AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
J	1 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0003	10-Dec-2002	W26GLG-2253-0526	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
CONTRACTING OFFICE (CA/CW) US ARMY ENGR DIST NORFOLK ATTN: CENAO-SS-C 803 FRONT STREET NORFOLK VA 23510-1096	DACA65	**See Item 6**	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
	X	9A. AMENDMENT OF SOLICITATION NO. DACA65-02-R-0044
	X	9B. DATED (SEE ITEM 11) 01-Oct-2002
		10A. MOD. OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [ ] is extended, [X] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Amendment No. 0003 to DACA65-02-R-0044, F-22 Apron, Langley Air Force Base, VA.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 10-Dec-2002

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:

CONTINUATION

1. SECTION 00010: DELETE Bidding Schedule in its entirety and REPLACE with the attached.
2. Technical plans and specificiations are amended. Make appropriate changes in accordance with the attached.

Section 00010 - Solicitation Contract Form

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001			Lump Sum		

SCHEDULE I - BASE
FFP
PURCHASE REQUEST NUMBER: W26GLG-2253-0526

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AA		1	Lump Sum		

FFP
All construction work on Base Bid, complete, including all work incidental thereto as shown on the drawings and as specified, exclusive of items 0001AB-0001AC, and Schedule II-Optional Bid Items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AB		1	Lump Sum		

FFP
All costs in connection with new concrete pavement in Base Bid, complete, including compacted subgrade, aggregate base course, and all work incidental thereto as shown on the drawings and specified. Pavement _____sq. yd @ $_____per sq. yd., excluding items 0001AA and 0001AC, and Schedule II - Optional Bid Items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AC		500	Cubic Yard		

FFP
All costs in connection with stockpiling, sampling, and analysis of suspected or confirmd petorleum contaminated soil for 500 cubic yards, complete, including all work incidental thereto as shown on the drawings and specified, excludive of Items 0001AA, 0001AB, 0001AD-0001AG and Schedule II-Optional Bid Items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AD		750	Ton		

FFP
All costs in connection with transportation and disposal of confirmed petroleum contaminated soil in accordance with VDEQ regulations for 750 tons, complete, including all work incidental thereto as shown on the drawings and specified, exclusive of items 0001AA-0001AC, 0001AE-0001AG and Schedule II-Optional Bid Items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AE		60,000	Gallon		

FFP
All costs in connection with containerization and characterization of potentiallly petroleum contaminated dewatered groundwater for 60,000 gallons, complete, including all work incidental thereto as shown on the drawings and specified, excludive of Items 0001AA-0001AD, 0001AF-0001AG and Schedule II - Optional Bid Items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AF		60,000	Gallon		

FFP
All costs in connection with transportation and disposal of confirmed petroleum contaminated dewatered groundwater in accordance with VDEQ regulations for 60,000 gallons, complete, including all work incidental thereto as shown on the drawings and specified, exclusive of items 0001AA-0001AE, 0001AG and Schedule II - Optional Bid Items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AG		1	Lump Sum	25,000	25,000

FFP
All costs in connection with As-Built Drawings as specified from preparation to final, complete, including all work incidental thereto as shown on the drawings and as specified, exclusive of items 0001AA-0001AF and Schedule II - Optional Bid Items.

NET AMT

TOTAL SCHEUDLE I ____

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002	SCHEDULE II - OPTIONAL ITEMS FFP				

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002AA OPTION		1	Lump Sum		

FFP
All construction work on Optional Bid Item, complete, including all work incidental thereto as shown on the drawings and as specified, exclusive of items 0002AB-0001AC, and Schedule I- Base Bid Items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002AB OPTION		1	Lump Sum		

FFP
All costs in connection with new concrete pavement in Base Bid, complete, including compacted subgrade, aggregate base course, and all work incidental thereto as shown on the drawings and specified. Pavement _____sq. yd @ $_____per sq. yd., excluding items 0002AA and 0002AC, and Schedule I - Base Bid Items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002AC OPTION		100	Cubic Yard		

FFP
All costs in connection with stockpiling, sampling, and analysis of suspected or confirmed petroleum contaminated soil for 100 cubic yards, complete, including all owrk incidental thereto as shown on the drawings and specified, excluding items 0002AA-0002AB, and Schedule I - Base Bid Items

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002AD		150	Ton		

FFP
All costs in connection with transportation and disposal of confirmed petroleum contaminated soil in accordance with VDEQ regulations for 150 tons, complete, including all work incidental thereto as shown on the drawings and as specified, exclusive of items 0002AA-0002AC, 0002AE-0002AG and Schedule I - Base bid items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002AE		10,000	Gallon		

FFP
All costs in connection with containerization and characterization of potentially petroleum contaminated dewatered groundwater for 10,000 gallons, complete, including all work incidental thereto as shown on the drawings and as specified, exclusive of items 0002AA-0002AD, 0002AF-0002AG and Schedule I - Base bid items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002AF		10,000	Gallon		

FFP
All costs in connection with transportation and disposal of confirmed petroleum contaminated dewatered groundwater in accordance with VDEQ regulations for 10,000 gallons, complete, including all work incidental thereto as shown on the drawings and as specified, exclusive of items 0002AA-0002AE, 0002AG and Schedule I - Base bid items.

NET AMT

FOB: Destination

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002AG		1	Lump Sum	20,000	20,000

FFP
All costs in connection with As-Builts drawings as specified from preparation to final, complete, including all work incidental thereto as shown on the drawings and as specified, exclusive of items 0002AA-0002AF and Schedule I - Base bid items.

NET AMT

TOTAL SCHEDULE II
TOTAL SCHEDULE I + II

FOB: Destination

AMENDMENT
9 DECEMBER 2002

F-22 INFRASTRUCTURE
REPLACE PAVEMENT – WEST PARKING APRON
LANGLEY AIR FORCE BASE

1. THIS AMENDMENT INCLUDES THE RELEASE AND ISSUANCE OF THE PROJECT BID SCHEDULE.

2. THIS AMENDMENT INCLUDES THE RE-ISSUANCE OF THE FOLLOWING DRAWINGS:

   C-401
   C-402
   C-404
   C-406
   C-407
   C-502
   C-503
   E-101

3. THIS AMENDMENT ALSO INCLUDES THE REISSUANCE OF SPECIFICATIONS SECTIONS AND INCLUSION OF ADDITIONAL INFORMATIONAL DATA WITH THE REISSUED SPECIFICATION SECTIONS AS LISTED:

SECTION 01055	SOIL BORING DATA
SECTION 02072	EXCAVATION OF PETROLEUM CONTAMINATED SOILS

4. THIS AMENDMENT ALSO ADDED THE SUBMITTAL REGISTER FORMS TO THE END OF SPECIFICATION SECTION 01330 (PAGES 1 of 5 thru 5 of 5).

5. THIS AMENDMENT ALSO INCLUDES THE FOLLOWING (ATTATCHED) ITEMIZED CHANGES TO THE VARIOUS INDIVIDUAL SPECIFCATION SECTIONS 01055, 02072 AND 02300.

Amendment No. 3, Langley F-22 Replace Pavement -- West Apron

Specification Section 01055 SOIL BORING DATA: Replace entirely with attached Section 01055 including attached plate bearing test pdf file and two attached boring log pdf files.

Specification Section 02072 EXCAVATION OF PETROLEUM CONTAMINATED SOIL: Replace entirely with attached Section 02072 including attached investigation pdf file.

Specification Section 02300 EARTHWORK:

1. Paragraph 1.1: Replace "primarily" with "all project earthwork including but not limited to excavation and backfill for storm drain and sub-drain improvements and".
2. Paragraph 1.5: Delete from the first sentence "in designated waste disposal or spoil areas".
3. Paragraph 3.1: Insert as the first sentence, "All excavation and any necessary dewatering work shall be coordinated with the requirements of SECTION 02072 EXCAVATION OF PETROLEUM CONTAMINATED SOIL." Insert as the first to last sentence, "Dewatering shall be performed to the extent necessary to perform all required work including but not limited to storm drain system demolition, connections, and new inlet structure construction."
4. Paragraph 3.1.1: At the second sentence, between "pits" and "shall", insert "shall be shored for the full area and depth to protect workers and to minimize the quantity of excavated materials, and".
5. Paragraph 3.2 GRADING AREAS: delete paragraph in its entirety.
6. Paragraph 3.3: Replace the first sentence entirely, to read "Backfill for pipes and for demolished items and backfill adjacent to any and all types of structures shall be placed and compacted to at least 95 percent of laboratory maximum density." Delete entirely the third sentence, i.e. "Compaction requirements … portions of paragraphs."
7. Paragraph 3.7: Replace the last two sentences entirely, from "Ditches and … frozen subgrade", to read "Ditches and drains along subgrade shall be provided and maintained in such a manner as to drain effectively at all times. The finished subgrade shall not be disturbed by traffic or other operations and shall be protected and maintained by the Contractor in a satisfactory condition until the placement of geotextile (separation) fabric, base course layer, and pavement section are completed. The storage or stockpiling of materials on the finished subgrade will not be permitted. No overlying materials shall be installed or laid until the subgrade has been checked and approved, and in no case shall fabric, base course, or pavement be placed on a muddy, spongy, or frozen subgrade."
8. Paragraph 3.8.2: Replace entirely to read "One test per 100 square yards, or fraction thereof, of compacted subgrade and of each lift of fill or backfill."

Prepared by:

Randall C. Born, P.E.
GeoEnv Section
COE, Norfolk District
06 December 2002

Amendment No. 3, Langley F-22 Replace Pavement -- West Apron

Specification Section 01055 SOIL BORING DATA: Replace entirely with attached Section 01055 including attached plate bearing test pdf file and two attached boring log pdf files.

Specification Section 02072 EXCAVATION OF PETROLEUM CONTAMINATED SOIL: Replace entirely with attached Section 02072 including attached investigation pdf file.

Specification Section 02300 EARTHWORK:

1. Paragraph 1.1: Replace "primarily" with "all project earthwork including but not limited to excavation and backfill for storm drain and sub-drain improvements and".
2. Paragraph 1.5: Delete from the first sentence "in designated waste disposal or spoil areas".
3. Paragraph 3.1: Insert as the first sentence, "All excavation and any necessary dewatering work shall be coordinated with the requirements of SECTION 02072 EXCAVATION OF PETROLEUM CONTAMINATED SOIL." Insert as the first to last sentence, "Dewatering shall be performed to the extent necessary to perform all required work including but not limited to storm drain system demolition, connections, and new inlet structure construction."
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5. Paragraph 3.2 GRADING AREAS: delete paragraph in its entirety.
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8. Paragraph 3.8.2: Replace entirely to read "One test per 100 square yards, or fraction thereof, of compacted subgrade and of each lift of fill or backfill."

Prepared by:

Randall C. Born, P.E.
GeoEnv Section
COE, Norfolk District
06 December 2002

SECTION 01055

SOIL BORING DATA
03/2002

PART 1 GENERAL

1.1 General

The following pages are logs of Standard Penetration testing boring logs and plate bearing test results representing the subsurface investigations in the project vicinity at Langley Air Force Base. The information contained herein represents the basic subsurface conditions at the project site.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1586	(1999) Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils
ASTM D 2487	(2000) Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2488	(2000) Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

1.3 BORING LOCATIONS

All borings designated 101 DH were performed in May 1981 at the adjacent apron located northeasterly of the project limits. Borings designated 105 DH were performed in December 1981 at the control tower located southerly of the project limits. The plate bearing test was performed in July 1974 in the subgrade soils directly beneath the pavement located at the northern corner of the project limits.

1.4 CHARACTER OF MATERIALS AND CONDITIONS ENCOUNTERED

The soil boring and test result data are believed to show the nature of the materials encountered at those specific locations and depths; conditions vary between and below explorations. These data shall be carefully studied by the Contractor, but shall not be implied as fully descriptive and complete. The Contractor shall obtain whatever additional data they deem necessary to properly bid and construct the project in accordance with the drawings and specifications.

1.5 BORING NOTES

1.5.1 Soil Sample Borings

Soils (ML, CL, GP, etc.) are classified in accordance with ASTM D 2487. Soils are described in the field in accordance with Burmister's Method of Material Proportions, as presented below.

Descriptive or Qualifying Terms	Range of Proportions
"Sandy", "Gravelly", or the term "and"	30% to 50%
"Clayey", "Silty",	15% to 50%
"with"	15% to 30%
"little"	10% to 15%
"trace"	1% to 10%

1.5.1.1 SPT Borings 101DH and 105DH

Borings 101DH-1, 2, 13, 14, 15, 26, 27, and 28, and borings 105DH-1 through 105DH-4, were performed in accordance with the Standard Penetration Test (SPT) method as described by ASTM D 1586. SPT data indicate depth of a sample and number of blows required to drive a 2 inch (50 mm) O.D. split spoon sampler 6 inch (150 mm), unless otherwise noted, into undisturbed soil with a 140 pound (0.625 kN) hammer falling 30 inches (0.75 meters). The standard penetration "N" value is the sum of the middle two 6-inch drives, i.e., 2, 4, 5, 8, N=9 when driving the split spoon sampler 24 inches; or the sum of the last two 6-inch drives, i.e., 3, 6, 7, N=13 when driving the split spoon sampler 18 inches. Soils consistencies can be estimated from the following tables, based upon the field-derived SPT data:

Relative Density of Gravels/Sands

No. of Blows N	Relative Density
0-4	Very Loose
4-10	Loose
10-30	Medium
30-50	Dense
Over 50	Very Dense

Consistency of Clays/Silts,

No. of Blows N	Consistency
0-2	Very Soft
2-4	Soft
4-8	Medium
8-15	Stiff
15-30	Very Stiff
Over 30	Hard

1.5.2 Elevations and Locations

All elevation and locations are approximate.

1.5.3 Dates

Dates shown on logs are start and completion dates.

1.6 Abbreviations

WOR = Water on Rod - the water level when it is first encountered during drilling.

WOC = Water on Completion - the water level in an uncased hole, unless otherwise noted, at completion.

W @ 24 hrs. = Water at 24 hours - the water level in an uncased hole, unless otherwise noted, 24 hours after completion.

NFWOC = No Free Water on Completion.

ang - angular (angle)
blk - black
blu - blue
BOH - Bottom of Hole
bot - bottom
brn - brown
CI - cave in
cly - clayey
const - consistency
crs, c - coarse
dia - diameter
dk - dark
dns - dense
fn, f - fine
frac - fracture (d)
frag - fragments (fragmented)
Fs - Friction Sleeve Stress
gra - grain (ed)
grn - green
gry - gray
gvy - gravelly
hi - high (ly)
HP - high plasticity
hrd - hard
hrs - hours
incl - included, including
len - lense
lit - little
LL - liquid limit
LP - low plasticity
lse - loose
lt - light
med,m - medium
mica - micaceous
mod - moderate (ly)
moist - moisture
mot - mottled
MP - medium plasticity
mrb - marble
mst - moist
NP - nonplastic
num - numerous
occ - occasional
OD - outside diameter
odr - odor

org - organic
PI - Plastic Index
PL - Plastic Limit
plast - plastic, plasticity
rd - red
rnd - rounded
sam - sample
sat - saturated
sbr - subrounded
sdy - sandy
sft - soft
slt - slight (ly)
sly - silty
som - some
SSS - Split Spoon Sampler
st - stain (ed)
SPT - Standard Penetration Test
SYM - symbol
t - thin
th - thick
tr - trace
TV - Torvane
UND - undisturbed sample
v - very
v.f. - very fine
vert - vertical
VS - vane shear
w - moisture content
w.l. - water level
w/ - with
wd - weathered
wht - white
WOH - weight of hammer
WROD - weight of rod
yel - yellow
%200 - Minus No. 200 Sieve
& - and

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

PROJECT: Plate Load Tests
LOCATION: Langley Air Force Base, Va.
CLIENT: Norfolk District Corps of Engineers

TEST: PT -#1
DATE: 7/11/74
ATEC JOB #: T-741081-N

PLATE BEARING TEST RESULTS

I. Field Test Data:

Time	Applied Load (lbs.)	Unit Load	Elapsed Time	Dial # 1 (inches)	Dial # 2 (inches)	Dial # 3 (inches)	Cumulative Average Deflection
	707	1 psi(=0)	0	.4383	17457	1.0960	
3:50	4240	5 psi	0	.4225	.7256	1.0780	.0180
3:52			2 min	.4211	.7242	1.0770	.0193
3:54			4 min	.4204	.7234	1.0760	.0201
3:58			8 min	.4189	.7221	1.0750	.0214
4:05			15 min	.4187	.7203	1.0740	.0224
4:20			30 min	.4175	.7187	1.0720	.0240
4:35			45 min	.4160	.7170	1.0710	.0254
4:50			60 min	.4157	.7163	1.0710	.0257
4:50	7777	10 psi	0	.4000	.6995	1.0500	.0435
4:52			2 min	.3950	.6939	1.0470	.0480
4:54			4 min	.3927	.6914	1.0445	.0504
4:58			8 min	.3910	.6898	1.0430	.0520
5:05			15 min	.3894	.6872	1.0410	.0541
5:20			30 min	.3872	.6837	1.0385	.0568
5:50			60 min	.3839	.6783	1.0350	.0609
6:20			90 min	.3822	.6755	1.0320	.0634
6:35			105 min	.3808	.6736	1.0310	.0648
6:50			120 min	.3802	.6714	1.0300	.0661

Total Average Deflection: .0661 i

II. Calculation of k'_u:

$$k'_u = \frac{10 \text{ psi}}{\text{Average Deflection}} = \frac{10 \text{ psi}}{.0661 \text{ in.}} = 151.3 \text{ (lbs./in.}^3\text{)}$$

III. Correction for Bending of Plate:

Correction value obtained from MIL-STD-621A, Method 104, figure 104-3.

$k_u = k'_u$ (corrected) = 151.3 lbs./in.^{3}

ATEC

Plate Bearing Test (cont.) PT-1

IV. Corrected k Value Calculation:

$$k = k_u \left[\frac{d}{d_s} + \frac{b}{75}\left(1 - \frac{d}{d_s} \right) \right] = 93.4 \text{ lbs/in.}^3$$

Where

k= corrected modulus of soil reaction

k_u = modulus of soil reaction uncorrected for saturation = 151.3 lbs./in.^{3}

d= deformation of a consolidometer specimen at in-situ moisture content under a load of 10 psi. = .0053 in.

d_s = deformation of a saturated consolidometer specimen under a load of 10 psi. = .0089 in.

b= thickness of base course material= 4.0 in.

V. Remarks:

Soil Classification: Sandy CLAY (CL) with little Gravel and trace Silt

In-situ Moisture Content: 18.4%

Saturated Moisture Content: 19.1%

ATEC Technician C. E. Rodriguez

SECTION 02072

EXCAVATION OF PETROLEUM CONTAMINATED SOIL
10/02

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this section to the extent referenced. The publications are referenced in the text by basic designation only.

AMERICAN PETROLEUM INSTITUTE (API)

API Publ 2217	(Jun 1984; 1st Ed) Guidelines for Confined Space Work in the Petroleum Industry

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM

ASTM D 1556	(1990) Density of Soil in Place by the Sand-Cone Method
ASTM D 1557	(1978; R 1990) Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-inch (457-mm) Drop
ASTM D 2167	(1984; R 1990) Density and Unit Weight of Soil in Place by Rubber Balloon Method
ASTM D 2487	(1990) Classification of Soils for Engineering Purposes
ASTM D 2922	(1981; R 1990) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1988) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

CODE OF FEDERAL REGULATIONS (CFR)

CFR 29 Part 1910.120	Hazardous Waste Operations and Emergency Response
CFR 40 Part 261	Identification and Listing of Hazardous Waste
CFR 40 Part 262	Standards Applicable to Generators of Hazardous Waste
CFR 40 Part 263	Standards Applicable to Transporters of Hazardous Waste
CFR 40 Part 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and

	Disposal Facilities
CFR 40 Part 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage , and Disposal Facilities
CFR 40 Part 266	Standards for the Management of Specific Hazardous Waste and Specific Types of Hazardous Waste Management Facilities
40 CFR 401	Effluent Guidelines and Standards
40 CFR 403	General Pretreatment Regulations for Existing and New sources of Pollution
CFR 49 Part 172	Hazardous Materials Tables
49 CFR 178	Specifications for Packaging
CFR 49 Part 302	List of Hazardous Substances and Reportable Quantities

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846	(Nov 1986, 3rd Ed) Test Methods for Evaluating Solid Waste (Vol IA, IB, IC, and II)

U.S. ARMY CORPS OF ENGINEERS (COE)

ER 1110-1-263	Chemical Data Quality Management for Hazardous Waste Remedial Activities
ER 385-1-92	Safety and Occupational Health Document Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities
EM 385-1-1	(1996) Safety and Health Requirements Manual
EM 200-1-1	(1994) Validation of Analytical Chemistry Laboratories
EM 200-1-3	(Sep 94) Requirements for the Preparation of Sampling and Analysis Plans
EM 200-1-6	(1997) Chemical Quality Assurance

COMMONWEALTH OF VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

9VAC 20-60	Hazardous Waste Management Regulations
9VAC 20-80	Solid Waste Management Regulations
9VAC 20-110	Regulations Governing the Transportation of Hazardous Materials
9VAC 25-31	Virginia VPDES General Permit

9VAC 25-120	General VPDES Permit for Discharge from Petroleum Contaminated Sites
9VAC 25-180	VPDES Permit for Stormwater Discharge-Construction Sites
9VAC 25-260	Virginia Water Quality Standards

1.2 MEASUREMENT AND PAYMENT

1.2.1 Measurement and Payment of Potentially Contaminated Soil

All costs associated with the stockpiling and characterization of the potentially contaminated soil, in accordance with applicatble Federal and State Regulations shall be paid for under the unit price established in the bid schedule.

Potentially contaminated soil, that requires stockpiling and characterization shall be measured in cubic yards.

All costs associated with the trasportation and disposal of confirmed contaminated soil shall be paid for under a separate unit price, as established in the bid schedule. The definition of confirmed contaminated is any material that exceeds VDEQ guidance for clean fill, as outlined in the Virginia Solid Wasted management Regulation, 9 VAC 20-80.

Petroleum contaminated soil, requiring transportation and disposal off site, to a permitted facility shall be measured in tons, based on weigh tickets from the disposal facility.

1.2.2 Measurement and Payment of Potentially Contaminated Groundwater

All costs associated with containerization and characterization of potentially contaminated dewatered groundwater shall be paid for under the unit price established in the bid schedule.

All costs associated with the transportation and disposal of confirmated dewatered groundwater shall be paid for unit price established in the bid schedule.

1.2.3 Payment

Compensation for work covered by this section will be in accordance with the bid schedule.

1.3 SUBMITTALS

The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Work Plan; GA

The Contractor shall develop, implement, maintain, and supervise as part of the work, a comprehensive plan for contaminated soil removal, stockpiling, testing, treatment & disposal, and related operations. The Work Plan shall demonstrate compliance with the

contract clauses, referenced standards, this specification, ER 1110-1-263, ER 385-1-92, EM 385-1-1, 9VAC 20-60, 9VAC 20-80, 9VAC 20-110, 9VAC 25-120, 9VAC 25-260, and CFR 29 Part 1910.120. No work at the site, with the exception of site inspections and mobilization, shall be performed until the plan is approved. At a minimum the Work Plan shall include:

a. Scheduling and operational sequencing of all work associated with excavations to be performed in areas of known or potential contamination.

b. Description of the excavation, screening for contamination, stockpiling, and disposal procedures. This shall include a detailed drawing, identifying the location of all excavations and stockpiling activities and all exclusion zones, contamination reduction zones, and support zones associated with planned excavations.

c. A Sampling and Analysis Plan, in accordance with ER 1110-1-263, EM 200-1-1, EM 200-1-3, and EM 200-1-6 which describes field screening and sampling methods and applicable quality control procedures, and which lists analysis parameters, EPA SW-846 or other applicable methods, and selected laboratory or laboratories including qualifications and quality assurance/control procedures.

d. Identification of applicable regulatory requirements and permits.

e. Methods to be employed for contaminated water removal, storage, sediment removal and treatment, and discharge or disposal, and methods proposed for control of surface water. For on-site sediment removal and treatment, full details of unit process(es), a proposed layout/staging including pumping and piping, manufacturer's operating instructions, and certification of compliance with applicable VDEQ, federal and local regulations, shall be submitted.

f. Identification of waste and contaminated soil transporters and means of transportation and a copy of all State and/or Federal Licenses for hauling .

g. Disposal facilities and alternate disposal facilities and means of disposal or remediation and a copy of all State and/or Federal Permits for treatment and disposal of waste and contaminated soil.

h. Borrow source.

i. Spill prevention plan.

j. Spill contingency plan.

k. Decontamination procedures.

l. Methods of measuring weight volum of contaminated soil for disposal and volume of contaminated water for treatment or disposal.

m. A statement of agreement from each transporter, and from each treatment, storage, and disposal facility operator to accept the

specific waste from this work.

Site Health and Safety Plan; GA

There is potential for workers at the site to be exposed to petroleum constituents during excavation and handling. Pursuant to regulations issued by CFR 29 Part 1910.120, the Contractor shall take appropriate measures to safeguard the health of workers at the site. Such measures include apprising workers of the nature of the contaminants at the site, ensuring workers have appropriate training for working at contaminated sites, and preparing and conducting work in accordance with a site specific health and safety plan. The Contractor shall prepare a health and safety plan, in accordance with CFR 29 Part 1910.120, EM 385-1-1, and ER 385-1-92, which addresses all aspects of worker notification, training, exposure, protective equipment, and other protection at the site.

SD-06 Test Reports

Test Reports; FIO

Test results for stockpiled potentially contaminated soil and discharged water. The reports shall include the chain-of-custody records.

SD-07 Certificates

Qualifications; GA

A statement demonstrating that the Contractor meets the requirements in paragraph QUALIFICATIONS. Include owner, owner point of contact with phone number, location of work site, and dates of previous projects.

Permits; FIO

Provide copies of permits for transporting, storing, treating, disposal of wastes.

SD-11 Closeout Submittals

Shipping Manifest; FIO

Manifests in accordance with Federal regulations CFR 40 Part 262 Section 23 and CFR 40 PART 263 and Commonwealth of Virginia regulations , as applicable.

Final records and documentation of treatment or disposal in accordance with paragraph CONTAMINATED SOIL DISPOSAL GUIDELINES and paragraph DOCUMENTATION OF TREATMENT OR DISPOSAL.

1.4 QUALIFICATIONS

The Contractor performing excavation in potentially contaminated soil shall have a minimum of two years experience in the removal and disposal of petroleum contaminated soil and in the treatment and/or transportation and disposal of petroeum contaminated water.

1.5 NOTIFICATION

The Contractor shall notify the Contracting Officer (CO) immediately after a suspected contaminant beyond that indicated is encountered.

1.6 AVAILABLE DATA

In Sept. and Oct. 2002, representatives from the Norfolk District GeoEnvironmental Section and IMS Environmental collected 41 soil samples and one groundwater sample at the sited of the F-22 West Apron Pavement Replacement Project. The soil samples were screened, in the field, utilizing a Photionization Detector and a Flame Ionization Detector (FID), in order to decide which samples should be analyzed for the presence of petroleum. Based on the PID/FID results, 22 samples were sent Accutest Laboratories, Inc. for analysis of TPH-DRO and BTEX. The analyses indicated that total BTEX ranged from no-detect to 170.8 ppb, and TPH (JP-8) reanged from non-detect to 2910 ppm. A copy of the report is provided as an attachment to these specifications.

In addition, based on the field screening results, one groundwater sample was collected from monitoring well OW-28A. The analyses indicated the presence of TPH (JP-8) at a concentration of 2.57 ppm and Naphthalene at a concentration of 3.8 ppb.

Based on the available data, the Contractor shall consider all soil excavated in the vicinity of the existing box drain, contaminated until characterization proves otherwise. In addition, the Contractor shall screen in the field, per this specification, all excavations necessary to install the new pavement section. Contractor shall review available data, and perform excavation in a manner that limits the potential for contaminated soil coming in contact with uncontaminated soil.

Additionally, all dewatered ground water shall be considered containerized and characterized prior to discharge on-site or disposal off site. Characterization shall be in accordance with criteria established in Virginia Administrative Code 9VAC25-120-80. In the event the analyses indicates the water exceeds the criteria for on-site discharge, the Contractor shall be required to get all permits necessary for on-site treatment or off site disposal, at a permitted facility. Any water that meets the requirements of 9VAC25-120 for Saltwater Receiving Waters and VPDES permit per 9VAC25-31 and 9 VAC 25-180, may be discharged into the storm water drainage system at the site.

1.6.1 ENVIRONMENTAL PROTECTION

The Contractor shall take necessary measures specified herein, shown in Section 01355 Environmental Protection, and as otherwise required, to protect the environment.

PART 2 PRODUCTS

2.1 BACKFILL MATERIAL

Backfill material shall meet the applicable soils classifications as specified in Section 02300 Earthwork

2.2 CONTAINERS FOR HAZARDOUS AND SPECIAL WASTES

Containers for hazardous and special wastes shall comply with the

applicable requirements of 49 CFR 178 and 9VAC20-110.

PART 3 EXECUTION

No work covered by this Section shall be performed until the Work Plan and Site Health and Safety Plan have been submitted and approved as specified. The Contractor shall be responsible for obtaining all necessary permits as required to perform the work as indicated and specified, and the Government shall be held harmless for any associated delays or costs incurred by the Contractor.

3.1 SAFETY

Personnel working inside and in the general vicinity of the excavation shall be trained and thoroughly familiar with the safety precautions, procedures, and equipment required for controlling potential hazards associated with this work. Personnel shall use proper protection and safety equipment during work in and around the excavation in accordance with the approved Site Health and Safety Plan, and as otherwise specified.

3.2 SOIL EXAMINATION, TESTING, AND ANALYSIS

3.2.1 Soil Examination

The Contractor shall examine the soil within the project site and shall immediately notify the CO of suspected soil contamination beyond that indicated in the attached environmental investigation report, and all work within the area of suspected contamination shall be stopped as soon as practicable. As soon as practicable is defined as securing and protecting all open trenches and equipment, and providing measures to prevent contamination of other soil or water. The Contractor shall not perform any additional work in the area of suspected contamination until notified, in writing, by the Contracting Officer.

3.2.2 Stockpiled Material Sampling

Stockpiled contaminated and suspected contaminated soil shall be sampled in accordance with 9VAC 20-80 and as modified herein, and preserved in accordance with EPA SW-846. For VOC analysis, in addition to the sampling required by 9VAC 20-80, a minimum of one discrete sample shall be collected from a representative and relatively undisturbed location within the excavation or stockpile.

3.2.3 Testing and Analysis

Soil samples from the excavation and stockpiled material shall be characterized by testing in accordance with EPA SW-846, 9VAC 20-60, and 9VAC 20-80, as modified herein for the following:

a. GRO/TPH by EPA Method 5035/8015 modified;

b. DRO/TPH by EPA Method 3550/8015 modified;

c. Benzene, ethylbenzene, toluene, xylene (BTEX) by EPA Method 5035/8021B;

d. toxicity characteristic leaching procedure (TCLP) by EPA Method 1311 for lead by EPA Method 6010/7000 and testing by appropriate EPA Method for (list any other known toxic constituents here);

e. Total organic halogens (TOX) by EPA method 9020;

f. Paint filter liquids by EPA Method 9095;

g. All additional analyses as may be required by the approved off-site disposal facility.

3.2.4 Test Reports

Copies of all test results shall be provided to the Contracting Officer. The testing laboratory and Contractor shall adhere to the quality control program, including detection limits, spikes, blanks, and duplicates, of EPA SW-846 and EM 200-1-3 as applicable. All additional testing required by the disposal or treatment facility shall be at the Contractor's expense.

3.3 EXCAVATION

Excavation and dewatering shall be performed in accordance with the approved Work Plan and shall be strictly limited to the extent necessary to properly and safely complete the work as indicated and specified.

3.3.1 Open Excavations

Open excavations and stockpile areas shall be secured while awaiting test results. The excavation shall not be backfilled without approval from the CO. The Contractor shall divert surface water around excavations to prevent water from directly entering into the excavation.

3.3.2 Stockpiles

a. Monitoring Excavated Material

Excavation shall be performed in a manner that will limit the amount of potentially contaminated soil that could be mixed with previously uncontaminated soil. Suitable uncontaminated, excavated soil shall be deposited adjacent to the excavation, and shall be used for backfill prior to using borrow material. Continuous monitoring of all excavation work shall be accomplished with an organic vapor analyzer photoionization device or flame ionization detector (OVA/PID/FID) capable of detecting volatile, semi-volatile and organic vapors to a minimum of one part per million (ppm).

b. Stained, Volatile, and/or Odorous Excavated Material

Excavated material which is visibly stained or for which real time vapor monitoring instrument readings exceed background levels by more than 10 ppm for volatile and semi-volatile hydrocarbons and which has an obvious petroleum odor shall be considered contaminated and shall be stockpiled for sampling in accordance with paragraph STOCKPILED MATERIAL SAMPLING.

c. Stockpiling Contaminated Soil

Contaminated soil shall be placed on an impermeable geomembrane a minimum of 20 mils thick or on two (2) layers each a minimum of 10 mils thick, and covered with a minimum 10-mil thick sheet of geomembrane as specified. The geomembrane shall be placed such that the stockpiled soil does not come in contact with surface water run-off. The geomembrane cover shall prevent

rain or surface water from coming into contact with the contaminated soil, as well as limit the escape of the volatile constituents in the stockpile. Contaminated soil may be stockpiled in sealed roll-offs approved for storage of hazardous waste, provided that proper sampling is not inhibited.

3.3.3 Contaminated Water

Water removed from the excavation shall be considered contaminated until characterization sampling and testing indicate otherwise. The water shall be contained, stored on-site and analyzed prior to being transported, treated, discharged, or disposed of. No Government facilities shall be used for storage or disposal of the waste. The Contractor shall provide approved containers, vehicles, equipment, labor, signs, placards, labels, and manifests necessary for accomplishment of the work, including materials necessary for cleaning up spills that could occur from the excavation operation.

3.3.4 Contaminated Water Disposal

a. Sample and Analysis

Contaminated water shall be sampled and analyzed, and certified results received, prior to discharge or disposal. Analytical results for water discharged to the storm sewer system or other permitted locations shall be furnished within 72 hours of sample collection, or more frequently if required by the issued permit. Documentation of all analyses performed shall be furnished to the Contracting Officer in accordance with Paragraph RECORDS. Type and frequency of analyses for contaminated water to be taken to an off-site treatment, storage and disposal (TSD) facility shall conform to the requirements of the TSD facility. Type and frequency of analyses for contaminated water to be discharged to the storm sewer system or other permitted location shall conform to the permit requirements of 9VAC 25-120 for contamination by petroleum products other than gasoline to be discharged to saltwater receiving waters, except as modified by the permitting agency. Sampling and analyses of contaminated water and treated water, and the Contractor and laboratory quality assurance programs, shall be in accordance with the approved Sampling and Analysis Plan.

b. Treatment and Disposal

Water that cannot be discharged into the storm water drainage system or other permitted location without causing a violation of 9VAC 25-120 or 9VAC 25-260 or Section 01355 Environmental Protection, shall be treated as necessary for discharge compliance, or shall be transported for treatment and disposal by an approved off-site TSD facility. The selection of on-site treatment and discharge versus transporting and off-site disposal, shall be solely at the Contractor's risk and responsibility and the Government shall assume no responsibility for any lack of data or for any assumptions made by the Contractor. When the contaminated water is to be treated on site for discharge, the proposed treatment including methods for removing any free product if encountered shall be included in the Work Plan, and the resulting compliant water shall be discharged as specified below for discharge of uncontaminated water. For water to be taken to an off-site TSD facility, the Contractor shall transport, treat, and dispose of the water in accordance with applicable requirements of 40 CFR 263, 40 CFR 264, 40 CFR 401, 9VAC 20-80, 9VAC 20-110, and 9VAC 25-260.

3.3.5 Discharge of Uncontaminated Water

Water that meets the applicable requirements of 9VAC 25-120 and 9VAC 25-260 and VPDES permit per 9VAC 25-31 and 9VAC 25-180 may be discharged into the storm water drainage system or other permitted location at the site. Discharge location and methods and sediment removal procedures shall minimize disturbance to the receiving media in accordance with applicable specifications and permits, and shall be approved prior to implementation. For any non-compliance, discharge shall be halted and measures shall be taken as necessary to comply with the applicable specification and permit requirements.

3.4 BACKFILLING

Backfilling shall be in accordance with the applicable requirements of Section 02300 EARTHWORK.

3.5 CONTAMINATED SOIL DISPOSAL GUIDELINES

3.5.1 General

Disposal of soil confirmed by sampling and analysis as contaminated with petroleum products shall be in accordance with 9VAC 20-80 and requirements specified herein. Disposal of any other confirmed contaminated soil and hazardous waste materials shall be in accordance with all applicable Federal, Commonwealth of Virginia, and state and local solid and hazardous waste laws and regulations, and payment therefor will be in accordance with the CHANGES clause of the CONTRACT CLAUSES.

3.5.2 Transportation of Wastes

Transportation of hazardous waste or special waste shall comply with applicable requirements of 40 CFR 263, 9VAC 20-60, 9VAC 20-80, and 9VAC 20-110, and regulations of any other authority having jurisdiction when transported across Virginia state lines.

3.5.3 Records

Records shall be maintained of all waste determinations, including appropriate results of analyses performed, substances and sample locations, the time of collection, and other pertinent data as required by CFR 40 Part 262 Subpart D and 9VAC 20-60 or 9VAC 20-80 as applicable. Transportation, treatment, disposal methods and dates, the quantities of waste, the names and addresses of each transporter and of each treatment, storage, and disposal facility shall also be recorded and available for inspection, as well as copies or originals of the following documents:

a. Manifests

b. Waste analyses or waste profile sheets

c. Certifications of final treatment/disposal signed by the responsible disposal facility official

d. Weighing scale receipt corresponding to each manifest

Following contract close out, the records shall become the property of the Government.

3.5.4 Shipping Manifest

For hazardous or special waste, the Contractor shall utilize a Commonwealth of Virginia approved manifest system in conformance with 9VAC 20-60 and CFR 40 Part 262, or 9VAC 20-80 and CFR 40 Part 263, respectively, the U.S. EPA approved manifest system so that the waste can be tracked from generation to ultimate disposal. The Contractor shall prepare the manifests, complete. On the day of shipment, a manifest shall be supplied to the Contracting Officer for review. If applicable, the Contracting Officer or a designated representative will supply the generator number and sign the Generator's Certification if the manifest is accepted. If not acceptable, the Contractor shall make all corrections at no additional cost to the Government. A sample manifest shall be submitted on the day before shipment, complete with all information that will be included on the actual manifest less quantities, for review and comment.

3.6 DOCUMENTATION OF TREATMENT OR DISPOSAL

a. Documentation

The waste shall be taken to a treatment, storage, or disposal facility which complies with 9VAC 20-60 or 9VAC 20-80 as applicable. The Contractor shall provide documentation of acceptance of special waste or hazardous waste by the original return copy of the hazardous waste manifest, signed by the owner or operator of a facility legally permitted to treat or dispose of those materials. If the Contractor selects a different facility than is identified in the approved Work Plan, documentation shall be provided for approval to certify that the facility is authorized and meets the standards specified.

b. Payment

There will be no payment for excavation, transportation, and disposal of contaminated soils for which the transportation, disposal, and weight are not documented by the specified material manifest and corresponding weighing scale receipt, and for which other information specified in paragraph RECORDS is not provided.

-- End of Section -- -- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.
PN MUHJ033006

TITLE AND LOCATION
RPLC. PVMT. WST. APRON, LAFB F-22

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01111	SD-08 Manufacturer's Instructions															
			Safety and Health Plan	1.4	G													
		01320	SD-07 Certificates															
			Initial Project Schedule	3.4.2	G													
			Preliminary Project Schedule	3.4.1	G													
			Periodic Schedule Updates	3.4.3	G													
			SD-08 Manufacturer's Instructions															
			Qualifications	1.3														
			SD-09 Manufacturer's Field															
			Reports															
			Narrative Report	3.5.2														
			Schedule Reports	1.3														
			Schedule Reports	3.5.4														
			Schedule Reports	3.5.4.2														
		01330	SD-01 Preconstruction Submittals															
			Submittal register	1.5.1	G													
		01355A	SD-01 Preconstruction Submittals															
			Environmental Protection Plan	1.7	G													
		01356A	SD-07 Certificates															
			Mill Certificate or Affidavit	2.1.3	G													
		01780A	SD-02 Shop Drawings															
			As-Built Drawings	1.2.1														
			GE, RE															
			SD-03 Product Data															
			As-Built Record of Project		G	RE												
			Components and Materials															

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		01780A	Warranty Management Plan	1.3.1	G	RE												
			Warranty Tags	1.3.5	G	RE												
			Final Cleaning	1.6	G													
		02072	SD-01 Preconstruction Submittals															
			Work Plan	Part 3														
			Work Plan	3.3														
			GA															
			Site Health and Safety Plan	Part 3														
			Site Health and Safety Plan	3.1														
			SD-06 Test Reports															
			Test Reports	3.2.4														
			FIO															
			SD-07 Certificates															
			Qualifications	1.4														
			GA															
			Permits															
			FIO															
			SD-11 Closeout Submittals															
			Shipping Manifest	3.5.4														
			FIO															
		02220a	SD-03 Product Data															
			Work Plan		G													
		02300a	SD-03 Product Data															
			Selection of Borrow Material															
			Utilization of Excavated Material															
			SD-06 Test Reports															

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(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02300a	Testing	3.13	G													
			SD-07 Certificates															
			Testing	3.13	G													
		02390a	SD-02 Shop Drawings															
			As-Built Drawings		G													
			SD-06 Test Reports															
			Tests	3.5	G													
			SD-07 Certificates															
			Mooring/Grounding Rods	2.3	G													
		02630a	SD-03 Product Data															
			Placing Pipe	3.3	G													
			SD-04 Samples															
			Pipe for Drainage System		G													
			SD-07 Certificates															
			Resin Certification	2.1.8	G													
			Pipe		G													
			Hydrostatic Test on Watertight	2.7														
			Joints															
			Determination of Density	3.7.5	G													
			Frame and Cover for Gratings	2.3.7	G													
		02722a	SD-03 Product Data															
			Plant, Equipment, and Tools	1.7														
			Waybills and Delivery Tickets															
			SD-06 Test Reports															
			Sampling and testing	1.5														
			FIO															

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		02722a	Field Density Tests	1.5.2.4														
		02753A	SD-03 Product Data															
			Equipment	1.14														
			Proposed Techniques	1.12														
			FIO															
			Samples for Mixture Proportioning															
			Studies															
			Delivery, Storage, and Handling	1.13														
			of Materials															
			SD-06 Test Reports															
			Sampling and Testing	1.5.10.1														
			FIO															
		02760a	SD-03 Product Data															
			Manufacturer's Recommendations		G													
			Construction Equipment List															
			SD-04 Samples															
			Materials		G													
		02762a	SD-03 Product Data															
			Equipment	1.5														
			FIO, RE															
			Manufacturer's Instructions															
			SD-04 Samples															
			Compression Seals	2.1														
			FIO															
			RE															
			SD-06 Test Reports															

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		02762a	Test Requirements	1.4															
			FIO, RE																
		02763a	SD-03 Product Data																
			Equipment	1.5															
			FIO																
			Composition Requirements																
			Qualifications																
			SD-06 Test Reports																
			Sampling and Testing	2.6															
			FIO																
			SD-07 Certificates																
			Volatile Organic Compound																
			(VOC)																
			FIO																