and drill vertical landfill gas extraction wells as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, excavation, filling and grading to prepare the drilling locations, solid waste removal and management, and dust and odor control. No additional allowances shall be allowed for shrinkage, swelling, creep or unauthorized over-drilling beyond the depths indicated in the Contract Documents and as shown on the Construction Drawings.

Supply Drainage Material for Vertical Landfill Gas Extraction Wells (**Bid Item 110**)

a. Measurement by the cubic yard (CY) of drainage material will be made by multiplying the linear feet of borehole depth by the neat-line design cross-sectional area of the borehole minus the collection pipe cross section shown on the Construction Drawings.

b. Payment includes all costs to supply the drainage material in the vertical landfill gas extraction wells as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the drainage material.

Install Vertical Landfill Gas Extraction Wells (**Bid Item 111**)

a. Measurement by linear foot (LF) based on the actual depth of the installed vertical landfill gas extraction well.

b. Payment includes all costs to install the vertical landfill gas extraction well as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include the installation of drainage material, 6" perforated SDR-17 HDPE pipe, 6" solid SDR-17 HDPE pipe, flanged connections for wellheads and laterals, well-washer, bentonite seal, solid backfill, liner boot and incidentals necessary for a complete installation.

Supply and install Phase 1 Condensate Sump and tie-in to Leachate Collection Trench Manhole (**Bid Item 112**)

a. Measurement by lump sum (LS).

b. Payment includes all costs to purchase, supply and install the Phase 1 condensate sump and tie-in to the leachate collection trench manhole as described in the Contract Documents and as shown on the Construction Drawings. Payment shall include clearing, grubbing, excavating, dewatering, grading, backfill, 4" solid SDR-17 HDPE condensate drain from the flare station condensate drop-out structure, condensate sump, 4" solid SDR-17 HDPE condensate drain to the leachate collection manhole, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install Flare Station Condensate Drop-Out Structure (**Bid Item 113**)

a. Measurement by lump sum (LS).

b. Payment includes all costs to purchase, supply and install the flare station condensate drop-out structure as described in the Contract Documents and as shown on the Construction Drawings. Payment shall include clearing, grubbing, excavating, dewatering, grading, backfill, connection to 4" solid SDR-17 HDPE condensate drain to the condensate sump, connections to landfill gas collection header, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Landfill Gas Migration Control Trench

Supply 6" perforated SDR-17 HDPE pipe for Migration Control Trench (**Bid Item 114**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply 8" solid SDR-17 HDPE pipe for Migration Control Trench Header (**Bid Item 115**)

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to supply the pipe, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install Landfill Gas Wellheads for Migration Control Trench (**Bid Item 116**)

a. Measurement by each (EA) landfill gas wellhead supplied and installed.

b. Payment includes all costs to purchase, supply and install each landfill gas wellhead as described in the Contract Documents and as shown on the Construction Drawings. Payment includes connection to migration control trench collector, connection to migration control trench header, fittings and incidentals.

Supply Drainage Material for Migration Control Trench (**Bid Item 117**)

a. Measurement by the cubic yard (CY) of drainage material will be made by multiplying the linear feet of trench surveyed by the average depth of the trench times the neat-line design width (trench cross-section) minus the collection pipe cross section shown on the Construction Drawings.

b. Payment includes all costs to supply the drainage material in the migration control trench as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the drainage material.

Install Migration Control Trench (**Bid Item 118**)

a. Measurement by the linear foot (LF) based on actual length of installed migration control trench based on field survey.

b. Payment includes all costs to locate, excavate, supply backfill, compact and otherwise construct the migration trench as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the utility trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also include the installation of the drainage material, geotextile materials, 6” solid SDR-17 HDPE wellhead riser pipe, 6” solid SDR-17 lateral pipe connection to migration control header and 6”

perforated SDR-17 HDPE pipe as described in the Contract Documents and as shown on the Construction Drawings.

Install 8" solid SDR-17 HDPE pipe for Landfill Gas Migration Control Trench Header (**Bid Item 119**)

a. Measurement by the linear foot (LF) based on actual length of installed landfill gas migration control trench header based on field survey.

b. Payment includes all costs to locate, excavate, supply and install backfill, compact and otherwise construct the landfill gas migration control trench header as described in the Contract Documents and as shown on the Construction Drawings. Payment shall also include clearing, grubbing, and stripping of the borrow areas off-site as necessary, screening, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to supply the trench backfill and complete the construction to the lines, grades, and dimensions shown on the Construction Drawings. Payment shall also include the installation of metallic warning ribbon, and 8" solid SDR-17 HDPE Pipe, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install Phase 2 Condensate Sump and tie-in to Leachate Collection Trench Manhole (**Bid Item 120**)

a. Measurement by lump sum (LS).

b. Payment includes all costs to purchase, supply and install the Phase 2 condensate sump and tie-in to the leachate collection trench manhole as described in the Contract Documents and as shown on the Construction Drawings. Payment shall include clearing, grubbing, excavating, dewatering, grading, backfill, 4" solid SDR-17 HDPE condensate drain to leachate collection manhole, condensate sump, fittings and incidentals as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install 8" Valves for Migration Control Trench (**Bid Item 121**)

a. Measurement by each (EA) migration control trench valve supplied and installed.

b. Payment includes all costs to purchase, supply and install each migration control trench valve as described in the Contract Documents and as shown on the Construction Drawings.

Supply and install Access/Monitoring Ports for Migration Control Trench (**Bid Item 122**)

a. Measurement by each (EA) migration control trench access/monitoring port supplied and installed.

b. Payment includes all costs to purchase, supply and install each migration control trench access/monitoring port as described in the Contract Documents and as shown on the Construction Drawings.

Landfill Gas Flare Station

Supply and install Landfill Gas Flare (**Bid Item 123**)

a. Measured by lump sum (LS).

b. Payment includes all costs to purchase, supply and install the skid-mounted landfill gas utility flare as described in the Contract Documents and as shown on the Construction Drawings. Payment also includes electrical power supply, area lighting, piping necessary to connect to the landfill gas collection header and condensate sump, clearing, grubbing, excavating, dewatering, grading, filling and reinforced concrete pad. Payment includes satisfactory start-up, commissioning, operations manual and operator training, and spare blower.

Electrical Supply to LFG Flare (**Bid Item 124**)

a. Measurement by lump sum (LS) for electrical equipment supplied and installed.

b. Payment includes all costs to purchase, supply and install electrical conduit, pull- and junction-boxes, fittings, cables and wire and labor to excavate, backfill, compact and otherwise construct electrical trenching to supply electrical power to the LFG Flare gas blower(s) as shown on the Construction Drawings. Payment shall also include all costs to purchase and install unit substation, including all grounding, convenience and maintenance power receptacles, and electrical appurtenances required by Code as shown on the Construction Drawings.

Leachate Storage and Pumping Station

16,000-gallon Bolted Steel Tank on Slab on Grade (**Bid Item 125**)

a. Measurement by each (EA) bolted steel tank supplied and installed.

b. Payment includes all costs to supply and install pre-engineered bolted steel tank, foundation anchorage design, foundation, pipe connections, and accessories as described in the Contract Documents and as shown on

the Construction Drawings.

Supply and Install 10 HP Leachate Pumps and Piping (**Bid Item 126**)

a. Measurement by lump sum (LS) for the leachate pump and piping supplied and installed.

b. Payment includes all costs to supply and install leachate pumps, controls, piping from the tanks to the start of the forcemain outside of the secondary containment wall, piping between tanks, valves, fittings, and pipe supports for a working system as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Leachate Secondary Containment **(Bid Item 127)**

a. Measurement by the cubic yard (CY) of concrete will be made by multiplying the square feet of area by the design thickness the slab plus the length by height by design thickness of the containment wall.

b. Payment includes all costs to supply and install concrete secondary containment including clearing and stripping of the immediate site, protective cover material for base, reinforcement, grouted pipe penetrations, and drain line with valve and riprap pad as described in the Contract Documents and as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Concrete Pipe Supports **(Bid Item 128)**

a. Measurement by each (EA) concrete pipe support for leachate drain and interceptor pipes to the storage tanks.

b. Payment includes all costs to supply and install concrete supports including reinforcement, footing, and pipe straps as described in the Contract Documents and as shown on the Construction Drawings.

Electrical Supply and Site Lighting to Leachate Pumps (**Bid Item 129**)

a. Measurement by lump sum (LS) for electrical equipment supplied and installed.

b. Payment includes all costs to purchase, supply and install electrical conduit, pull- and junction-boxes, fittings, cables and wire and labor to excavate, backfill, compact and otherwise construct electrical trenching to supply electrical power to the leachate pumps and nearby electrical lighting as shown on the Construction Drawings. Payment shall also

include all costs to purchase and install unit substation, including all grounding, site lighting poles, base and luminaires, convenience and maintenance power receptacles, and electrical appurtenances required by Code as shown on the Construction Drawings.

Supply and Install 4" PVC or HDPE Forcemain Pipe Onsite (**Bid Item 130**)

a. Measurement by linear foot (LF) based on actual length of installed of 4" forcemain pipe and trench based on field survey.

b. Payment includes all costs to purchase, supply and install 4" PVC or solid HDPE pipe, furnish equipment and labor to excavate, backfill and otherwise construct the pipe and trench as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install 2" Air Vacuum Valve Assembly (**Bid Item 131**)

a. Measurement by each (EA) below ground 2" air vacuum valve assembly supplied and installed.

b. Payment includes all costs to purchase, supply and install the air vacuum valve assembly, furnish equipment and labor to excavate, backfill and otherwise construct the air vacuum valve assembly and vault as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Sanitary Sewer Forcemain Clean-out (**Bid Item 132**)

a. Measurement by each (EA) sanitary sewer forcemain cleanout.

b. Payment includes all costs to purchase, supply and install the forcemain clean-out, furnish equipment and labor to excavate, backfill and otherwise construct the clean-out, cover, and concrete collar as described in the Contract Documents and as shown on the Construction Drawings.

Stormwater Pond Construction

Pond 1 Excavation **(Bid Item 133)**

a. Measurement by cubic yard (CY) of excavation of soil for Pond 1 will be made by comparing pre-construction topography of the construction area within the Pond 1 limits with post-excavation topography. Pre-construction topography will be established by field survey of existing

grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate soil within the Pond 1 area as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Pond 2 Excavation **(Bid Item 134)**

a. Measurement by cubic yard (CY) of excavation of soil for Pond 2 will be made by comparing pre-construction topography of the construction area within the Pond 2 limits with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate soil within the Pond 2 area as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Pond 3 Excavation **(Bid Item 135)**

a. Measurement by cubic yard (CY) of excavation of soil for Pond 3 will be made by comparing pre-construction topography of the construction area within the Pond 3 limits with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing

grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate soil within the Pond 3 area as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Pond 4 Excavation **(Bid Item 136)**

a. Measurement by cubic yard (CY) of excavation of soil for Pond 4 will be made by comparing pre-construction topography of the construction area within the Pond 4 limits with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate soil within the Pond 4 area as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Keyway Excavation **(Bid Item 137)**

a. Measurement by cubic yard (CY) of excavation of keyway for stormwater pond berms will be made by comparing pre-construction topography of the construction area within the berm limits with post-excavation topography and measurements. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot

grid and established major grade breaks. Post-excavation topography will be established by measurement of keyway cross-sections at a maximum of 50-foot spacing. Post-excavation survey will be performed at the end of the excavation. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate soil within the keyway area as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, and dewatering (if necessary), as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Low Permeability Soil Keyway **(Bid Item 138)**

a. Measurement by the cubic yard (CY) of low permeability soil from on-site excavation will be made by using the quantity of Keyway Excavation described in Bid Item **125**.

b. Payment includes all costs to supply and install (screen, load, haul, place, process, compact and finish grade) the low permeability keyway in areas of ponds requiring a berm as described in the Contract Documents. Payment shall also include dust control and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Stormwater Pond Berm **(Bid Item 139)**

a. Measurement by the cubic yard (CY) of engineered fill from on-site excavation will be made by comparing pre-construction topography of the construction area within the berm limits with post-excavation topography and measurements. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by measurement of berm cross-sections at a maximum of 50-foot spacing. Post-excavation survey will be performed at the end of the excavation. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to supply and install (screen, load, haul, place, process, compact and finish grade) stormwater pond berm in areas of ponds requiring a berm as described in the Contract Documents. Payment shall also include dust control and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on

the Construction Drawings.

Supply and Install Outlet Risers **(Bid Item 140)**

a. Measurement by each (EA) Stormwater Pond Outlet Riser supplied and installed.

b. Payment includes all costs to purchase, supply, and install the HDPE riser, concrete pedestal, orifice slots, inlet pipe and orifice plate, and trash rack as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install 12" HDPE Pipe from Energy Dissipator Manholes to Pond 2 and Pond 3 **(Bid Item 141)**

a. Measurement by the linear foot (LF) based on actual length of installed pipe and trench based on field survey.

b. Payment includes all costs to purchase, supply and install 12" corrugated double-wall smooth interior HDPE pipe, furnish equipment and labor to excavate, backfill and otherwise construct the pipe and trench as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install 24" Outlet Pipe **(Bid Item 142)**

a. Measurement by the linear foot (LF) based on actual length of installed pipe and trench based on field survey.

b. Payment includes all costs to purchase, supply and install 24" corrugated double-wall smooth interior HDPE pipe, furnish equipment and labor to excavate, backfill and otherwise construct the pipe and trench as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install 30" Outlet Pipe **(Bid Item 143)**

a. Measurement by the linear foot (LF) based on actual length of installed pipe and trench based on field survey.

b. Payment includes all costs to purchase, supply and install 30" corrugated double-wall smooth interior HDPE pipe, furnish equipment and labor to excavate, backfill and otherwise construct the pipe and trench as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install 36" Outlet Pipe **(Bid Item 144)**

a. Measurement by the linear foot (LF) based on actual length of installed pipe and trench based on field survey.

b. Payment includes all costs to purchase, supply and install 36" corrugated double-wall smooth interior HDPE pipe, furnish equipment and labor to excavate, backfill and otherwise construct the pipe and trench as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Concrete Anti-Seep Collars **(Bid Item 145)**

a. Measurement by the each (EA) for the concrete anti-seep collars.

b. Payment includes all costs to purchase, supply, excavate, grade, and install the concrete for anti-seep collars including reinforcement as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Pond Outfall and Rip Rap Apron for Ponds 1, 2, and 3 **(Bid Item 146)**

a. Measured by each (EA) pond outfall supplied and installed.

b. Payment includes all costs to purchase supply, excavate, grade and install the rip rap and geotextile, and concrete headwall for the stormwater pond outlet as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Grouted Rip Rap Swale and Pad **(Bid Item 147)**

a. Measured by square foot (sf) of area of grouted rip rap supplied and installed.

b. Payment includes all costs associated with the supply and installation of the rip rap and grout, and to excavate and finish grade for the box culvert outlet or grouted rip rap slope as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Spillway Rip Rap **(Bid Item 148)**

a. Measured by cubic yard (CY) of area of rip rap supplied and installed.

b. Payment includes all costs associated with the supply and installation of the rip rap and geotextile for the stormwater pond emergency spillway.

Payment shall also include clearing, grubbing, and stripping of the spillway area, dust control, excavation and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Concrete Emergency Spillway **(Bid Item 149)**

a. Measurement by each (EA) for the concrete emergency spillway.

b. Payment includes all costs to purchase, supply, excavate, grade, and install the concrete for emergency spillway including reinforcement and cutoff collar as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install Stormwater Pond Access Road **(Bid Item 150)**

a. Measurement by the square yard (SY) of protective cover access road will be made by the square yard of area surveyed for the roads. No adjustment will be made for uneven contours.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact, and finish grade) the protective cover on the roads as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Level Spreader **(Bid Item 151)**

a. Measurement by each (EA) for the level spreader.

b. Payment includes all costs to excavate and grade a level spreader as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping as necessary, dust control, and moisture conditioning as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Planting of Stormwater Ponds **(Bid Item 152)**

a. Measurement by the lump sum (LS) for the planting of the stormwater ponds.

b. Payment includes all costs to purchase, supply, plant, and irrigate the plantings for the stormwater ponds per type and density as described in the Contract Documents and as shown on the Construction Drawings.

Dero Road Sewer and Pump Station

Traffic Control, Coordination and Pot Holing **(Bid Item 153)**

a. Measurement by the lump sum (LS) for traffic control, utility coordination and subcontractor coordination, and pot holing for the Dero Road sanitary sewer line and pump station.

b. Payment includes all costs for traffic control, subcontractor management, pot holing of possible utility conflicts, protection of wetlands and cultural resources, including but not limited to labor, materials, equipment, preparation of work plans, and any other administrative costs necessary to complete the Work as described in the Contract Documents. Payment also includes all temporary environmental controls and site security.

Supply and Install 4' Diameter Manhole **(Bid Item 154)**

a. Measurement by each (EA) manhole supplied and installed.

b. Payment includes all costs to purchase, supply, and install each manhole and the concrete base and concrete bottom (infill) materials, furnish equipment and labor to excavate, backfill, coat and otherwise construct the manhole as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install 8” PVC SDR-25 Pipe **(Bid Item 155)**

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to purchase, supply and install the pipe, furnish equipment and labor to excavate, backfill and otherwise construct the pipe and trench as described in the Contract Documents and as shown on the Construction Drawings.

Supply and Install 6” PVC or HDPE Forcemain Pipe from GWA Pump Station **(Bid Item 156)**

a. Measurement by the linear foot (LF) based on actual length of installed pipe based on field survey.

b. Payment includes all costs to purchase, supply and install the pipe, furnish equipment and labor to excavate, backfill and otherwise construct the pipe and trench as described in the Contract Documents and as shown on the Construction Drawings.

Concrete Encasement **(Bid Item 157)**

a. Measurement by the linear foot (LF) based on actual length of installed pipe encased based on field survey.

b. Payment includes all costs to purchase, supply and install the reinforcement and concrete as described in the Contract Documents and as shown on the Construction Drawings.

Lateral Sewer Lines **(Bid Item 158)**

a. Measurement by each (EA) sewer lateral supplied and installed.

b. Payment includes all costs to purchase, supply and install the connection, pipe, and cleanout, furnish equipment and labor to excavate, backfill and otherwise construct the sewer lateral and trench as described in the Contract Documents and as shown on the Construction Drawings.

Temp Asphalt Patch **(Bid Item 159)**

a. Measurement by the linear foot (LF) based on actual length of completed asphalt patch over length of installed pipe based on field survey. No adjustment will be made for wastage. The measured length shall include asphalt placed to patch existing asphalt surface for sanitary sewerline trench and manhole installation in accordance with the Specifications and to the dimensions shown on the Construction Drawings.

b. Payment includes all costs to supply and install 3” thick hot asphalt concrete pavement patch as described in the Contract Documents and as shown on the Construction Drawings.

Pump Station Site Work **(Bid Item 160)**

a. Measurement by lump sum (LS) for site work at the sewer pump station on Dero Road.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact and finish grade) engineered fill and to excavate and finish grade for the site work and gravel driveway as described in the Contract Documents. Payment shall also include

clearing, grubbing, and stripping of the pump station area, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Pump Station Generator Enclosure Building **(Bid Item 161)**

a. Measurement by the lump sum (LS) for the generator enclosure building.

b. Payment includes all costs to purchase, supply, excavate, grade, and install the concrete masonry unit generator enclosure building including reinforcement, concrete, foundation, roof, door, generator pad, and decorative blocks as described in the Contract Documents and as shown on the Construction Drawings.

Pump Station Electrical Supply, Site Lighting and Generator for Pump Station **(Bid Item 162)**

a. Measurement by lump sum (LS) for electrical equipment supplied and installed.

b. Payment includes all costs to purchase, supply and install electrical pedestal, conduit, pull- and junction-boxes, fittings, cables and wire and labor to excavate, backfill, compact and otherwise construct electrical trenching to supply electrical power to the new electrical service for the pump station and nearby electrical lighting as shown on the Construction Drawings. Payment shall also include all costs to purchase and install utility meter socket, main electrical disconnect and unit substation, genset, automatic transfer switch, including all grounding, site lighting poles, base and luminaires, convenience and maintenance power receptacles, and electrical appurtenances required by Code as shown on the Construction Drawings. Payment shall also include all costs and fees required for coordination with Guam Power Authority to install and activate new electrical service.

Pump Station Wet well & Valve Vault **(Bid Item 163)**

a. Measurement by the lump sum (LS) for the wet well and valve vault.

b. Payment includes all costs to purchase, supply, excavate, grade, and install the concrete wet well and valve vault including reinforcement, concrete, base, access hatches, vent, drain, hoist, trash basket and miscellaneous appurtenances for a complete wet well and valve vault as

described in the Contract Documents and as shown on the Construction Drawings.

Pump Station 1.2 HP Pumps, Piping & Controls **(Bid Item 164)**

a. Measurement by lump sum (LS) for the pumps, piping and controls supplied and installed.

b. Payment includes all costs to supply and install sewage pumps, guide rails, controls, piping from the wet well to the discharge point outside of the valve vault, valves, fittings, and to pipe supports for a working system as described in the Contract Documents and as shown on the Construction Drawings.

Pump Station Water Service **(Bid Item 165)**

a. Measurement by lump sum (LS) for the water service supplied and installed.

b. Payment includes all costs to supply and install connection to the public water system, water meter box assembly, valves, backflow assembly, piping, fittings, and to hose bibb for a working system as described in the Contract Documents and as shown on the Construction Drawings.

Western Channel Relocation

Mobilization and Demobilization **(Bid Item 166)**

a. Measurement by the lump sum (LS) for mobilizing of equipment and labor to perform work and demobilizing from and cleaning the site after all work and testing has been performed and accepted by the OWNER.

b. Payment as follows: 50 percent of lump sum amount upon completion of 10 percent of the Work, and 50 percent for demobilization and site cleanup; Payment includes all costs for mobilizing and demobilizing equipment, living expenses, bonds, insurance, office and field overhead, subcontractor management, preparation of work plans, reports, protection of wetlands and cultural resources, and any other administrative costs necessary to complete the Work as described in the Contract Documents. Payment also includes all temporary environmental controls and site security.

Surveying **(Bid Item 167)**

a. Measurement by the lump sum (LS) for the surveying to carry out the Work as described in the Contract Documents.

b. Payment as follows: 50 percent of lump sum amount upon completion of 10 percent of the Work, and 50 percent after demobilization and site cleanup. Payment includes all costs for surveying, staking, installation of monuments and markers as necessary for construction, record surveys, and measurement and payment to complete the Work as described in the Contract Documents.

Clearing and Stripping **(Bid Item 168)**

a. Measurement by the acre (AC) of the clearing and stripping will be based on a perimeter survey of the staked construction area as shown on the Construction Drawings.

b. Payment includes all costs to clear and strip (as necessary) the construction area of vegetation, transport to the top of the dump, and chip wood materials for use as erosion control materials as described in Contract Documents and as shown on the Construction Drawings.

Tree Protection **(Bid Item 169)**

a. Measurement by the actual number of linear feet (LF) installed as verified by the OWNER or OWNER's representative.

b. Payment includes all costs for furnishing, installing, maintaining, and tree protection fence as described in the Contract Documents and as shown on the Construction Drawings, including but not limited to: 4-foot-high orange barrier/safety fence; posts; braces; hardware; fence repairs; hauling; disposal of fence upon construction completion; and all else incidental thereto for which separate payment is not provided under other bid items.

Excavation of On-Site Topsoil (Inside Limits of Channel Relocation) **(Bid Item 170)**

a. Measurement by the cubic yard (CY) of excavation of soil from on-site will be made by comparing pre-construction topography of the construction area, outside of the final waste limits, but within the project area (i.e. not an off-site external borrow source) with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing

grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate soil within the project area, screen, load, haul, and place in areas requiring engineered fill as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Excavation of On-Site Soil (Inside Limits of Channel Relocation) **(Bid Item 171)**

a. Measurement by the cubic yard (CY) of excavation of soil from on-site will be made by comparing pre-construction topography of the construction area, outside of the final waste limits, but within the project area (i.e. not an off-site external borrow source) with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate soil within the project area, screen, load, haul, and place in areas requiring engineered fill as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Excavation of Rock (Inside Limits of Channel Relocation) **(Bid Item 172)**

a. Measurement by the cubic yard (CY) of excavation of rock from on-site will be made by comparing pre-construction topography of encountered rock in the construction area, outside of the final waste limits, but within

the project area (i.e. not an off-site external borrow source) with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes all costs to excavate rock within the project area, load, haul, and place in applicable areas of the relocated channel bed requiring fill as described in the Contract Documents. Payment shall also include stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Topsoil (From On-Site Topsoil Excavation) **(Bid Item 173)**

a. Measurement by the cubic yard (CY) of random fill from on-site excavation will be made by using the quantity of Excavation of On-Site Top-Soil described in Bid Item 170.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact and finish grade) engineered fill in areas outside the final waste limits as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas on-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Supply and Install Engineered Fill (From On-Site Excavation) **(Bid Item 174)**

a. Measurement by the cubic yard (CY) of engineered fill from on-site excavation will be made by using the quantity of Excavation of On-Site Soil described in Bid Item 171.

b. Payment includes all costs to supply and install (excavate, screen, load, haul, place, process, compact and finish grade) engineered fill in areas outside the final waste limits as described in the Contract Documents. Payment shall also include clearing, grubbing, and stripping of the borrow areas on-site as necessary, dust control, moisture conditioning, dewatering (if necessary), and grading, as necessary to complete the

construction to the lines, grades, and dimensions shown on the Construction Drawings.

Boulder Step-Pool Cross Vane **(Bid Item 175)**

a. Measurement by each (EA) boulder cross vane installed as shown on the Drawings and accepted by the OWNER or OWNER's representative.

b. Payment includes furnishing, and installing each boulder cross vane, including but not limited to: grading; installation; adjusting; excavating; placing backfill; maintaining the structure through acceptance; and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work as directed by the Engineer and described in the Contract Documents and as shown on the Construction Drawings.

Boulder Vane **(Bid Item 176)**

a. Measurement by each (EA) boulder vane installed as shown on the Drawings and accepted by the OWNER or OWNER's representative.

b. Payment includes furnishing, and installing each boulder cross vane, including but not limited to: grading; installation; adjusting; excavating; placing backfill; maintaining the structure through acceptance; and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work as directed by the Engineer and described in the Contract Documents and as shown on the Construction Drawings.

Constructed Cascade/Riffle Pool Complex **(Bid Item 177)**

a. Measurement by the actual linear feet (LF) of structure installed.

b. Payment includes furnishing and installing the cascade/riffle pools, including but not limited to: grading; installation; adjusting; excavating; placing backfill; maintaining the structure through acceptance; and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work described in the Contract Documents and as shown on the Construction Drawings.

Temporary Channel Crossing **(Bid Item 178)**

a. Measurement by each (EA) temporary crossing installed.

b. Payment includes furnishing and installing each temporary channel crossing, including but not limited to: grading; installation; adjusting; excavating; placing backfill; maintaining the structure through duration of the project; and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work described in the Contract Documents and as shown on the Construction Drawings.

Temporary Diversion Dike **(Bid Item 179)**

a. Measurement by the actual linear feet (LF) of temporary diversion dike installed.

b. Payment includes installing the temporary diversion dike, including but not limited to: grading; installation; adjusting; excavating; placing backfill; maintaining the structure through duration of the project; and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work described in the Contract Documents and as shown on the Construction Drawings.

Silt Fence **(Bid Item 180)**

a. Measurement by the lineal foot (LF) based on actual length of installed silt fence based on field survey.

b. Payment includes all costs to supply and install geotextile fabric, fencing, and posts, and to excavate and backfill trenches for the silt fence as described in the Contract Documents and as shown on the Construction Drawings.

Stabilized Construction Entrance **(Bid Item 181)**

a. Measurement by each (EA) for the stabilized construction entrance supplied and installed.

b. Payment includes all costs to supply and install geotextile fabric and quarry spalls and to excavate and backfill the stabilized construction entrance shown on the Construction Drawings.

Temporary Seed Mix **(Bid Item 182)**

a. Measurement by actual number of acres (AC) of temporary seed mix and mulching in place as measured along the surface of the ground completed and accepted. No direct payment will be made for furnishing and applying the limestone and fertilizer as such work and materials will be incidental to the work covered by Section 02924.

b. Payment includes all costs for labor, materials, tools, equipment, supervision and incidentals required to furnish and install temporary seed mix and mulching as specified herein, including but not limited to: seed; mulch; addition of soil amendments; watering; and all else incidental for which payment is not provided under other items. No payment will be made for seeded and mulched areas until the establishment of a sufficient growth of grass as examined and approved by the Engineer.

Native Seed Mix **(Bid Item 183)**

a. Measurement by actual number of acres (AC) of native seed mix and mulching in place as measured along the surface of the ground completed and accepted. No direct payment will be made for furnishing and applying the limestone and fertilizer as such work and materials will be incidental to the work covered by Section 02924.

b. Payment includes all costs for labor, materials, tools, equipment, supervision and incidentals required to furnish and install native seed mix and mulching as specified herein, including but not limited to: seed; mulch; addition of soil amendments; watering; and all else incidental for which payment is not provided under other items. No payment will be made for seeded and mulched areas until the establishment of a sufficient growth of grass as examined and approved by the Engineer.

Supply Channel Stabilization Blanket **(Bid Item 184)**

a. Measurement by the square foot (SF) of erosion control mat material installed plus 10% for wastage, overlaps, and seams. No additional measurement will be made for material supplied in excess of the 10% value, including but not limited to: material lost or damaged during the shipping process to the project site, excess material placed in anchor trenches beyond the neat-line design dimensions shown on the Construction Drawings, excess material used in overlapping panels, or material damaged during on-site transportation.

b. Payment includes all costs associated with supplying all erosion control mat necessary for the completion of the project as described in the Contract Documents and as shown on the Construction Drawings.

Install Channel Stabilization Blanket **(Bid Item 185)**

a. Measurement by the square foot (SF) of area installed based on a perimeter survey of the completed installation. No adjustment will be made for uneven contours or for overlap at seams or wastage. No

measurement will be made for erosion mat lost due to damage resulting from either the fault or the negligence of the CONTRACTOR. The perimeter is defined as the neat line dimension shown on the perimeter details. The measured area includes erosion mat placed in the anchor trenches in accordance with the Specifications and to the neat line dimensions shown on the Construction Drawings.

b. Payment includes all costs to supply and install geotextile fabric, stakes, and staples, and to excavate and backfill trenches for the erosion control mat as described in the Contract Documents and as shown on the Construction Drawings.

Shrubs-#2 Cont. **(Bid Item 186)**

a. Measurement by the actual number of each (EA) shrub delivered and installed as shown on the Construction Drawings.

b. Payment includes all costs required to furnish and install the actual number of shrubs including but not limited to: excavation and planting and all other work required for or incidental thereto for which separate payment is not provided under other bid items or as described in the Contract Documents and as shown on the Construction Drawings.

Tublings **(Bid Item 187)**

a. Measurement by the actual number of each (EA) tubling delivered and installed as shown on the Construction Drawings.

b. Payment includes all costs required to furnish and install the actual number of tublings, including but not limited to: excavation and planting and all other work required for or incidental thereto for which separate payment is not provided under other bid items or as described in the Contract Documents and as shown on the Construction Drawings.

Plug Containers

(Bid Item 188)

a. Measurement by the actual number of each (EA) plug container delivered and installed as shown on the Construction Drawings.

b. Payment includes all costs required to furnish and install the actual number of plug container, including but not limited to: excavation and planting and all other work required for or incidental thereto for which

separate payment is not provided under other bid items or as described in the Contract Documents and as shown on the Construction Drawings.

Allowance for Excavation of Rock (Inside Limits of Channel Relocation) **(Bid Item 189)**

a. Measurement by the cubic yard (CY) of excavation of rock from on-site will be made by comparing pre-construction topography of encountered rock in the construction area, outside of the final waste limits, but within the project area (i.e. not an off-site external borrow source) with post-excavation topography. Pre-construction topography will be established by field survey of existing grades immediately before excavation. Survey will establish existing grades at a maximum 50-foot grid and established major grade breaks. Post-excavation topography will be established by similar survey at a maximum 50-foot grid and also established major grade breaks. Post-excavation survey will be performed at the end of construction. Calculations will be made on an average end area basis vertically by 2-foot contour interval.

b. Payment includes allowance for all costs to excavate rock within the project area, load, haul, and place in applicable areas of the relocated channel bed requiring fill as described in the Contract Documents. Payment shall also include stripping of the excavation area, dust control, dewatering (if necessary), and grading, as necessary to complete the construction to the lines, grades, and dimensions shown on the Construction Drawings.

Abandonment of Monitoring Wells (Both Groundwater and Landfill Gas Wells) **(Bid Item 190)**

a. Measurement by the lump sum (LS) for the abandonment of existing groundwater and landfill gas migration monitoring wells listed in or shown on the Contract Documents and Construction Drawings. Measurement shall be complete when all abandonments have been completed per Section 13922 and accepted by OWNER or OWNER's representative.

b. Payment includes all costs to properly abandon the wells including drilling permits, Licensed Well Driller inspection of every well hole prior to work, mobilization of equipment and personnel, surveying, health and safety provisions and UXO monitoring, supplies, materials, over-drilling to depths shown in Table 2 on Drawing C63, onsite disposal of cuttings from over-drilling in Dump prior to placement and grading of foundation layer, tremie placement of Portland cement-bentonite from bottom of over-

drilled borehole to ground surface as described in the Contract Documents as necessary to complete the construction at the locations, elevations, and dimensions shown on the Construction Drawings. Payment also includes timely advance notice to Guam Environmental Protection Agency (GEPA) of initiation of abandonments, GEPA approval of the work, and report and copies of signed and dated logbooks.

Installation of New Monitoring Wells (Both Groundwater and Landfill Gas Wells) **(Bid Item 191)**

a. Measurement by the lump sum (LS) for the installation of new groundwater and landfill gas migration monitoring wells listed in or shown on the Contract Documents and Construction Drawings. Measurement shall be complete when all installations have been completed per Sections 13920 and 13921 and accepted by OWNER or OWNER's representative.

b. Payment includes all costs to properly install the wells including drilling permits, mobilization of equipment and personnel, surveying, health and safety provisions and UXO monitoring, supplies, materials, drilling to depths shown in Table 1 on Drawing C63, onsite disposal of cuttings from drilling in Dump prior to placement and grading of foundation layer, placement of filter pack and screen, placement of bentonite annular seal, installation of casing, tremie placement of Portland cement-bentonite from top of annular seal to ground surface, installation of protective casing and other protective measures, v-notch measurement point, installation of concrete pad, and provision of well operating permits from GEPA as described in the Contract Documents as necessary to complete the construction at the locations, elevations, and dimensions shown on the Construction Drawings. Payment also includes well completion report(s) and copies of signed and dated logbooks.

Allowance for Unforeseen Conditions **(Bid Item 192)**

a. This item is an allowance all Bidders must include in their Bid with a value of $300,000 to be used to pay for unforeseen conditions. The Contractor shall not begin any work under this item without prior written authorization of the Contracting Officer.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 02222

ENGINEERED AND RANDOM FILL, UTILITY AND ANCHOR TRENCH BACKFILL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for the placement of engineered fill. Engineered fill includes all fill to be placed outside of the final waste limits. Engineered fill also includes but is not limited to diversion berms, fills for the western channel relocation, channel structures, and for other structures requiring engineered fill per the Drawings or Specifications.

B. Requirements for the placement of Random fill. Random fill includes fill to be placed within the final waste limits up to the bottom of foundation layer grades (excluding waste fills).

B. Requirements for the placement of the backfill within utility trenches.

C. Requirements for the placement of the backfill within anchor trenches.

1.2 RELATED SECTIONS

A. Section 02105 – Clearing and Stripping.

B. Section 02110 – Structure Demolition.

C. Section 02112 – Solid Waste Relocation and Consolidation.

D. Section 02221 – Excavating and Stockpiling.

E. Section 02223 – Foundation Layer and Protective Cover.

F. Section 02240 – Channel Construction-Grading Complete.

G. Section 02320 – Channel Structures.

H. Section 13922 – Borehole and Well Abandonment

1.3 REFERENCES

A. ASTM D698-12 — Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.

B. ASTM D 1556-07 — Standard Test Method for determining soil density, Sand Cone Method.

C. ASTM D 2216-10 — Standard Test Method for determining water content of soil aggregate mixtures.

D. ASTM D 2487-11 — Classification of soils for engineering purposes (Unified Soil Classification System).

E. ASTM D6938-10 — Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.4 SUBMITTALS

A. Contractor shall submit a Health and Safety Plan (HSP) to OWNER for review and approval prior to excavating existing buried waste. The HSP shall include landfill gas monitoring, leachate management, and provisions for personal protective equipment.

B. Emergency Response Plan (ERP) – Submit to OWNER for review and approval prior to excavation of waste to be relocated. At a minimum, ERP shall contain fire prevention and control, and procedures for managing and responding to uncovered unexploded ordnance (UXO) in accordance with the UXO Monitoring Plan.

C. UXO Monitoring Plan – Submit to OWNER for review and approval prior to excavation of waste to be relocated. At a minimum, UXO Monitoring Plan shall contain procedures for monitoring for, managing and responding to uncovered unexploded ordnance.

D. Storm Water Pollution Prevention Plan (SWPPP) - Contractor shall submit a SWPPP for construction which describes all materials and methods and best management practices (BMPs) proposed to minimize erosion damage to the working area and to prevent unwanted discharge of sediment laden waters from the project site.

PART 2 PRODUCTS

2.1 ENGINEERED AND RANDOM FILL

A. Soil obtained from on-site excavations, import, or approved stockpiles.

B. Free of organic material.

C. Maximum particle dimension: 6 inches.

D. Free of excessive moisture.

2.2 UTILITY TRENCH BACKFILL

A. Soil obtained from on-site excavations, import, or approved stockpiles.

B. Free of organic material.

C. Maximum particle dimension: 3 inches.

D. Free of excessive moisture.

2.3 ANCHOR TRENCH BACKFILL

A. Soil obtained from on-site excavations, import, or approved stockpiles.

B. Free of organic material.

C. Maximum particle dimension: 3 inches.

D. Free of excessive moisture.

PART 3 EXECUTION

3.1 ENGINEERED FILL PREPARATION

A. Set required lines, levels, contours, and datum by construction staking.

B. Notify utility companies to locate utilities, if applicable.

C. Provide for dust control as necessary.

D. Protect bench marks, existing structures, and fences from excavation equipment and traffic.

E. Provide for dewatering as necessary. Water removed from areas near the landfill waste boundary shall be assumed to contain leachate unless otherwise tested and shown to be clean. Leachate shall be disposed of in the temporary leachate storage pond.

F. Note that topography shown on drawings may differ from topography at time of construction. A pre-construction survey shall be performed by the CONTRACTOR to document site conditions prior to starting work.

G. Perform clearing and stripping in accordance with the Specifications.

H. Install all sediment and erosion control BMPs as necessary prior to start-up of excavation and stockpiling as described in the SWPPP and ECP.

I. Construct keyway and key in all engineered fills in accordance to the Construction Drawings.

J. Scarify or otherwise roughen subgrade soils prior to engineered fill placement and between lifts to provide proper bonding of the compacted fill material.

K. Begin engineered fill only when underlying subgrade has been accepted by the CQA Consultant in writing.

L. Prior to placement of engineered fill, verify that no soft areas are present in the fill area.

M. Prior to performing the Work, the CONTRACTOR shall mark all landfill gas and monitoring wells, etc. within the limits of the Work with construction stakes and high visibility flagging. Any damage caused by the CONTRACTOR shall be repaired by the CONTRACTOR at no expense to the OWNER.

3.2 ENGINEERED AND RANDOM FILL PLACEMENT

A. Transport, process, place, and compact engineered and random fill to the lines and grades shown on the Construction Drawings.

B. Remove all unsuitable material and rocks in excess of 6 inches and relocate oversize materials as directed by the CQA Consultant.

C. Place in loose lift thicknesses not exceeding 12 inches.

D. Moisture condition soil and compact each lift of engineered fill to a minimum of 95 percent relative compaction and random fill to a minimum of 85 percent relative compaction as determined by ASTM D698.

E. Key-in (bond) all fills into the existing ground (soil, waste, etc.) to prevent development of a preferential slip-plane as approved by the CQA Consultant and ENGINEER.

3.3 UTILITY TRENCH BACKFILL

A. Transport, process, place, and compact utility trench backfill to the lines and grades shown on the Construction Drawings.

B. Remove all unsuitable material and rocks in excess of 3 inches and relocate oversize materials as directed by the CQA Consultant.

C. Place in loose lift thickness not exceeding 12 inches.

D. Moisture condition soil and compact each lift to a minimum of 90 percent relative compaction as determined by ASTM D698.

3.4 ANCHOR TRENCH BACKFILL

A. Transport, process, place, and compact anchor trench backfill to the lines and grades shown on the Construction Drawings.

B. Remove all unsuitable material and rocks in excess of 3 inches and relocate oversize materials as directed by the CQA Consultant.

C. Place in loose lift thickness not exceeding 12 inches.

D. Moisture condition soil and compact each lift to a minimum of 90 percent relative compaction as determined by ASTM D698.

3.5 FIELD QUALITY CONTROL

A. Set lines and grades at all major grade breaks, trench lines, channels, and other key locations, and at a maximum spacing of 100 feet on-center.

B. Maintain all grade stakes and reset as necessary until completion of the grading.

C. Fill within a horizontal and vertical tolerance of +/- 0.1 feet on all slopes flatter than 10% and within a vertical tolerance of +/- 0.2 feet on all slopes 10% or steeper unless otherwise approved by the ENGINEER .

D. At the completion of construction, the CONTRACTOR shall provide an as-built survey drawing in digital form to the CQA Consultant that includes the survey point data and the contoured topography of the finished surface.

3.6 FIELD QUALITY ASSURANCE

A. The CQA REPRESENTATIVE will determine optimum moisture content and maximum density for all engineered fills in accordance with ASTM D698.

B. In-place density and moisture content will be determined by one or more of the following methods: ASTM D6938 and ASTM D1556.

C. The CQA Consultant may perform sampling and grain size analysis of stockpiled materials.

D. Cooperate fully with the CQA Consultant in performance of sampling and testing.

E. The CQA Consultant will observe placement of the fill material to ensure that all work is performed in accordance with the Construction Drawings and Specifications.

END OF SECTION

TEMPORARY LEACHATE STORAGE POND OPERATIONS AND MAINTENANCE PLAN

Attachment M

ORDOT-CHALAN PAGO, GUAM

AUGUST, 2013
PROJECT NO. GSWA-002-13

SUBMITTED TO:

United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

SUBMITTED BY:

RECEIVER – Gershman Brickner & Bratton, Inc.
542 N. Marine Corps Drive
Tamuning, Guam 96913

PREPARED BY:

Brown and Caldwell Project Team
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GBB SOLID WASTE MANAGEMENT CONSULTANTS RECEIVER

Brown AND Caldwell

Geo-Logic ASSOCIATES

GHD

TABLE OF CONTENTS

1.0 INTRODUCTION

This Operation and Maintenance (O&M) Plan has been prepared to provide the Contractor with the requirements and guidance for the operations and maintenance of the Temporary Leachate Storage Pond for closure of the Ordot Dump located in the Territory of Guam. This plan is written assuming that the temporary leachate storage pond has been constructed per the construction plans. Any modifications to the construction plans shall be incorporated into this manual as necessary.

The pond is used for temporary storage of leachate collected from the Ordot Dump during closure construction. The pond is constructed in the future location of stormwater Pond 2 and west of stormwater Pond 3 shown on Drawing G08. The temporary pond measures approximately 200 feet long and 120 feet wide, and is approximately 10 feet in depth. It has a 60-mil-thick linear low density polyethylene (LLDPE) geomembrane for a bottom liner and a 45-mil-thick reinforced polypropylene (FPP-R) geomembrane floating cover. A floating cover captures rainfall such that it does not comingle with the leachate stored in the pond. The contractor shall provide a temporary leachate pump or pumps for removal of leachate from the temporary leachate storage pond until the leachate storage and transmission systems are fully operational. The Contractor shall also provide a stormwater pump or pumps on top of the cover to discharge stormwater into the nearby drainageways as soon as practical so stormwater does not accumulate on the top of the cover. The pond grading plan and details for construction are shown on Drawings C06 through C09 of the construction drawings.

2.0 DESCRIPTION OF POND

2.1 POND CONFIGURATION AND CONTAINMENT FEATURES

The pond is approximately 25,000 square feet in area. The bottom of the pond is sloped at 1.0% from the west, down to a central point on near the center of the east side for fluid recovery. The primary liner consists of a 60-mil-thick double-textured LLDPE geomembrane, underlain by a prepared subgrade soil. Double-sided geocomposite vent strips have been installed in a grid pattern that lead to open vents in the liner and floating cover at the crest of the pond. The leachate collection sump is located in center of the east side of the pond.

The floating cover is a 45-mil-thick FPP-R geomembrane with sand bag ballast placed on top to keep the slack out of the cover and to provide a low area for collection and pumping of stormwater. The layout of the pond, vent strips, vents, sumps, and sandbag ballast are shown on Drawings C06 through C09.

The maximum leachate (freeboard) level within the pond shall be operated at 2 feet below the crest to prevent overtopping. At the freeboard level, the pond has a capacity of approximately 767,000 gallons. An emergency spillway has been constructed just south of the leachate collection sump on the central east side in order to control stormwater discharge of the floating cover into a natural drainage east of the pond.

2.2 GRADING AND POND ACCESS

The outer perimeter of the pond is provided with a berm having a 16-foot-wide crest. The berm serves as a perimeter access service road. The driving surface is about 10 feet wide. The internal side slopes of the pond are constructed at a ratio of 2 horizontal to 1 vertical (2:1, H:V), and the external slopes (exterior of the perimeter berm and cut slopes) are also constructed at 2:1, H:V. The top of the perimeter berm is graded to drain toward the pond.

The pond requires monitoring and operation by the contractor of the leachate collection and stormwater collection pumps, and inspection and repairs of the floating cover system, as necessary. Access to the perimeter road for these activities is provided by an entrance at the northeast corner of the pond.

2.3 POND APPURTENANCES

An inlet pipe has been designed to gravity feed leachate from the perimeter leachate collection system to the northeast corner of the pond. Inflow to the pond is unregulated; therefore, flows

will vary. The pond design does not include outlet piping for the leachate. The location of the inlet pipe is shown on Drawing C06 and the details showing its penetration into the pond are shown on Drawing C07.

A 12-inch-diameter HDPE leachate riser pipe and sump are included at the lowest point of the bottom liner system at the center of the east side of the pond (see Drawings C06 through C09). The sump and riser pipe are intended for the removal of leachate with a submersible or suction pump to empty the pond into the leachate storage tanks once the leachate forcemain has been installed. The sump and riser pipe shall also be used to pump from the pond into trucks or the tanks if necessary. The contractor shall provide a pump or pumps of sufficient size to maintain the leachate level in the pond below the freeboard level for the duration of the construction. Once the permanent leachate tanks and forcemain system are installed and operating, the pump may be set-up to activate automatically to empty the pond into the leachate storage tanks. The leachate storage tanks and forcemain are shown on Drawings C32, C42, and C45 through C49.

A submersible pump shall also be provided and installed by the contractor in the trough in the floating cover created by the sandbag ballast. This pump is to be activated automatically by the build-up of stormwater in the trough. The pump should also be equipped for manual operation and a spare backup shall be made available in the vent of failure of the pump. The pumps shall be maintained on a regular basis in accordance with the requirements of the supplier and manufacturer.

3.0 POND OPERATION

3.1 GENERAL

Operation of the pond shall be in accordance with the contract documents and all Federal and Guam Regulations. The contractor shall ensure that a Guam EPA Level II Certified Wastewater Collection System Operator is in direct-responsible-charge of the system in accordance with Guam EPA Water & Wastewater Operator Certification Regulations (see online at: http://www.justice.gov.gu/compileroflaws/GAR/22GAR/22GAR002-11.pdf). The list of names of current Level II Certified Operators can be obtained from the Guam EPA.

The contractor shall maintain the level of both leachate and stormwater within the pond in accordance with this plan. The pond shall not be allowed to fill with leachate above the freeboard level. The Owner shall be notified immediately if leachate level in the pond exceeds the freeboard level.

Operations around the pond will be conducted in a safe manner to prevent damage to the geomembrane liner and floating cover, pond appurtenances and peripheral structures such as piping, fencing and safety features. Restrictions in the pond area include:

- No personnel, heavy vehicles, metal pumps, or boats are allowed in the pond during operations, maintenance or other activities unless specifically approved in writing by the design engineer;
- No foreign objects in the pond; and
- No “hot” work (welding, cutting torch, etc.) will be performed in the vicinity of the pond, unless this work is directly on the liner for repairs or proper procedures have been approved for protection of the liner.

Rub sheets shall be installed beneath all hoses, pipes, foot-valves, or other appurtenances that will be placed on the liner. Rub-sheets shall be wide enough to compensate for movement that may occur during operations of the equipment. Where permanent equipment is installed or equipment is frequently used, rub-sheets shall be permanently installed and consist of a layer of 60-mil-thick LLDPE welded to the bottom geomembrane or 45-mil-thick FPP-R to the floating cover.

3.2 POND LEVEL MONITORING

The Contractor shall monitor the level of the stormwater over the floating cover and monitor the level of the leachate within the pond by observing the level of the floating cover as it rises. The Contractor shall also determine the leachate level by placing a sounding probe down the

leachate riser into the sump. Leachate levels may also be observed using a fixed probe on the pump or placed within the riser.

The stormwater and leachate level visual monitoring shall be performed and recorded daily. The sound probe level of the leachate shall be determined and recorded at least once per week or at a frequency approved by the Owner.

3.3 PUMPING PROCEDURES

The primary purpose of the temporary leachate pond is for leachate storage until the leachate force main system is completed. Therefore, the leachate only needs to be pumped out at the end of its life for dismantling and construction of Stormwater Pond 2 or if the leachate level is approaching the free board level. The Contractor shall pump leachate out of the pond as necessary to maintain the level of leachate 2 feet below the freeboard level. The leachate can be pumped into the leachate storage tanks (if constructed) or into water-tight tanks or into trucks for transport to an approved treatment facility. Leachate shall also be pumped out of the pond if there is evidence that the pond is leaking significantly and the bottom liner is in need of repair. In no instance shall leachate be discharged on the ground surface. The Contractor shall be responsible for all pumping, handling, storage, hauling, and disposal of all leachate generated during construction.

The stormwater shall be pumped regularly in order to allow the floating cover to rise with the leachate level within the pond. A maximum of 6 inches of stormwater shall be maintained above the floating cover. However, the Contractor shall listen to the local weather forecast and prepare the site for any impending typhoons. If a typhoon is forecast, the Operator shall immediately begin pumping water on top of the floating cover to a depth of approximately 2 feet to prevent wind uplift of the geomembrane. Other appurtenances to the pond shall also be secured such that they do not get damaged or damage the floating cover.

4.0 PERIODIC INSPECTION AND MAINTENANCE

4.1 INSPECTION

4.1.1 Routine Inspection

Visual inspections are an effective tool in the maintenance of a geomembrane-lined pond. Visual inspections can identify damage, or potential for damage. Regular inspections and maintenance of the pond and the pumping system will ensure good performance of its various components during the useful life of the pond.

As part of the day-to-day operation of the facility, a "reconnaissance" inspection shall be conducted daily to check for obvious items such as broken and leaking pipes, seeps on the outside of the pond and other unusual events and to make sure that the system is working. As a minimum, the daily activities shall include:

- Checking the pump operations;
- Checking for fouling up of the pumps due to precipitate or algae build-up;
- Checking the level of solution within the pond; and
- Checking for evidence of leakage in the inlet piping.

Any indications of leakage will require that the piping system be shut down immediately and repaired. Failure to do so can result in both environmental and geotechnical impairment.
The operation of the pumps shall be checked at least once per day to verify that they operating properly. Upon discovery that any pump is not working properly, it shall be taken out of service and repaired. An alternate pump or other pumping method shall be used until the pump is repaired or replaced.

4.1.2 Weekly Inspections

Weekly inspections of the ponds should be conducted and shall include inspecting the following:

- Liner integrity (rips/tears/environmental degradation);
- Animal intrusion;
- Vegetation growth;
- Build-up of wind-blown particulates (leaves, grass, dirt, etc.)
- Liner anchoring integrity/excessive tension;
- Pond inlets and outlets free of sediment and debris;

- Perimeter fence integrity;
- Liquid level; and
- Corrosion or any sign of deterioration of equipment.

In addition to the above recommended inspection frequencies, the facility should be inspected after significant storm events and other unusual events such as earthquakes, fires, and typhoons. Any obvious impact or damage resulting from such events should be reported immediately to the Owner's Representative for immediate action. All weekly inspections shall be documented and provided to the Owner.

4.1.3 Bi-Monthly Activities

In addition to the weekly inspections, bi-monthly (every other month) activities for the pond area shall be conducted and shall include the following:

- Topographic survey of the pond perimeter and berms for evidence of subsidence or foundation failure; and
- Removal of the wind-blown particulates on the floating cover of the pond.

4.2 MAINTENANCE

After a certain amount of time, it is likely that dirt, leaves, and other vegetation will be blown in and accumulate on the floating cover of the pond. This material may clog the submersible pump. Therefore, the floating cover should be cleaned periodically to minimize the build-up of wind-blown materials. Removal shall be performed manually without damage to the cover or liner system.

A thorough visual inspection of the liner and cover shall be performed and documented after solids removal to examine the surface for any damage. Damage shall be repaired immediately prior to resuming operations within the pond.

5.0 HEALTH AND SAFETY

All work around the ponds shall be performed in accordance with the site Health and Safety Plan (HSP) and all regulatory guidelines. In any work environment, health and safety is a very important consideration. In the case of the pond, the following are potential hazards that can be encountered:

- Accidental falls resulting in either drowning or injury;
- Electrocution (from electrical power to equipment);
- Injuries from accidental contact with moving machinery or moving parts;
- Exposure to potentially hazardous constituents of the leachate, noting the fact that the leachate is a product of a landfill operations and will contain at a minimum volatile organic compounds;
- Skin contact with leachate that may cause abrasions or irritation, as well as infections;
- Exposure to explosive or hazardous gases such as methane; and
- Drowning in the stormwater or leachate.

In addition to the site HSP, the following are recommended measures or actions/precautions in order to minimize potential of the above injuries or exposures:

- Smoking shall be strictly prohibited on-site and around the pond;
- All employees shall be properly trained and visitors advised of the dangers of the pond prior to entering the pond area;
- Appropriate warning signs (such as “NO SMOKING or OPEN FLAMES”) shall be posted in key areas of the facility;
- The pond is approximately 10 feet deep: this shall be posted and safety equipment such as a “life saver” ring with a rope attachment shall be placed at strategic locations along the perimeter of the pond;
- Equipment labels and warning signs shall be posted on or near equipment;
- Personal protective equipment such as work clothing, eyewear, safety shoes and hard hats shall be worn when working at or near the facility;
- First aid kits shall be provided in an accessible location;
- Emergency phone numbers (fire department, police, nearest hospital) shall be posted at highly visible locations, and
- An emergency management plan should be developed and periodic safety training should be provided to relevant employees accordingly.

Safety procedures and practices are not limited to the above recommendations. Any relevant safety standard within the site HSP and applicable regulatory guidelines shall be observed and implemented at all times.