PROJECT MANUAL

FOR

OPERABLE UNIT 1 REMEDIATION
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

Prepared for:
Maine Department of Environmental Protection
Augusta, Maine

NOVEMBER 2010
JN: 5992

CES INC

TABLE OF CONTENTS

DRAWINGS

****** END OF TABLE ******

STATE OF MAINE DEPARTMENT OF TRANSPORTATION
NOTICE TO CONTRACTORS

Sealed Bids addressed to the Maine Department of Transportation, Augusta, Maine 04333 and endorsed on the wrapper "Bids for Callahan Mine Remediation in the town of Brooksville" will be received from contractors at the Reception Desk, Maine DOT Building, Capitol Street, Augusta, Maine, until 11:00 o'clock A.M. (prevailing time) on December 22nd, 2010 and at that time and place publicly opened and read. Bids will be accepted from all bidders. The lowest responsive bidder must successfully demonstrate the requirements listed in the Bidder Qualification Statement to be considered for the award of this contract.

Location: In Hancock County, project is located at the Callahan Mine Superfund Site in Brooksville, Maine.

Outline of Work: Excavation and proper off-site disposal of soil contaminated with polychlorinated biphenyls (PCBs) exceeding site-specific cleanup levels within the former Mine Operation Area. Excavation and off-site disposal of Comprehensive Environmental Response and Liability Act (CERCLA) waste commingled with petroleum-contaminated soil exceeding site-specific cleanup levels within the former Mine Operation Area. Excavation of soil containing arsenic, thallium, and lead exceeding site-specific cleanup levels in the Residential Use Area of the Site.

A Mandatory Pre-Bid meeting is scheduled at the Callahan Mine Superfund Site. Interested parties should meet at 10:00 a.m. on Wednesday, December 8th, 2010 at the intersection of Harborside Road and Old Mines Road in Brooksville, Maine. Potential Bidders will be allowed to ask questions concerning the project and review the area of the proposed project.

For general information regarding Bidding and Contracting procedures, contact Scott Bickford at (207)624-3410. Our webpage at http://www.maine.gov/mdot/contractor-consultant-information/contractor_cons.php contains a copy of the Plan Holders List, bid amendments, and bid results. For Project-specific information fax all questions to **Naji Akladiss** at (207)624-3431. Questions received after 12:00 noon of Friday prior to bid date will not be answered. Bidders shall not contact any other Departmental staff for clarification of Contract provisions, and the Department will not be responsible for any interpretations so obtained. Hearing impaired persons may call the Telecommunication Device for the Deaf at 888-516-9364.

Plans, specifications and bid forms may be seen at the Maine DOT Building in Augusta, Maine. They may be purchased from the Department between the hours of 8:00 a.m. to 4:30 p.m. by cash, credit card (Visa/Mastercard) or check payable to Treasurer, State of Maine sent to Maine Department of Transportation, Attn.: Mailroom, 16 State House Station, Augusta, Maine 04333-0016. They also may be purchased by telephone at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. Full size plans $10 ($13.50 by mail). Half size plans $5 ($7.25 by mail), Bid Book $10 ($13 by mail), Single Sheets $2, payment in advance, all non-refundable.

Each Bid must be made upon blank forms provided by the Department and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order in the amount of $100,000 payable to Treasurer, State of Maine as a Bid guarantee. A Contract Performance Surety Bond and a Contract Payment Surety Bond, each in the amount of 100 percent of the Contract price, will be required of the successful Bidder.

This Contract is subject to all applicable Federal Laws.
The right is hereby reserved to the Maine DOT to reject any or all bids.

Augusta, Maine
December 1st, 2010

BIDDING INSTRUCTIONS

FOR ALL PROJECTS:

1. Use pen and ink to complete all paper Bids.
2. As a minimum, the following must be received prior to the time of Bid opening:

For a Paper Bid:

a) a copy of the Notice to Contractors, b) the completed Acknowledgement of Bid Amendments form, c) the completed Schedule of Items, d) two copies of the completed and signed Contract Offer, Agreement & Award form, e) a Bid Guaranty, (if required), and f) any other certifications or Bid requirements listed in the Bid Documents as due by Bid opening.

For an Electronic Bid:

a) a completed Bid using Expedite® software and submitted via the Bid Express™ web-based service, b) an electronic Bid Guaranty (if required) or a faxed copy of a Bid Bond (with original to be delivered within 72 hours), and c) any other Certifications or Bid requirements listed in the Bid Documents as due by Bid opening.

3. Include prices for all items in the Schedule of Items (excluding non-selected alternates).
4. Bid Guaranty acceptable forms are:
   a) a properly completed and signed Bid Bond on the Department's prescribed form (or on a form that does not contain any significant variations from the Department's form as determined by the Department) for 5% of the Bid Amount or
   b) an Official Bank Check, Cashier's Check, Certified Check, U.S. Postal Money Order or Negotiable Certificate of Deposit in the amount stated in the Notice to Contractors or
   c) an electronic bid bond submitted with an electronic bid.

5. If a paper Bid is to be sent, Federal Express overnight delivery is suggested as the package is delivered directly to the DOT Headquarters Building located at 16 Child Street in Augusta. Other means, such as U.S. Postal Service's Express Mail has proven not to be reliable.

IN ADDITION, FOR FEDERAL AID PROJECTS:

6. Complete the DBE Proposed Utilization form, and submit with your bid. If you are submitting your bid electronically, you must FAX the form to (207) 624-3431.

If you need further information regarding Bid preparation, call the DOT Contracts Section at (207) 624-3410.

For complete bidding requirements, refer to Section 102 of the Maine Department of Transportation, Standard Specifications, Revision of December 2002.

January 30, 2004
Supercedes February 11, 2003

NOTICE

The Maine Department of Transportation is attempting to improve the way Bid Amendments/Addendums are handled, and allow for an electronic downloading of bid packages from our website, while continuing to maintain a planholders list.

Prospective bidders, subcontractors or suppliers who wish to download a copy of the bid package and receive a courtesy notification of project specific bid amendments, must provide an email address to Diane Barnes or Mike Babb at the MDOT Contracts mailbox at: MDOT.contracts@maine.gov. Each bid package will require a separate request.

Additionally, interested parties will be responsible for reviewing and retrieving the Bid Amendments from our web site, and acknowledging receipt and incorporating those Bid Amendments in their bids using the Acknowledgement of Bid Amendment Form.

The downloading of bid packages from the MDOT website is not the same as providing an electronic bid to the Department. Electronic bids must be submitted via http://www.BIDX.com. For information on electronic bidding contact Larry Childs at Larry.Childs@maine.gov.

NOTICE

For security and other reasons, all Bid Packages which are mailed, shall be provided in double (one envelope inside the other) envelopes. The *Inner Envelope* shall have the following information provided on it:

Bid Enclosed - Do Not Open
PIN:
Town:
Date of Bid Opening:
Name of Contractor with mailing address and telephone number:

In Addition to the usual address information, the *Outer Envelope* should have written or typed on it:

Double Envelope: Bid Enclosed
PIN:
Town:
Date of Bid Opening:
Name of Contractor:
This should not be much of a change for those of you who use Federal Express or similar services.

Hand-carried Bids may be in one envelope as before, and should be marked with the following infrormation:

Bid Enclosed: Do Not Open
PIN:
Town:
Name of Contractor:

NOTICE

Bidders:

Please use the attached “Request for Information” form when faxing questions and comments concerning specific Contracts that have been Advertised for Bid. Include additional numbered pages as required. Questions are to be faxed to the number listed in the Notice to Contractors. This is the only allowable mechanism for answering Project specific questions. Maine DOT will not be bound to any answers to Project specific questions received during the Bidding phase through other processes.

State of Maine
Department of Transportation

REQUEST FOR INFORMATION

Date _____ Time _____

Information Requested: **PIN: _____** **Town(s): _____**

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_____

_____

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Request by: _____ **Phone: (_____)_____**
Bid Date: _____ **Fax: (_____)_____**

Complete top portion of form and transmit to the number listed in the Notice to Contractors

RFI No: _____ **RFI received: _____**

Response:_____

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_____

Response By:_____ Date: _____

NOTICE

Disadvantaged Business Enterprise Proposed Utilization

All Bidders must submit the Disadvantaged Business Enterprise Proposed Utilization form with their bid.

The Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan form contains information that is required by U.S. DOT.

The Maine Department of Transportation's Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan form must be used.

A copy of the new Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan and instructions for completing it are attached.

Note: Questions about DBE firms, or to obtain a printed copy of the DBE Directory, contact The Office of Civil Rights at (207) 624-3066.

MDOTs DBE Directory of Certified firms can also be obtained at www.maine.gov/mdot/disadvantaged-business-enterprises/dbe-home.php

INSTRUCTIONS FOR PREPARING THE CONTRACTOR'S DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION PLAN

The Contractor Shall:

1. Submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with your bid on the Bid day.

2. Extend equal opportunity to MDOT certified DBE firms (as listed in MDOT's DBE Directory of Certified Businesses) in the selection and utilization of Subcontractors and Suppliers.

SPECIFIC INSTRUCTIONS FOR COMPLETING THE FORM:

Insert Contractor name, the name of the person(s) preparing the form, and that person(s) telephone, fax number and e-mail address.

Provide total Bid price, Federal Project Identification Number, and location of the Project work.

In the columns, name each subcontractor, DBE and non-DBE firm to be used, provide the Unit/Item cost of the work/product to be provided by the subcontractor, give a brief description and the dollar value of the work.

____ **Original Submission** **Page ___ of ___**

____ **Revision # _____**

MaineDOT CONTRACTOR'S DBE/SUBCONTRACTOR UTILIZATION FORM

All Bidders must furnish this form with their bid on Bid Opening day

Contractor:_____ **Telephone:** _____ **Ext.** _____

Contact Person:_____ **Fax:** _____

E-mail: _____

BID PRICE: $_____ **BID DATE:** _____/_____/_____

FEDERAL PROJECT PIN # _____ **PROJECT LOCATION:** _____

TOTAL ANTICIPATED DBE _____ **% PARTICIPATION FOR THIS SUBMISSION**

WBE•	DBE•	Non DBE	Firm Name	Item Number & Description of Work	Quantity	Cost per Unit/Item	Actual $ Value
						Subcontractor Total ›	
						DBE Total >	

NOTE: THIS INFORMATION IS USED TO TRACK AND REPORT ANTICIPATED DBE PARTICIPATION IN ALL FEDERALLY FUNDED MAINE DOT CONTRACTS. THE ANTICIPATED DBE AMOUNT IS VOLUNTARY AND WILL NOT BECOME A PART OF THE CONTRACTUAL TERMS.

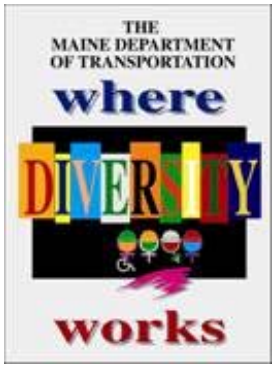
Equal Opportunity Use:

Form received: ___/___/___ Verified by: _____

cc: ☐ Contracts ☐ Other _____

For a complete list of certified firms and company designation (WBE/DBE) go to http://www.maine.gov/mdot

Rev. 7/10



Maine Department of Transportation Civil Rights Office

Directory of Certified Disadvantaged Business Enterprises

Listing can be found at:

www.maine.gov/mdot/disadvantagedbusiness-enterprises/dbe-home.php

For additional information and guidance contact: Civil Rights Office at (207) 624-3066

It is the responsibility of the Contractor to access the DBE Directory at this site in order to have the most current listings.

Vendor Registration

Prospective Bidders must register as a vendor with the Department of Administrative & Financial Services if the vendor is awarded a contract. Vendors will not be able to receive payment without first being registered. Vendors/Contractors will find information and register through the following link –
http://www.maine.gov/purchases/vendorinfo/vss.htm

GENERAL DECISION: ME20100009 09/03/2010 ME9

Date: September 3, 2010
General Decision Number: ME20100009 09/03/2010

Superseded General Decision Number: ME20080009

State: Maine

Construction Type: Highway

Counties: Aroostook, Franklin, Hancock, Kennebec, Knox, Lincoln, Oxford, Piscataquis, Sagadahoc, Somerset, Waldo and York Counties in Maine.

HIGHWAY CONSTRUCTION PROJECTS excluding major bridging (for example: bascule, suspension and spandrel arch bridges; those bridging waters presently navigating or to be navigatable; and those involving marine construction in any degree); tunnels, building structures in rest area projects and railroad construction.

Modification Number	Publication Date
0	03/12/2010
1	03/26/2010
2	05/14/2010
3	09/03/2010

* ENGI0004-015 04/01/2010

	Rates	Fringes
Power equipment operators:		
Asphalt Roller	$ 19.43	9.06
Pavers	$ 19.43	9.06

SUME2000-008 10/24/2000

	Rates	Fringes
CARPENTER	$ 11.60	1.51
Ironworkers:		
Structural	$ 12.03	1.58
Laborers:		
Drillers	$ 10.00	2.50
Flaggers	$ 7.25	
Guardrail Installers	$ 7.92	
Landscape	$ 7.87	.16
Line Stripper	$ 8.69	.23
Pipelayers	$ 9.21	2.31
Rakers	$ 9.00	1.51
Sign Erectors	$ 10.00	
Unskilled	$ 8.66	1.38
Wheelman	$ 8.50	.43
Power equipment operators:		
Backhoes	$ 11.87	2.05

Bulldozers	$ 12.33	2.88
Cranes	$ 14.06	1.75
Excavators	$ 12.38	2.48
Graders	$ 13.06	3.73
Loaders	$ 11.41	2.87
Mechanics	$ 13.18	2.57
Truck drivers:		
Dump	$ 9.35	3.10
Tri axle	$ 8.70	1.18
Two axle	$ 8.56	2.19

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

CES INC

BIDDER QUALIFICATION STATEMENT

The Bidder (including the Bidder's key subcontractors) must demonstrate that they meet the minimum qualifications listed below.

1. **Minimum Qualification #1:** The Bidder must have successfully completed a minimum of five remediation projects that involve excavating, handling, and stockpiling of contaminated material. A minimum of one project must have included the excavation of Polychlorinated biphenyls (PCBs) above 50 parts per million (ppm) and the arrangement and disposal of the PCBs at licensed facilities that comply with the applicable State and Federal rules and regulations. A minimum of one project must have included the excavation, handling, and stockpiling of at least 10,000 cubic yards of contaminated material.

2. **Minimum Qualification #2:** The Bidder must have successfully completed a minimum of five projects that involve the preparation and implementation of the documents and plans required by the Technical Specifications (Section 01 3300 - Submittal Procedures) including erosion and sedimentation control and storm water management. A minimum of one project must have been conducted under the requirements of CERCLA or EPA's Superfund Program.

3. **Minimum Qualification #3:** The Bidder must have successfully completed a minimum of five projects that involve the property restoration similar in scope to the *Draft OU 1 Residential Lot Restoration Plan, Callahan Superfund Site* (MACTEC, 2010).

4. **Minimum Qualification #4:** The Bidder must have key personnel that have a minimum of ten years experience consistent with their proposed roles and responsibilities of the OU 1 Remediation Project. The bidder must have key personnel that have experience with public meeting presentations. The Bidder must include a State of Maine Licensed Professional Engineer (PE) to be responsible for the applicable documents and plans required by the Technical Specifications (Section 01 3300 - Submittal Procedures). The on-site workers must have the necessary training and certifications that comply with Occupational Safety and Heath Administration (OSHA) regulations (e.g., 29 CFR Part 1910.120).

5. **Minimum Qualification #5:** The bidder and/or key subcontractor and suppliers must have the minimum qualifications outlined in Technical Specifications (31 8020 and 31 8030) related to installation, construction, quality control testing, and manufacturing of geosynthetic materials.

In order to demonstrate that the Bidder meets the minimum qualifications listed above, the Bidder must provide the following information in the sequence provided below.

1. Name(s) of Bidder and key subcontractors.

2. Permanent main office address(s) of bidder and key subcontractors.

3. Phone number(s) and email address(s) of Bidder and key subcontractors.

4. Project names, project descriptions, references (name, title, company/organization and phone number) for a minimum of five projects that address the Minimum Qualification #1.

5. Project names, project descriptions, references (name, title, company/organization and phone number) for a minimum of five projects that address the Minimum Qualification #2.
6. Project names, project descriptions, references (name, title, company/organization and phone number) for a minimum of five projects that address the Minimum Qualification #3.

7. Names, phone numbers, email addresses, and resumes of key personnel. The resumes must address the Minimum Qualifications #4 and #5 and clearly demonstrate experience, knowledge, and familiarity with State of Maine and Federal regulations, policies, and guidance documents for work included in the Technical Specifications.

8. Project names, project descriptions, references (name, title, company/organization and phone number) for a minimum of five projects that address the Minimum Qualification #5.

9. An organizational chart showing the proposed lines of authority and communication between key personnel and subcontractors.

10. A certification statement signed by the Bidder and each key subcontractor that states, “I hereby certify that all information provided on this Bidder Qualification Statement is true and accurate to the best of my knowledge.”

FAILURE TO SUBMIT THIS INFORMATION WITH THE BID WILL BE CONSIDERED A NON-CURABLE BID DEFECT

SPECIAL PROVISION 102.7.3
ACKNOWLEDGMENT OF BID AMENDMENTS

With this form, the Bidder acknowledges its responsibility to check for all Amendments to the Bid Package. For each Project under Advertisement, Amendments are located at http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php It is the responsibility of the Bidder to determine if there are Amendments to the Project, to download them, to incorporate them into their Bid Package, and to reference the Amendment number and the date on the form below. The Maine DOT will not post Bid Amendments any later than noon the day before Bid opening without individually notifying all the planholders.

Amendment Number	Date

The Contractor, for itself, its successors and assigns, hereby acknowledges that it has received all of the above referenced Amendments to the Bid Package.

CONTRACTOR

Date

Signature of authorized representative

(Name and Title Printed)

CES INC

OPERABLE UNIT 1 REMEDIATION – CALLAHAN MINE SUPERFUND SITE, BROOKSVILLE, MAINE
BID SCHEDULE

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE (NUMERALS)	TOTAL AMOUNT
1	Mobilization	1	LS		
2	Remedial Action Work Plans	1	LS		
3	Erosion and Sedimentation Control	1	LS		
4	Clearing and Grubbing	4.75	AC		
5	Rough Grading	4.75	AC		
6	Residential Use Area Excavation and Stockpiling	2,100	CY		
7	Ore Pad Removal and Stockpiling	16,700	CY		
8	Common Borrow	3,800	CY		
9	Interim Stockpile Cover	1,100	CY		
10	16 oz Non-Woven Geotextile	60,000	SF		
11	60 mil HDPE Geomembrane	60,000	SF		
12	Double Sided Geocomposite	60,000	SF		
13	Aggregate Base	250	CY		
14	Aggregate Subbase	600	CY		
15	Topsoil	820	CY		
16	Restoration	4.75	UNIT		
17	Boat Ramp	1	ALLOW	$50,000	$50,000
18a	Wastewater Treatment and Disposal Fassnacht Tax Map 9 Lot 28	1	LS		
18b	Wastewater Treatment and Disposal Sandecki & Betts Tax Map 9 Lot 29	1	LS		
18c	Wastewater Treatment and Disposal Peters Tax Map 9 Lot 31	1	LS		
18d	Wastewater Treatment and Disposal Gray Tax Map 9 Lot 32	1	LS		

CES INC

OPERABLE UNIT 1 REMEDIATION – CALLAHAN MINE SUPERFUND SITE, BROOKSVILLE, MAINE
BID SCHEDULE

ITEM NO.	DESCRIPTION	APPROX. QUANTITY	UNIT	UNIT PRICE (NUMERALS)	TOTAL AMOUNT
19	PCB $\geq$ 50 ppm Excavation	500	CY		
20	PCB $\geq$ 50 ppm Disposal	500	CY		
21	PCB $\leq$ 50 ppm Excavation	4,000	CY		
22	PCB $\leq$ 50 ppm Disposal	4,000	CY		
23	Demolition	1	LS		
24	Remedial Action Report	1	LS		

TOTAL BID _____

ALTERNATE A – OLD MINE ROAD PAVING					
A1	2" 19 mm HMA	175	TON		
A2	1½" 12.5 mm HMA	130	TON		

Total Alternate A_____

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Environmental Protection (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 17 State House Station, Augusta, Maine 04333-0017, and

_____

a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

_____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No. **12521.08**, for the **Remediation of the Callahan Mine Superfund Site** in the town of **Brooksville**, County of **Hancock**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **June 1st, 2011 for the Residential Use Area and 180 Calendar Days for the contract** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the State of Maine Department of Transportation Standard Specifications, Revision of December 2002 and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is

Base Bid $_____

Pavement Alternate $_____

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.

2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of the **Remediation of the Callahan Mine Superfund Site**, State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items".

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.
As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items", which may be ordered by the Resident, and to accept as full compensation the amount

determined upon a "Force Account" basis as provided in the Standard Specifications, Revision of December 2002, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the Standard Specifications Revision of December 2002 and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 60 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

_____	_____
Date	(Signature of Legally Authorized Representative of the Contractor)
_____	_____
Witness	(Name and Title Printed)

G. Award.

Your offer is hereby accepted for (see checked boxes):

Base Bid ☒
Pavement Alternate ❑

Contract Amount: _____

This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

_____ _____

Date By: Beth Nagusky**,** Acting Commissioner

_____

Witness

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Environmental Protection (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 17 State House Station, Augusta, Maine 04333-0017, and

_____

a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

_____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No. **12521.08**, for the **Remediation of the Callahan Mine Superfund Site** in the town of **Brooksville**, County of **Hancock**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **June 1st, 2011 for the Residential Use Area and 180 Calendar Days for the contract** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the State of Maine Department of Transportation Standard Specifications, Revision of December 2002 and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is

Base Bid $_____

Pavement Alternate $_____

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.

2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of the **Remediation of the Callahan Mine Superfund Site**, State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items".

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.
As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items", which may be ordered by the Resident, and to accept as full compensation the amount

determined upon a "Force Account" basis as provided in the Standard Specifications, Revision of December 2002, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the Standard Specifications Revision of December 2002 and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 60 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

_____	_____
Date	(Signature of Legally Authorized Representative of the Contractor)
_____	_____
Witness	(Name and Title Printed)

G. Award.

Your offer is hereby accepted for (see checked boxes):

Base Bid ☒
Pavement Alternate ❑

Contract Amount: _____

This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

_____ _____

Date By: Beth Nagusky**,** Acting Commissioner

_____

Witness

STATE OF MAINE DEPARTMENT OF TRANSPORTATION

Bid Guaranty-Bid Bond Form

KNOW ALL MEN BY THESE PRESENTS THAT_____

_____, of the City/Town of _____and State of_____

as Principal, and _____as Surety, a

Corporation duly organized under the laws of the State of_____and having a usual place of

Business in _____and hereby held and firmly bound unto the Treasurer of

the State of Maine in the sum of_____,for payment which Principal and Surety bind

themselves, their heirs, executers, administrators, successors and assigns, jointly and severally.

The condition of this obligation is that the Principal has submitted to the Maine Department of Transportation, hereafter Department, a certain bid, attached hereto and incorporated as a part herein, to enter into a written contract for the construction of _____

_____

_____and if the Department shall accept said bid and the Principal shall execute and deliver a contract in the form attached hereto (properly completed in accordance with said bid) and shall furnish bonds for this faithful performance of said contract, and for the payment of all persons performing labor or furnishing material in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be null and void; otherwise it shall remain in full force, and effect.

Signed and sealed this_____day of _____20_____

WITNESS:

_____

_____

_____

WITNESS

_____

_____

_____

PRINCIPAL:

By_____

By:_____

By:_____

SURETY:

By_____

By:_____

Name of Local Agency: _____

BOND # _____

CONTRACT PERFORMANCE BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____ _____ **in the State of** _____, as principal, and……....., a corporation duly organized under the laws of the State of ..... and having a usual place of business ...., as Surety, are held and firmly bound unto the Treasurer of the State of Maine in the sum of _____ **and 00/100 Dollars ($),** to be paid said Treasurer of the State of Maine or his successors in office, for which payment well and truly to be made, Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in the Contract to construct Project Number _____ in the Municipality of _____ promptly and faithfully performs the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the State of Maine.

Signed and sealed this ..... day of ....., 20….. .

WITNESSES:	SIGNATURES:
	CONTRACTOR:
Signature.....	.....….....
Print Name Legibly	Print Name Legibly ...……....
	SURETY:
Signature	....……....
Print Name Legibly	Print Name Legibly .....
SURETY ADDRESS:	NAME OF LOCAL AGENCY:
.....	ADDRESS .....
.....	...…….....
.....	.....…….....
TELEPHONE.....	.....…….....

BOND # _____

CONTRACT PAYMENT BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____ _____ **in the State of** _____, as principal, and.....…..... a corporation duly organized under the laws of the State of ..... and having a usual place of business in .....……., as Surety, are held and firmly bound unto the Treasurer of the State of Maine for the use and benefit of claimants as herein below defined, in the sum of _____ **and 00/100 Dollars ($)** for the payment whereof Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in the Contract to construct Project Number _____ in the Municipality of _____ promptly satisfies all claims and demands incurred for all labor and material, used or required by him in connection with the work contemplated by said Contract, and fully reimburses the obligee for all outlay and expense which the obligee may incur in making good any default of said Principal, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material or both, used or reasonably required for use in the performance of the contract.

Signed and sealed this ..... day of ...…….....…., 20 ... .

WITNESS:	SIGNATURES:
	CONTRACTOR:
Signature…….....	.....….....
Print Name Legibly .....……..	Print Name Legibly ….....….....
	SURETY:
Signature.....	...….....….....
Print Name Legibly	Print Name Legibly ….....….....
SURETY ADDRESS:	NAME OF LOCAL AGENCY:
...….....….....	ADDRESS ….....….....
.....	…….....….....
TELEPHONE	…….....….....

DIVISION 100 - GENERAL CONDITIONS

SECTION 101 - CONTRACT INTERPRETATION

Scope of Section This Section consists of abbreviations, definitions, and general rules of interpretation.

101.1 Abbreviations Abbreviations are defined in the following list. Abbreviations not defined in this Section or otherwise in the Contract shall have the meaning that is commonly accepted in the Engineering and construction industry.

AAN	American Association of Nurserymen, Incorporated
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
AGC	Associated General Contractors of America
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
ANLA	American Nursery & Landscape Association
ANSI	American National Standards Institute
ARA	American Railway Association
AREMA	American Railway Engineering and Maintenance-of-way Association
ARTBA	American Road & Transportation Builders Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATSSA	American Traffic Safety Services Association
AWWA	American Water Works Association
AWPA	American Wood Preservers Association
AWS	American Welding Society
BMP	MDOT’s “Best Management Practices for Erosion and Sediment Control"
CFR	Code of Federal Regulations
DBE	Disadvantaged Business Enterprise
DREW	Daily Reports of Extra Work
DRB	Dispute Review Board
EIA	Electronic Industries Association
EEO	Equal Employment Opportunity
EMS	Emergency Medical Service
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FSS	Federal Specifications and Standards, General Services Administration
IES	Illuminating Engineering Society
IMSA	International Municipal Signal Association
IPCEA	Insulated Power Cable Engineers Association
ISEE	International Society of Explosives Engineers
ISO	Insurance Services Office

ITE	Institute of Transportation Engineers
LURC	Land Use Regulation Commission - Maine
MCTCB	Maine Concrete Technician Certification Board
MDEP	Maine Department of Environmental Protection
MDOT	Maine Department of Transportation
MIL	Military Specifications
MRSA	Maine Revised Statutes Annotated
MUTCD	Manual on Uniform Traffic Control Devices
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NEPCOAT	Northeast Protective Coating Committee
NESC	National Electric Safety Code
NETTCP	New England Transportation Technician Certification Program
NHS	National Highway System
NICET	National Institute for Certification in Engineering Technologies
OSHA	Occupational Safety and Health Administration
PIN	Project Identification Numbers
QA	Quality Assurance
QC	Quality Control
QCP	Quality Control Plan
RFI	Request for Information
SAE	Society of Automotive Engineers
SEWPCP	Soil Erosion and Water Pollution Control Plan
SHA	State Highway Agency (as used by FHWA, meaning MDOT)
SPCCP	Spill Prevention Control and Countermeasure Plan
SSPC	Steel Structures Painting Council
TAPPI	Technical Association of Pulp and Paper Industry
TCP	Traffic Control Plan
USC	United States Code
USDA	United States Department of Agriculture
UL	Underwriter's Laboratory
VECP	Value Engineering Change Proposal

101.2 Definitions Words, terms, and phrases are defined below. Capitalized words in this Standard Specifications book are defined under this Section. Words, terms, or phrases that are not defined in this Section 101.2 or otherwise in the Contract shall have the meaning commonly accepted in the engineering and construction industry.

Acceptable Work Work that Conforms or Substantially Conforms to the Contract and is satisfactory to the Department.

Acceptance Consideration of operations, inspections, samples, tests, certifications, proper QCP implementation, and end product properties to determine whether the product will be accepted for payment, including any adjustments to compensation as provided in the Contract.

Acceptance Test Test utilized by the Department to evaluate the quality of a Material or product.

Actual Costs Direct, Project-specific, costs actually incurred by the Contractor in the performance of Work. Actual Costs consist of labor, Material, Equipment, and administrative overhead. For related provisions, see Section 109.7.2 – Basis of Payment

Addendum See Bid Amendment.

Aggregate Inert Material such as sand, gravel, broken stone, crushed stone, or a combination of any of these Materials.

Agreement Agreement means Contract Agreement.

Apparent Low Bidder A Bidder that submits the lowest apparently responsive Bid. The Apparent Low Bidder may not be Awarded the Contract if a) the Bid is later found to be non-responsive in accordance with Section 102.11, b) the Bidder is found to be not responsible, c) the Bidder fails to comply with all applicable pre-Award Conditions, or d) other pre-execution requirements of the Contract, or the Department chooses not to Award a Contract.

Apparent Successful Bidder The Bidder with the lowest responsive Bid as determined by the Department. A responsive responsible Bidder, usually the Apparent Low Bidder, that is Awarded the Contract. The Department may not execute the Contract with the Apparent Successful Bidder if a) the Apparent Successful Bidder fails to comply with all applicable pre-Award conditions or other pre-execution requirements of the Contract or b) if the Department chooses not to Award a Contract.

Award The execution of the Contract by the Department, conditioned upon the Successful Bidder's performance of all pre-execution requirements of the Bid Documents.

Award Conditions Pre-Award or pre-execution requirements that the Contractor must meet before Contract Execution including bonding and insurance. For a related provision, see Section 103.5 - Award Conditions.

Best Value Procurement Process Using a Request for Proposals A process for procuring contractual services in which price is only one of several factors used in determining the successful Proposer. See Proposer, Request for Proposals, and Design-Build Contract.

Bid The offer by a Bidder on forms prescribed by the Department to perform the Work in Conformity with all provisions of the Bid Documents for the price(s) set forth.

Bid Amendment A change to the Bid Documents issued by the Department after advertisement and before the Bid Opening.

Bid Bond A bond furnished with a Bid by a Bidder and it's Surety in the amount set forth in the Notice to Contractors or elsewhere in the Bid Documents. The Bid Bond is forfeited if the Apparent Low Bidder refuses to enter into a Contract with the Department.

Bid Contact Person The person identified in the advertised Notice to Contractors, usually the Project Manager, as the person to whom the Bidder must refer technical or

Engineering questions from the time of advertisement through Contract Execution, said person being duly authorized by the Commissioner. The Contracts Engineer may be contacted regarding Bidding and contracting procedures. If no one is so identified, the Bidder must refer questions to the Contracts Engineer. All technical or project specific questions must be faxed to the number listed in the Notice to Contractors.

Bidder An individual, firm, corporation, limited liability company, partnership, joint venture, sole proprietorship, or other entity that submits a Bid. Upon Contract Execution, the successful Bidder becomes the Contractor.

Bid Documents Documents issued by the Department to solicit Bids from Contractors. Bid Documents generally include the Notice to Contractors, Plans and Specifications (including these Standard Specifications), Standard Details, Special Provisions, Bidding instructions, and any Bid Amendments issued by the Department. Documents attached to or referenced in the Bid Documents are part of the Bid Documents. Contrast "Bid Documents" with "Bid Escrow Documentation" as may be defined by Special Provision.

Bid Guaranty A bond or other acceptable security specified in the Notice to Contractors or elsewhere in the Bid Documents that is forfeited if the Apparent Low Bidder refuses to enter into a Contract with the Department. For a related provision, see Section 102.6 - Bid Guaranty.

Bid Opening The date and precise time by which the Bidder must Deliver its Bid to be publicly opened and read as specified in the Notice to Contractors or any applicable Bid Amendment. For related provisions, see Sections 102.7 - Delivery of Bids and 102.9 - Bid Opening.

Blue Book The edition of publications entitled "Rental Rate Blue Book for Construction Equipment" or "Rental Rate Blue Book for Older Construction Equipment," as applicable, published by Primedia Information Inc., that was current when the Work being priced was performed.

Business Day Every Calendar Day less Saturdays, Sundays, and Holidays.

Calendar Day Every day shown on the calendar, beginning at 12:01 a.m. and ending at midnight.

Change Order See Contract Modification

Commissioner The Commissioner of the Department of Environmental Protection.

Compensable Delay See Section 109.5.1 - Definitions - Types of Delays.

Completion Completion occurs when the Contractor has finished all Work pursuant to the Contract, including Delivery of all Closeout Documentation. Completion does not mean substantial Completion. Unless the context indicates otherwise, Completion also does not mean Completion of Physical Work.

Completion of Physical Work Completion of Physical Work occurs when the Work is complete and has undergone a successful final inspection.

Conduit A pipe used for receiving and protecting wires or cable.

Conform or Conformity The performance of an item of Work in strict compliance with all applicable provisions of the Contract. For a related definition, see Substantially Conform.

Construction Easement A right acquired by the Department to use or control property, outside of the established Right-of-Way.

Construction Limit Line A line, usually outside of the Right-of-Way, within which the Contractor may Work and outside of which Work may not be performed without authorization by the Department.

Contract All documents affecting the respective rights and responsibilities of the Department and the Contractor. These documents include, but are not limited to, the Contract Agreement, the Notice to Contractors, Plans, Special Provisions, Bid Amendments, Contract Modifications, Geotechnical Information, Permits, the Contractor's Bid prices (as corrected mathematically pursuant to Section 103.1.1 - Unit Prices Govern, if necessary), and all documents incorporated by reference.

Contract Bonds The forms of security approved by the Department, executed by the Contractor and its Surety or Sureties, guaranteeing performance of the Work, and the payment of all obligations pertaining to the Work. For related provisions, see the definitions of Bid Guaranty, Performance Bond, and Payment Bond.

Contract Completion Time Length of time allowed under the Contract to complete the Work pursuant to the terms of the Contract.

Contract Completion Date The required completion date of all Work pursuant to the Contract, except the landscape establishment period and warranty work. The Contract Completion Date is usually included in Special Provision 107 and on the Contract Agreement, Offer, & Award form.

Contract Documents Contract Documents are all documents, whether physically attached or incorporated by reference, which make up the Contract.

Contract Execution Execution of the Contract by the Commissioner or their authorized agent by signing the Contract Agreement, Offer, & Award form which action, upon written notification to the Contractor, forms a Contract as provided in Section 103.8 - Execution of Contract by Department.

Contract Modification A general term describing a formal change to a Contract. Types of Contract Modifications include; change orders, extra work orders, resident work orders, and supplemental agreements. For a related provision, see Section 109.8 - Contract Modification

Contract Time See Contract Completion Time and Section 107.1 - Contract Time.

Contractor After the Department has executed the Contract by cosigning the Contract Agreement, Offer, & Award form provided in the Bid Documents, previously signed by the successful bidder, the Successful Bidder in a low Bid process or the successful Proposer in a best value type of Contract becomes the Contractor. The Contractor will be the single point of responsibility for all Contract obligations to the Department. The Contractor shall be an independent Contractor with respect to the Department and shall not be an employee, agent, or representative of the Department. Alternatively, "Contractor," with a lower case "c," may mean a firm engaged in construction Work.

Critical Path The sequence of activities from the Project start to its Completion having the greatest cumulative elapsed time, thereby determining the minimum time duration of the entire Project. The Critical Path is identified by the sequence of those activities with the least float.

Culvert Any structure not defined as a Strut or Bridge that provides a Drainage opening under the Roadway or approaches to the Roadway.

Days Calendar Days.

Default See Section 112.1 - Default.

Defects or Defective Work Work that is unsatisfactory, faulty, or deficient in that it is not in Conformity with the Contract or with prevailing industry standards applicable to the Work at the time of submission of the Bid as determined by the Department or its agents. For related provisions, see the definition of Acceptable Work and Section - 101.3.1 Meaning of "Approved," Etc..

Delay To cause to be late. See Section 109.5 - Adjustments for Delay.

Deliver To cause Receipt by a means set forth in the definition of Received or Receipt.

Department The Department of Environmental Protection of the State of Maine; acting through the Commissioner and his/her duly authorized representatives. For related provisions, see definitions of Project Manager, and Resident.

Differing Site Conditions See Section 109.4 - Differing Site Conditions.

Dispute Review Board (DRB) A panel of three experienced persons that the parties may agree to use to make recommendations regarding the resolution of Disputes. Upon mutual Agreement, a single individual may act as a DRB. For a related provision, see Section 111.4 - Dispute Review Board.

Disputes Disagreements, claims, counterclaims, matters in question, and differences of opinion between the Department and the Contractor and those Working for or through the Contractor regarding matters related to the Work that arise after Contract Execution. These include, but are not limited to, interpretation of the Contract, compensation and costs, time for performance, and quality.

Drainage The system of pipes, Drainage ways, ditches, and Structures by which surface or subsurface waters are collected and conducted from the Highway area.

Drawings See Plans.

Environmental Information Hazardous waste assessments, dredge material test results, boring logs, geophysical studies, and other records and reports of the environmental conditions. For a related provision, see Section 104.3.14 - Interpretation and Interpolation.

Equipment All machinery, supplies for repair and maintenance of such machinery, tools, and other apparatus necessary or appropriate for Completion of the Work in Conformity with the Contract.

Equitable Adjustment An adjustment to compensation due to a change in the nature or scope of the Work made a part of a Contract by a formal Contract Modification. For a related provision, see Section 109.7 - Equitable Adjustments to Compensation.

Excusable Delay See Section 109.5.1 - Definitions - Types of Delays.

Extra Work Work that is outside the scope of the Contract and that the Department determines is necessary.

Extra Work Order See Contract Modification

Final Acceptance Acceptance by the Department for all Work and responsibility for the Project from the Contractor, except for any Contractor warranty obligations.

Force Account Work Prescribed Work paid on the basis of Actual Costs and additives as set forth in Section 109.7.5 - Force Account Work.

Geometrics The physical location (horizontally and vertically) and shape of the object under consideration.

Geotechnical Information Boring logs, soil reports, geotechnical design reports, ground penetrating radar evaluations, seismic refraction studies, and other records of subsurface conditions. For a related provision, see Section 104.3.14 - Interpretation and Interpolation.

Haul Road A private way leading to a public way that is used by the Contractor to move Equipment and Materials related to the Work.

Hearing Unless otherwise specified by the Department in writing, a Hearing is a review of a decision that includes a review of existing documentation on file with the Department and any additional documentation, including written arguments and supporting exhibits that may be submitted by any interested party. Unless the context clearly indicates otherwise, a Hearing need not include an evidentiary Hearing for the oral presentation of evidence if such an evidentiary Hearing is not requested or if the Department reasonably determines that such an evidentiary Hearing is not necessary to adequately review the matter at issue.

Unless the context clearly indicates otherwise, a Hearing shall not be construed as an adjudicatory proceeding within the meaning of the Maine Administrative Procedure Act.

Highway A general term denoting a public way for purposes of vehicular travel, including the entire area within the Right-of-Way.

Holidays New Year's Day, Martin Luther King Day, President's Day, Patriot's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. For a related provision, see Section 107.3.3 - Sundays and Holidays.

Incentive/Disincentive Payment An adjustment to the contract price of a predetermined amount for each day the Work is completed ahead of or behind the Contract Time, Contract Completion Date, or some specified intermediary milestone. A disincentive is not a penalty, but an estimate of user and other costs incurred by the people of the State of Maine.

Incidentals The terms "Incidentals" and "Incidental to the Contract" mean items that are accessory to or incorporated into the Work and that have no separate Pay Item. Unless otherwise provided in the Contract, the cost of Incidentals shall be included in the Contractor’s prices for the Pay Items. There will be no separate payment.

Incomplete Not complete, as defined above by Completion.

Independent Assurance (IA) Independent assessment of the reliability of test results obtained from Acceptance Testing.

Inexcusable Delay See Section 109.5.1 - Definitions - Types of Delays.

Inspector An authorized representative of the Resident assigned to make detailed inspections of the Work to determine compliance with the Contract.

In Stream Work Any activities conducted in the water.

Laboratory Unless the context indicates otherwise, the testing laboratory of the Department or its designee.

Landscape Establishment Period The period of time commencing at initial Acceptance of each planting and extending for two years, unless otherwise provided in the Contract. For a related provision, see Section 621 - Landscaping.

Landscape Establishment Period Obligations The obligations of the Landscape Subcontractor during the Landscape Establishment Period. Unless otherwise provided in the Contract, these obligations consist of monthly inspection and reporting from March through November of the condition of all plants installed and replacing plants that are not in a healthy, vigorous growing condition. For a related provision, see Section 621 - Landscaping.

Liquidated Damages An amount due and payable to the Department by the Contractor, normally realized through a reduction of amounts to be paid to the Contractor.

Said amount is calculated by multiplying a daily amount set forth in the Contract by the number of Days the Work remains Incomplete after the Contract Completion Time has expired.

Major Item An individual Pay Item that constitutes 10% or more of the amount of the Awarded Contract, calculated using the Contractor's Bid prices and the estimated quantities contained in the Bid Documents.

Material Any substance specified for use in the construction of the Project and related approaches.

Minor Item All Pay Items that are not Major Items.

Modification See Contract Modification.

Non-conforming Work All Defective, Unauthorized, or Uninspected Work.

Notice of Award A written notice to the Contractor stating that the Contract has been executed.

Notice of Intent to Award A written notice to the Successful Bidder stating that the Department has conditionally accepted its offer and upon receipt of a payment bond, performance bond, insurance certificate and the fulfillment of any other pre-award conditions, the contract will be signed (executed) by the Department. For a related provision, see Section 103.4 - Notice of Award.

Notice to Contractors The advertisement or invitation for Bids published in accordance with Maine law, including electronic advertising, applicable to the Department.

Offer A response to a solicitation that, if accepted, would bind the offeror to perform the resultant Contract. Submission of a Bid constitutes an Offer by the Bidder.

Order A directive from the Department requiring compliance by the Contractor.

Owner The legal or record Owner of the building or Premises on which the Project is to be constructed, generally the State of Maine acting by and through the Department.

Partnering See Section 104.4.1 - Partnering.

Pay Item An item of Work set forth in the Schedule of Items for which the Contractor must provide a price.

Payment Bond The security furnished by the Contractor and its Surety to guarantee payment of all obligations incurred by the Contractor related to the Contract. For a related provision, see Section 110.2.1 - Bonds.

Performance Bond The security furnished by the Contractor and it’s Surety to guarantee performance of the Work in Conformity with the Contract. For a related provision, see Section 110.2.1 - Bonds.

Permits Permits granted to the Department for the Project. Permits often required include (a) environmental Permits including (1) Natural Resources Protection Act (NRPA) permit from MDEP and (2) Army Corps of Engineers Permit and (b) a U.S. Coast Guard permit.

Physical Work All Work specified in the Contract that affects the physical environment including all Work within the Project Limits, final cleaning up and finishing, and Completion of Punch List Items as provided in Section 107.9 - Project Closeout, and removal of traffic control devices.

Plans When the context so indicates, "Plans" mean applicable construction drawings including plan, profile, typical cross sections, Working Drawings, Standard Details, Supplemental Standard Details, and supplemental Drawings or exact reproductions thereof or electronically displayed equivalents, that show the location, character, dimensions, and details of the Work. Where the context so indicates, "Plan" may also mean a detailed process, program, or method worked out beforehand for the accomplishment of an objective.

Process Control Test Test performed at the source of supply of Material to determine whether the Material meets the Specification prior to Delivery.

Profile Grade The trace of a vertical plane intersecting the top of the wearing surface, usually along the longitudinal centerline of the roadbed. Profile Grade means either elevation or gradient of such trace according to the context.

Progress Meeting See Section 104.4.3 - Progress Meetings.

Project Limits Areas within the Right-of-Way or Construction Limit Lines shown on the Plans or otherwise indicated in the Contract. If no Project Limits are indicated in the Contract, the Project Limits shall be the area actually occupied by the Bridge, Highway, or other infrastructure before construction extending to and including (A) the area outside the Shoulders and ditch lines and within any landmarks or historic features such as fences, fence posts, tree rows, stone walls, corner stones, or other monuments indicating the boundary line, or (B) in the absence of any landmarks or historic features, Sidewalks, Shoulders, and ditch lines to the top of cuts or toe of fills. For a related Maine statute, see 23 MRSA § 653.

Project Manager The Department's duly authorized representative for overall coordination of the Project.

Project Records Records or data of any type on any media including those produced by the Contractor or its consultants, Subcontractors, suppliers, or manufacturers that are related to the Project. Project Records include, but are not limited to, Plans, Working Drawings, Specifications, manufacturer's recommendations, catalog cuts, daily time reports, records of Force Account Work, schedules and scheduled updates or revisions, quality control Plans and related documentation, inspectors' reports, traffic control Plans and log, safety program and incident reports, soil erosion and water pollution control Plans and log, employment records, payrolls, internal accounting records, equal opportunity and affirmative action records, on-the-job and Disadvantaged Business Enterprise reports, preconstruction

conference records, Progress Meeting records, Partnering records, correspondence, e-mails, and any other documents related to the Work.

Proposal The response to a Request for Proposals. Proposals will normally be requested for anticipated Best Value procurements. See Design-Build, Request for Proposal and Best Value Procurement. In another context, sometimes the Department's solicitation for bids is called a Bid Proposal.

Proposer The entity submitting a Proposal.

Punch List See Sections 107.9.2 - Notice/Inspection/Punch List and 107.9.3 - Notices/ Final Inspections/Physical Work Completion.

Quality Assurance (QA) All planned and systematic operations to ensure that the operation, material, and/or end product meets Specifications. Quality Assurance includes A) approval and oversight of the Contractor's Quality Control Plan, B) review of inspector, sampler, tester, and Laboratory qualifications, C) inspection for Conformity with Contract requirements, D) Contractor Quality Control, E) Acceptance Testing, and F) Independent Assurance.

Quality Control (QC) Planned and specified actions or operations necessary to produce an end product that Conforms to the quality requirements of the Contract. Unless otherwise specified, QC includes inspection and testing for process control to the extent determined necessary by the Contractor. Quality Control is also referred to as Process Control.

Quality Control Plan (QCP) The program and documentation of that program, approved by the Department, which specifies the actions, inspection, sampling, and testing necessary to keep production and placement operations within Specifications, including provisions to quickly determine when an operations becomes out of control and those actions that the Contractor will take to restore compliance.

Received or Receipt When considering documents, unless the context indicates otherwise, Receipt by regular US mail, overnight courier, service in hand, or by fax or electronic transmission with confirmation of Receipt originating from the recipient (which may be a telephone confirmation). If Delivered by regular US mail, notices that are properly addressed will be deemed Received three Days after mailing, unless the recipient admits earlier Receipt, in which case Receipt will be the date admitted.

Reference Stake A stake set beyond the proposed grading areas for use as a control for the new construction.

Related Entities All general partners, joint venturers, parent firms, subsidiaries, or sister firms that are owned or controlled by the Bidder or other entity under consideration.

Request for Proposal The Department's solicitation in a Best Value Procurement Process for Proposals, such as when soliciting for an anticipated Design-Build Contract. See Proposal and Best Value Procurement Process.

Resident The Department's on-site representative.

Resident Work Order See Contract Modification

Right-of-Way A general term denoting land, property, or interest therein, usually in the form of a strip, acquired for or devoted to the Project or other purposes.

Schedule of Items A list of items of Work provided in the Bid Documents for which the Contractor must provide prices.

Schedule of Work A written Work schedule submitted and maintained by the Contractor by which the Contractor Plans and prosecutes the Work. The Schedule of Work contains dates of commencement and Completion of various items of Work within the Contract Time and all authorized extensions. For a related provision, see Section 107.4.2 - Schedule of Work Required.

Shop Drawings See Working Drawings.

Special Provision Revisions to the Standard and/or Supplemental Specifications applicable to an individual Project or Contract.

Specifications A written or electronic textual compilation of provisions and requirements for the performance of the Work, including incorporations by reference.

State The State of Maine acting through its authorized agencies and representatives.

Subcontractor An individual, firm, corporation, limited liability company, partnership, joint venture, sole proprietorship, or any other entity to whom the Contractor subcontracts a portion of the Work. A subcontracting arrangement shall be considered to exist when a person or firm assumes obligation through a written contract with the Contractor for performing part of the Work using its own Equipment and Workers, procuring its own Materials and supplies, and furnishing its own supervision with only general overall supervision being exercised by the prime Contractor or higher tier Subcontractors. Unless the context indicates otherwise, Subcontractors include suppliers, vendors, fabricators, and any other entities with which the Contractor contracts to perform any portion of the Work.

Substantially Conform or Substantial Conformity Substantially Conform or Substantial Conformity means that the Work at issue, though not in strict accordance with the Plans, Specifications, or other Contract requirements, Conforms sufficiently to the applicable standard such that it may be acceptable to the Department (possibly with a credit to the Department) and not require removal, as determined by the Department. For a related definition, see Conformity. For a related provision, see Section 106.8.1 - Substantially Conforming Work.

Successful Bidder The low, responsive, responsible bidder to whom the Department intends to award the Contract. This status is evidenced by a “Notice of Intent to Award” Letter sent to the Successful Bidder.

Superintendent The Contractor's authorized on-site representative who is in charge of and responsible for the Work.

Supplemental Liquidated Damages Liquidated Damages for additional costs resulting from Contractor's failure to complete a specific Work item, phase, or milestone within the time specified in the Contract for that item. Supplemental Liquidated Damages are in addition to and separate and distinct from Liquidated Damages.

Surety The corporation, limited liability company, partnership or individual, or other entity, other than the Contractor, that executes or is obligated under a Contract Bond or Bid Bond.

Unacceptable Work All Work that does not Substantially Conform to the Contract as determined by the Department.

Unauthorized Work Work performed without providing the Resident with reasonable notice of the date and time that the Work is to be performed, Work performed contrary to the instructions of the Department, or any Extra Work performed without written Contract Modification or Agreement. For a related provision, see Section 106.8.3 - Unauthorized Work.

Uncontrollable Events Events or acts that were unforeseeable at the time of Bid submission and that were beyond the Contractor's control in that the risk of the event or act could not have been prevented or managed by the Contractor with proper planning, coordination, Subcontractor management, insurance, bonding, maintenance, erosion control, traffic control, security precautions, Workers or Equipment. Uncontrollable Events are of two types: (A) severe weather events that meet the requirements of the first sentence of this definition and/or (B) non-weather events that meet the requirements of the first sentence of this definition which might include acts by foreign enemy, quarantine restrictions, strikes not involving the Contractor, action or inaction by governmental authorities, action or inaction by Utility Companies or other third parties (not Subcontractors) working on Project related Work within the Project Limits, and freight embargoes. Uncontrollable Events specifically do not include: fires (unless caused by a weather event described in this definition above), acts by other third parties including vandals and members of the traveling public, non-performance of Subcontractors (except in cases of unforeseeable, permanent, and complete cessation of all operations by the Subcontractor for reasons unrelated to the Contractor), and difficult, but foreseeable weather for the location and time of the Work including but not limited to cold, snow, and ice in the winter, flooding caused by snow melt and rain in the spring, rain in the fall, and thunderstorms in the summer.

Uninspected Work Work that was performed without inspection by the Department.

Unit Price The price for one unit of Work submitted by the Bidder in its Bid.

Utility Companies All persons or entities set forth in 35-A MRSA §2501(2).

Utility Facilities All Structures, facilities, Equipment, and all appurtenances thereto used by Utility Companies including, but not limited to, poles, wires, support poles, guys, anchors, water pipelines, sewer pipelines, gas pipelines, all other pipelines, fire alarms, service connections, meter boxes, valve boxes, light standards, cableways, Conduits, signals, and manholes.

Value Engineering Change Proposal See Section 109.6 - Value Engineering.

Wetlands Areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

Winter Suspensions See Section 107.5.1 - Winter Suspensions.

Work All labor, services, personnel, Materials, Equipment, tools, supplies, and Incidentals required or indicated by the Contract in Conformity with the same. For a related provision, see Section 105.1 - Intent of the Contract.

Working Day A calendar day, exclusive of Saturdays, Sundays, holidays and the period from November 15th to May 15th inclusive, on which weather and other conditions not under the control of the Contractor will permit construction operation to proceed for 70% of the hours of the usual working day with normal working force.

Saturday shall be considered one half of a working day if the Contractor works 2 or more hours during the forenoon. If the Contractor works after 12 o'clock noon, it shall be considered as one working day. If after approval, work is performed on a Sunday or Holiday, the day shall be considered a working day. Work necessary either for the safety of the traveling public or maintenance, performed on Sundays or Holidays, which is neither caused by nor resulting from any fault of the Contractor, shall not be considered a working day.

Working Drawings Plans, sketches, or Drawings provided by the Contractor, or its Subcontractors, vendors, or fabricators for the purpose of supplementing the Plans provided in the Bid Documents and being necessary to demonstrate that the Work will comply with the Contract and meet the intent of the Contract. Working Drawings shall be of sufficient detail to meet the purpose set forth in the preceding sentence. Examples include Shop drawings, erection Plans, falsework Plans, cofferdam Plans, and bending diagrams for reinforcing steel.

Work Order See Contract Modification.

101.3 General Rules of Interpretation

101.3.1 Meaning of “Approved,” Etc Unless the Contract clearly indicates otherwise, whenever anything is to be done or is not to be done unless “approved”, “accepted”, “authorized”, “ordered”, “required”, “determined”, “directed”, “specified”, “designated”, “established”, “suitable”, “satisfactory”, “sufficient”, “unacceptable”, or a similar word or phrase, the word or phrase shall be interpreted as if it were followed by the words "by the Department" or "to the Department" as applicable.

101.3.2 Referenced Publications The Contractor is responsible for obtaining all manuals, Specifications, reference guides, or other publications referenced or indicated by the Contract and performing the Work in Conformity with the same. Unless a specific date or version is

specified, the Contractor shall use the most recent version of such publication that existed at the time the Bid was submitted.

101.3.3 Cross References Cross-references are sometimes provided in the Contract. (Example: "For a related provision, see Section __"). These cross-references are provided for convenience only and are not a comprehensive listing of related Sections. The lack of a cross reference or an incorrect reference shall not be interpreted as indicating that there are no related provisions and does not relieve the parties of the obligation to read the Contract as a whole.

101.3.4 Headings and Tables of Contents All headings, indices, titles, and tables of contents are for convenience only. They do not control interpretation and do not relieve the parties of the obligation to read the Bid Documents or Contract as a whole.

101.3.5 Calculated Dimensions Control In the case of discrepancy between calculated dimensions and scaled dimensions, calculated dimensions shall control.

101.3.6 Priority of Conflicting Contract Documents If the Contractor discovers any ambiguity, error, omission, conflict, or discrepancy ("ambiguity, etc.") related to the Contract Documents that may significantly affect the cost, quality, Conformity, or timeliness of the Work, the Contractor must comply with Section 104.3.3 - Duty to Notify Department If Ambiguities Discovered. In the case of ambiguity, etc., the following components of the Contract Documents shall control in the following descending order of priority:

Bid Amendments (most recent to least recent)
Project Specific Permit Requirements
Special Provisions
Notes on Plans
Plans
Supplemental Specifications
Supplemental Standard Details
Standard Specifications
Standard Details

101.3.7 Multiple Pay Items When there is more than one Pay Item for similar Work governed by one Specification, the item number in the Specification may be appended with additional digits to differentiate such multiple Pay Items. For example, Specification item 900.06 also covers Pay Items 900.061, 900.062, 900.0601, and 900.0602, etc. unless the context clearly indicates otherwise.

SECTION 102 - BIDDING

Scope of Section This Section includes requirements related to eligibility to Bid and the Bidding process from advertisement for Bids, through Bid Opening, to the analysis of Bids.

102.1 Eligibility to Bid

102.1.1 Basic Requirements To be eligible to Bid, prospective Bidders must (A) not have been debarred or suspended from Bidding, and (B) not be in Default with respect to any

outstanding Contract with the Department, unless the Department grants written permission to Bid despite such Default. For related provisions, see Sections 102.9 - Bid Opening and 103.3 - Post-Bid Qualification.

102.1.2 Suspension From Bidding The Department may suspend the right of a Contractor to submit Bids as the general Contractor on construction Projects being developed by the Department's Bureau of Project Development for up to two years pursuant to Department's "Rules Regarding Suspension From Bidding".

102.1.3 Debarment The Department may debar a Contractor from Bidding, subcontracting, or being employed in any capacity regarding any Project administered by the Department pursuant to "Rules Regarding Debarment of Contractors", Maine Department of Transportation Register 17-229, Chapter 102 (October 2, 1985).

102.2 Advertisement - Notice to Contractors A Notice to Contractors will provide a solicitation or an invitation to bid and be advertised in printed or electronic media pursuant to Maine law. Such Notice will contain a brief and general description of the nature and location of the Work and information about how to Bid and how to provide any prequalification requirements.

102.3 Examinations of Documents, Site and Other Information Before submitting a Bid, the Bidder is responsible for: (A) obtaining and examining the Plans, Specifications, all Bid Amendments, and all other Bid Documents; (B) examining the Geotechnical Information and all other information provided or referenced in the Bid Documents; (C) examining the site(s) of Work and making other examinations and investigations that are needed to Make the Bidder fully aware of the conditions that would be encountered in performing the Work, and (D) communicating with the Department as provided in Section 102.5 - Communication Before Bid Opening. For a related provision, see Section 102.7.2 - Effects of Signing and Delivery of Bid.

102.4 Estimated Quantities Quantities shown in the Bid Documents are estimates only to be used for the preparation and comparison of Bids. They may be increased, decreased, or eliminated in their entirety. For related provisions, see Sections 109.1- Changes in Quantities and 109.2 - Elimination of Items.

102.5 Communication Before Bid Opening

102.5.1 Questions From Bidders Bidders shall direct all technical or Engineering questions, including requests for explanations or interpretation, in writing to the Bid Contact Person noted in the Notice to Contractors, typically the Project Manager. All questions must be in writing/facsimile and must be received at least 48 hours before Bid Opening. General questions relating to the Bidding process may be referred to the Department's Contracts Section. For a related provision, see Section 102.5.3 - Bid Amendments.

102.5.2 Bidder's Duty To Notify Department If Ambiguities Discovered Bidders shall not take advantage of any ambiguity, error, omission, conflict, or discrepancy ("ambiguity, etc.") relating to the Bid Documents, Geotechnical Information, site conditions, or any other information that may significantly affect the cost, quality, Conformity, or timeliness of the Work. If a Bidder discovers any such ambiguity, etc., it must notify the Bid Contact Person

immediately in writing. Failure to provide such notice constitutes a waiver of any claim for entitlement for additional compensation or time related to such ambiguity, etc.

102.5.3 Bid Amendment The Department will interpret or modify the Bid Documents only by written Bid Amendment or other writing issued by the Department's Contracts Section. The Department is not bound by any other oral or written representations, including information exchanged verbally at pre-Bid meetings. The Department will issue written Bid Amendment in response to questions from Bidders when the answers: (A) relate to ambiguous, incorrect, or missing information in the Bid Documents; (B) are not apparent to Contractors experienced in the type of Work covered by the potential Contract; and (C) could have a significant impact on the cost, quality, Conformity or timeliness of the Work. For a related provision, see Section 102.5.1 - Questions From Bidders.

102.6 Bid Guaranty Bids must be accompanied by a Bid Guaranty that complies with all the requirements of this Section, unless noted otherwise in the Notice to Contractors and the Bid Documents.

The Bid Guaranty must be: (A) in the amount specified in the Notice to Contractors and the Bid Documents; (B) made payable to the "Treasurer - State of Maine"; and (C) one of the following types: a Bid Bond Conforming to the next paragraph, a cashier's check, a certified check, or a United States Postal money order.

Bid Bonds must be: (A) issued by an insurance company licensed or approved by the State of Maine, Department of Business Regulation, Bureau of Insurance, to do business in the State of Maine; (B) properly signed by the Bidder (as Principal) and a duly authorized representative of the insurance company referenced above, and (C) on the Department's Bid Bond form (or an exact copy thereof) OR must not contain any significant variations from said form as determined in the sole discretion of the Department.

102.7 Delivery of Bids

102.7.1 Location and Time The Bidder must Deliver its Bid and Bid Guaranty in a sealed envelope to the exact location and before the precise time (as determined by the Department) specified in the Notice to Contractors or any applicable Bid Amendment. The Bid and Bid Guaranty must be signed by duly authorized individuals. The sealed envelope must be labeled with the Bidder's name, the Project location, PIN, and the words "Bid Enclosed". As a minimum, the Bidder will submit a Bid Package consisting of the Notice to Contractors, the completed Acknowledgement of Bid Amendments form, the completed Schedule of Items, 2 copies of the completed Agreement, Offer, & Award form, a Bid Bond or Bid Guarantee, and any other Certifications or Bid Requirements listed in the Bid Book. For a related provision, see Section 102.11 - "Bid Responsiveness".

102.7.2 Effects of Signing and Delivery of Bids

A. Offer and Agreement to Pre-execution Terms The signing and Delivery of a Bid represents: (1) an offer by the Bidder to perform the Work for the price(s) submitted within the time(s) specified and in Conformity with all provisions of the Bid Documents; and (2) the Bidder's Agreement to all the provisions of the Bid Documents governing requirements and procedures applicable before Contract Execution. The Bidder's offer shall be

irrevocable until the expiration of the time for Contract Execution by the Department set forth in Section 103.8, except as provided in Sections 102.8 and 102.10 regarding withdrawal of Bids.

B. Bidder Representations By signing and Delivering a Bid, the Bidder represents that: (1) the Bidder has performed the examinations required by Section 102.3 - Examinations of Documents, Site and Other Information; (2) the Bidder has given the Department written notice of all ambiguities, etc. discovered by the Bidder as required by Section 102.5.2 - Bidder's Duty to Notify Department if Ambiguities Discovered; and (3) the Bidder has sufficient knowledge of the Bid Documents, Geotechnical Information, the site, and other conditions to properly price, schedule, plan, and perform the Work.

C. Certifications By signing and Delivering a Bid on federally funded or partially federally funded Contract, the Bidder certifies as provided in all federal certifications set forth in the Bid Book, including those set forth in Section 1 thereof. By signing and Delivering a Bid, the Bidder further certifies as provided in Section 105.10.2(F) - Certification of Continuing EEO Efforts.

102.8 Withdrawal of Bids Before the Time Specified for Bid Opening A Bidder may withdraw a Bid after Delivery, provided the request for such withdrawal is made in writing or in person before the time set for Bid Opening in the Notice to Contractors. The Bidder may revise and resubmit a Bid so withdrawn before the time specified for Bid Opening.

102.9 Bid Opening Bids will be opened and publicly read at the time and place specified in the Notice to Contractors or any applicable Bid Amendments. The Department will normally read publicly only the total Bid Price of each Bid. Unit and lump sum prices are available for inspection by the Bidders immediately after the Bid Opening process.

The public reading of a Bid does not constitute a determination by the Department of whether the Bid is responsive or of whether the Bidder is responsible, though the Department may refuse to read Bids that are obviously non-responsive. Accordingly, the Department may reject a Bid as non-responsive and/or determine a Bidder is not responsible or ineligible to Bid even if that Bidder's Bid is read at Bid Opening.

102.11 Bid Responsiveness

102.11.1 Non-curable Bid Defects The Department **WILL REJECT** Bids as non-responsive if ANY ONE of the following occurs.

A. The Bid and Bid Guaranty are not Delivered to the precise location and by the precise time set forth in the Notice to Contractors or any applicable Bid Amendment.

B. The Bidder is not eligible to Bid as set forth in Section 102.1 - Eligibility to Bid.

C. The Bid is not signed by a duly authorized representative of the Bidder.

D. A Bid Guaranty Conforming to Section 102.6 - Bid Guaranty is not submitted.

E. The unit price and bid amount is not provided; or a lump sum price is not provided or is illegible as determined by the Department.

F. The Bidder fails to indicate the Bidder's choice where the Bid Documents clearly require a choice.

G. The Bid contains any conditional or alternate Bidding language including the right to accept or reject an Award of the Contract.

H. The Bidder submits more than one Bid for the same Contract, or the Bidder and any Related Entity each submit a Bid for the same Contract.

I. The Department has substantial evidence of collusion by the Bidder.

J. The Bidder fails to comply with any provision in the Bid Documents that expressly indicates that such non-compliance will cause Bid rejection.

The Bidder will have no opportunity to cure the above Non-curable Bid Defects.

102.11.2 Curable Bid Defects Unless the Department waives a curable Bid defect, the Bidder must cure, within the time stated in the written notice by the Department, but not less than 24 hours, all other Bid Defects not listed in Section 102.11.1 - Non-curable Bid Defects that are identified by the Department. Failure to cure such Defects within said time may result in forfeiture of the Bidder's Bid Guaranty. Upon such failure, the Department may take any action in the best interests of the Department including those set forth in Section 103.6 - Failure to Fulfill Award Conditions.

Such curable Bid Defects include, but are not limited to, the following.

A. The Bidder only signs one of the Contract Agreement Offer & Award forms.

B. The Bid is not submitted on forms provided by the Department or identical copies thereof.

C. Missing total sum of the items provided in the Schedule of Items.

D. The prices or signatures on the Bid or Bid Guaranty are not in ink or other non-erasable substance.

E. Failure to acknowledge Receipt and consideration of all Bid Amendments.

F. All other Defects that do not create a significant question as to the Bidder's total Bid amount or the Bidder's ability to complete the Work within the Contract Time or by the Contract Completion Date as determined by the Department.

Materially unbalanced Bids may create a significant question as to the Bidder's ability or will to complete the Work within the Contract Time in accordance with the requirements of the Contract; see Section 103.1.2 - Unbalanced Bids.

Contractors prequalified for the general category stated in the Notice to Contractors may be determined non-responsive by the Department based on recent or new data provided since the last determination of prequalification for that Contractor.

SECTION 103 - AWARD AND CONTRACTING

Scope of Section This Section includes requirements related to the final determination of Bid responsiveness and Award and execution of the Contract.

103.1 Analysis of Bids

103.1.1 Unit Prices Govern After Bid Opening, the Department will review the mathematics of all apparently responsive Bids. In the event of a discrepancy between (A) unit and lump prices and (B) extensions and/or the total Bid Price, the unit and lumps sum prices shall govern and the total Bid Price will be adjusted accordingly.

103.1.2 Unbalanced Bids

A. Definitions An Unbalanced Bid is a Bid that is Mathematically Unbalanced and that may also be Materially Unbalanced. Mathematically Unbalanced means a Bid containing lump sum or Unit Prices, which do not reflect reasonable direct costs plus a reasonable proportionate share of the Bidder's anticipated profit, overhead costs, and other indirect costs. Materially Unbalanced means a Mathematically Unbalanced Bid, which generates a reasonable doubt that said Bid, will represent the lowest ultimate cost to the Department.

B. Comparison and Possible Bid Rejection The Department will compare the price of items contained in the Bid of the Apparent Successful Bidder with the estimate prepared by the Department. If the Bid is Mathematically Unbalanced, the Department may, in its discretion, notify the Apparent Successful Bidder and request an explanation. There shall be no negotiation or changes in prices. If the Bidder fails to provide a reasonable explanation, and if the Department finds the Bid is Materially Unbalanced, the Department may reject the Bid as non-responsive and may take any action that is in the best interests of the Department including those set forth in Section 103.6 - Failure to Fulfill Award Conditions.

103.1.3 Waiver of Defects and Technicalities; Right to Reject Bids The Department reserves the right to reject any or all Bids and to advertise for new Bids if doing so is in the best interest of the Department. The Department reserves the right to waive curable defects and other technicalities without notice to any party. Refer to section 102.11.2 for Curable Bid Defects.

103.2 Return of Bid Guaranty Bid Bonds will not be returned unless so requested. Bid Guaranties other than bonds will be returned within 7 Days following Bid Opening, except that the Bid Guaranties from two lowest responsive Bids from responsible Bidders will be retained until Contract Execution or rejection of all Bids.

103.3 Post-Bid Qualification

103.3.1 Pre-Qualification Requirement for Award If the Notice to Contractors lists a Pre-Qualification requirement, the Apparent Successful Bidder must successfully complete the prequalification process as a condition of Award.

103.3.11 Notice and Information Gathering After Bid Opening and as a condition for Award of a Contract, the Department may require an Apparent Successful Bidder to demonstrate to the Department's satisfaction that the Bidder is responsible and qualified to perform the Work.

If such qualification is required, the Department will provide the Bidder with written notice to that effect. Such notice will include a brief description of the reasons why such qualifications is required, and may require the Bidder to provide any information requested in the "Contractor's Prequalification Application" form adopted by the Department.

If requested by the Bidder, the Department shall provide an opportunity for the Bidder to present evidence of qualifications at a reasonable time and place.

103.3.2 Notice of Determination After the Bidder's presentation of evidence of qualifications (if required), the Department will notify the Bidder of its determination in writing. If a determination of "Not Qualified" is rendered, the Department's Chief Engineer will send the notice, which will set forth the specific reasons therefore to the extent practical. Such reasons include the following.

A. Default(s) or termination(s) on past or current Contracts.

B. Failure to pay or settle all bills for labor, Materials or services on past or current Contracts.

C. Failure to provide Closeout Documentation on past or current Contracts.

D. Failure to fulfill warranty obligations on past or current Contracts.

E. Failure to comply with directives of the Department on past or current Contracts.

F. "Below Standard" performance as determined from the Department's Contractor's Performance Rating process.

G. Inability of the Contractor to obtain or retain performance or Payment Bonds meeting MDOT requirements.

H. Failure to accept an Award of a Contract made by the Department to the Contractor.

I. Making materially false, deceptive, or misleading Statements or omissions, whether or not under oath, regarding a claim on prior Contracts or on the Contractor's Prequalification Application.

J. Failure to provide information requested by the Department pursuant to this Section 103.3.

K. Any of the reasons contained in Section 102.02 of the “Rules Regarding Debarment of Contractors”, Maine Department of Transportation Register 17-229, Chapter 102 (October 2, 1985).

L. Debarment or suspension by any federal, State, or local governmental procurement agency or the Contractor’s Agreement to refrain from Bidding as part of the settlement with any such agencies.

M. Other serious misconduct that the Department reasonably determines will substantially and adversely affect the cost, quality or timeliness of Work, or the safety of Workers or the public.

103.3.3 Appeal To appeal a “Not Qualified” determination, the Bidder must Deliver a written "Request for Appeal of Qualification Determination” to the Commissioner within 48 hours of Receipt of such determination. The Commissioner or the Commissioner's designee will grant such Requests for Appeal unless the Department reasonably determines that Delay of Award pending appeal is likely to cause substantial harm to the interests of the Department. If the Request for Appeal is denied, the determination of "Not Qualified" is upheld and the Award process will proceed without the unqualified Bidder.

If the Request for Appeal is granted, the Bidder and the Chief Engineer must Deliver to the Commissioner or the Commissioner's designee any information or arguments that the parties want considered. within 14 Days of Receipt of a “Not Qualified” determination.

Within 14 Days of Receipt of such information and arguments, the Commissioner or the Commissioner’s designee will notify the Bidder in writing as to whether: (A) the determination of "Not Qualified" is upheld, modified or reversed; or (B) the Commissioner or the Commissioner’s designee elects to submit the issue to binding or non-binding alternative Dispute resolution.

After a final determination of “Not Qualified”, the Bidder’s Bid Guaranty will be returned and the Bidder will be ineligible for Award of future Department Contracts until the Bidder is prequalified pursuant to the Department’s Prequalification Procedure.

103.4 Notice of Award The Department has 30 Days following Bid Opening to Deliver a written Notice of Intent to Award and request a payment bond, performance bond, insurance bond, special certifications, and other information from the Apparent Low Bidder. If the Apparent Low Bidder is not prequalified at the time of Bid Opening, the Department shall have 15 days from the successful completion of the Prequalification process or 30 days following Bid Opening; whichever is longer. Once these pre-execution conditions are met, the Department will execute the Contract and notify the Contractor of the award with a written Notice of Award. If a Notice of Award is not sent within 30 days of receipt of the proper bonds and insurance, the Apparent Successful Bidder may withdraw its Bid without forfeiture of its Bid Guaranty or Bidding eligibility. The Notice of Intent to Award will set forth and/or reference the conditions that the Bidder must fulfill before Contract Execution. If the Department and the Apparent Successful Bidder agree, an extension beyond the 30 days of the Bid and Bid prices may occur and the Bid remains viable. For a related provision, see Section 103.5.

103.5 Award Conditions The Apparent Successful Bidder must provide and/or perform all of the items listed in this Section 103.5 within 14 Days of Receipt of the Notice of Intent to Award. Unless indicated otherwise, all items must be Delivered to the Department's Contracts Engineer.

103.5.1 Performance and Payment Bonds Performance and Payment Bonds complying with Section 110.2.1 - Bonds.

103.5.2 Insurance Certificates Certificates of Insurance complying with Section 110.3 - Insurance.

103.5.3 Non-Resident Contractor Requirements

A. Definition A Non-Resident Contractor is defined as a Contractor that is: (A) any person who is not a Resident of the State of Maine, or (B) any firm, corporation, limited liability company, partnership, joint venture, sole proprietorship, or other entity which (A) is not licensed to do business within the State of Maine, or (B) does not have a principal place of business within the State of Maine.

B. Requirements If a Non-Resident Contractor, the Apparent Successful Bidder must file with the Department a copy of a written appointment of an attorney admitted to practice in the State of Maine having a place of business within the State. The appointment must: (A) set forth the attorney's business and personal addresses, and business telephone and fax numbers, (B) name said attorney to be the true and lawful attorney of the Non-Resident Contractor, (C) set forth that the Contractor agrees that any lawful process which is served on said attorney shall have the same legal force and validity as if served on the Contractor, (D) set forth that the appointment shall continue in force as long as any potential liability in any way related to the Work or the Contract remains or until the Department receives written notice of a change of appointment Conforming to this paragraph, (E) provide that service of such process may be made by leaving a copy of the process in the hands or in the office of the Resident attorney and that such service will be effective upon the Non-Resident Contractor, as if service were made in accordance with Rule 4 of the Maine Rule of Civil Procedure, and (F) provide that the Contractor expressly waives any and all defenses regarding service of process under Rule 12 of said Civil Rules or otherwise. The appointment shall be filed in the office of the Maine Secretary of State.

103.5.4 Execution of Contract By Bidder The properly completed and signed Contract Agreement, Offer, & Award form provided with the Bid constitutes the Bidder's offer. Once the Department has received the bonds, insurance, and any other pre-award items required, the Department will sign the Contract Agreement, Offer, & Award form and execute the Contract. The point of Contract execution is when the Contractor receives the written Notice of Award.

103.5.5 Bid Escrow If required by Special Provision, the Apparent Successful Bidder must provide a legible copy of Bid Escrow Documentation and a related Affidavit Conforming to said Special Provision. Failure to provide Conforming Bid Escrow Documentation or the Affidavit constitutes a refusal to enter into the Contract and will result in the Bidder's forfeiture of its Bid Guaranty.

103.5.6 Other Conditions The Apparent Successful Bidder must comply with all other conditions set forth or referenced in the Notice of Intent to Award.

103.6 Failure to Fulfill Award Conditions Failure of the Apparent Successful Bidder to fulfill all conditions of Award within the time provided or to otherwise accept Award will result in forfeiture of the Award to the Apparent Successful Bidder and the forfeiture of the Bid Guaranty. Such Bidder will be prohibited from submitting a Bid for the Work in the event that the Work is re-advertised. Further, the Department may refuse to accept any Bid from the Bidder on any Project for a period of two years from the date of such refusal.

The Department may then take any action that the Department determines is in the best interest of the Department including Awarding the Contract to the responsible Bidder with the next lowest responsive Bid, rejecting all Bids, and/or re-advertising the Work.

103.7 Forfeiture of Award The Department reserves the right to stop the Award of any Contract at any time before the Contract Execution without liability if doing so is in the best interest of the Department. Any costs incurred by the Bidder before Contract Execution shall be the sole responsibility of the Bidder.

103.8 Execution of Contract by Department The Commissioner or the Commissioner's authorized agent will execute the Contract within 14 Days of the fulfillment of all Award Conditions. After execution by the Department, one of the original Contracts will be returned to the Contractor. If the Department fails to execute the Contract within said time, the Apparent Successful Bidder may withdraw its Bid without forfeiture of its Bid Guaranty or Bidding eligibility. For a related provision, see Section 107.2 - Commencement of Contract Time.

103.9 Computation and Extension of Time In the event that a time period provided in this Section 103 concludes on a Holiday, Saturday, or Sunday, said time period shall be extended to the next Business Day.

The Department and Apparent Successful Bidder may extend the time for the Award process, fulfillment of Award Conditions, or execution of the Contract by mutual Agreement. Unless specifically and mutually agreed to in writing, such extensions shall not extend the Contract Time or the Contract Completion Date.

SECTION 104 - GENERAL RIGHTS AND RESPONSIBILITIES

Scope of Section This Section sets forth certain rights and responsibilities of the Department and the Contractor that are generally applicable to all Contracts. This Section is not all inclusive and additional rights and responsibilities are set forth elsewhere in the Contract.

104.1 General

104.1.1 Basic Roles of the Parties The Contractor has the authority and responsibility to perform all Work in Conformity with the Contract. The Department has the authority and responsibility to assure that the Contractor does so.

104.1.2 Joint Covenants of Good Faith and Fairness This Contract imposes an obligation of good faith and fair dealing on both parties in the execution, performance, interpretation, and enforcement of the Contract. With a positive commitment to honesty and integrity, the Contractor and the Department agree to function within all applicable laws, statutes, regulations, and Contract provisions; avoid hindering each other's performance; fulfill all obligations diligently; and cooperate in achievement of the intent of the Contract.

104.2 Department's General Authority and Responsibilities

104.2.1 Furnishing of Right-of-Way The Department will secure all necessary rights to real property within the Project Limits shown on the Right-of-Way Plans that are provided with the Bid Documents. For related provisions, see Sections 104.3.2 - Furnishing of Other Property Rights and 105.4.5 - Special Detours.

104.2.2 Furnishing of Permits Except as provided otherwise in the Contract, the Department will furnish Permits required to perform the Work within the Project Limits. For a related provision, see Sections 101.2 - Definition of Permits, 104.3.2 - Furnishing of Other Property Rights, Licenses and Permits and 105.8.2 - Permit Requirements.

104.2.3 Authority of the Resident After Contract Execution, the Resident has the authority to take all actions needed to assure that the Contractor is performing the Work in Conformity with the Contract. Except as provided elsewhere in the Contract, the Resident will decide all questions regarding the quality and acceptability of Materials furnished, Work performed, suspension of Work, and the interpretation of the Contract. The Resident has the authority to reject Unacceptable or Unauthorized Work and refuse to approve Progress and Final Payments until the Unacceptable or Unauthorized Work is corrected. For related provisions, see Sections 106.8 - Non-conforming Work and 109.8 - Contract Modification.

104.2.4 Authority of Residents and Inspectors Residents, inspectors, and other Departmental employees or representatives working for the Department have the authority to make initial determinations regarding the Conformity of the Work. Unless authorized by the Assistant Program Manager, Residents or inspectors are not authorized to alter or waive the provisions of the Contract or to issue instructions contrary to the Contract. They may not act as a supervisor for the Contractor.

104.2.5 Right to Inspect Work The Department has the authority to inspect all Materials and every detail of the Work. For a related provision, see Section 104.3.5 - Inspection of Work.

104.2.6 Right to Suspend Work The Department has the right to suspend any or all Work at any time for any reason. For related provisions, see Sections 105.4.4 - Maintenance During Suspension of Work and 107.5 - Suspension of Work.

104.2.7 Damage to Project Caused By Uncontrollable Events All repairs that are required to the Project or temporary Structures because of property damage that is directly caused by an Uncontrollable Event may entitle the Contractor to an Equitable Adjustment if the Contractor complies with the notification, documentation and procedural requirements set forth in the Contract. Delays resulting from an Uncontrollable Event will be analyzed in accordance with Section 109.5 - Adjustments for Delay. For related provisions, see Sections 101.2 - Definition of Uncontrollable Event, 104.3.10 - Responsibility for Damage to Work, 109.3 - Extra Work,

109.5 - Adjustments for Delay, 109.7 - Equitable Adjustments to Compensation, and 109.8 - Contract Modification.

104.2.8 No Personal Liability The Department's employees and other representatives act solely as representatives of the Department when conducting and exercising authority granted to them under the Contract. Such persons have no liability either personally or as Department employees.

104.3 Contractor's General Authority and Responsibilities

104.3.1 General Duty to Cooperate The Contractor shall cooperate with the Departmental personnel, Utility Companies, railroad personnel, marine traffic personnel, regulating agencies with jurisdiction, other Contractors, municipalities, and the public in every reasonable way possible. For a related provision, see Section 104.4 - Communication and Coordination.

104.3.2 Furnishing of Other Property Rights, Licenses and Permits The Contractor shall acquire, at its sole expense, all property rights outside the Project Limits needed for construction staging, yarding, construction, waste disposal, or other Project-related purpose. The Contractor shall also acquire, at its sole expense, all licenses and Permits necessary to perform the Work that are not furnished by the Department. For related provisions, see Sections 104.2.1 - Furnishing of Right-of-Way, 104.2.2 - Furnishing of Permits, 104.3.11 - Responsibility for Property of Others, and 105.8.2(B) - Permit Requirements, All Other Permits.

104.3.3 Duty to Notify Department If Ambiguities Discovered The Contractor shall not take advantage of any Ambiguity, error, omission, conflict, or discrepancy contained in the Contract. If the Contractor discovers any such ambiguity, etc. for which the Contractor may seek adjustments to compensation, time, or other Contract requirements, the Contractor shall provide a written notice within 48 hours and before performing any Work related to the ambiguity, etc., as provided in Section 104.4.5 - Early Negotiation. Failure to provide such notice in compliance with the Contract shall constitute a waiver of all claims related to the ambiguity, etc.

104.3.4 Workers and Equipment The Contractor shall at all times provide all Superintendents, forepersons, laborers, inspectors, Subcontractors, subconsultants, Equipment, Materials, and Incidentals needed to perform the Work in Conformance with the Contractor's Schedule of Work and within the Contract Time.

Any person employed by the Contractor or by any Subcontractor or any officer or representative or agent of the Subcontractor, who, in the opinion of the Resident, is intemperate or disorderly, shall be removed immediately by the Contractor or Subcontractor employing such person. The employee shall not be employed again in any portion of the Work without prior approval from the Resident.

Should the Contractor fail to remove such person or persons as required above or fail to furnish suitable and sufficient personnel for the proper prosecution of the Work, the Resident may suspend the Work by written notice until such orders are complied with.

During all hours of on-site activity, the Contractor shall provide an on-site, competent, English-speaking Superintendent experienced in the type of Work being performed. The

Superintendent shall be capable of reading and understanding the Plans and Specifications, providing and receiving communications, and scheduling and coordinating the Work. The Superintendent shall have full authority to manage the Work in accordance with the Contract. Such superintendence must be provided regardless of the amount of Work being done by the Subcontractor.

All persons employed by or through the Contractor, except for registered trainees, shall have sufficient skill and experience to perform the Work properly. The Department may require that the Contractor discharge any such person who the Department determines jeopardizes safety of any person or the Project without cost or liability to the Department. If the Department determines that such person's performance jeopardizes the intent of the Contract otherwise, the Department may, but is not required, to notify the Contractor of such a determination. Such notice, or lack thereof, does not affect the Contractor's duties regarding Workers. Upon Receipt of such notice, the Contractor shall take any action it determines necessary to fulfill its obligations under the Contract. For related provisions, see Sections 104.5.4 - Discharge of Subcontractors, 105.1 - Intent of the Contract, and 105.2.3 - Joint Duty Regarding Safety.

104.3.5 Duties Regarding Inspection of Work

A. Safe Access The Contractor shall provide the Department with safe access to all portions of the Work in Conformity with all applicable OSHA requirements. The Contractor shall furnish the Department with all information and assistance required to make a detailed inspection. For a related provision, see Section 104.2.5 - Right to Inspect Work.

B. Inspection By Others If any other governmental entity, Utility Company, or railroad is to pay for a portion of the Work or is otherwise authorized to inspect Work, then the Contractor must provide their representatives with safe access that Conforms to this Section 104.3.5.

104.3.6 Project Records Upon request by the Department, the Contractor or any other person Working for the Contractor possessing Project Records must provide the Department with copies of Project Records at all reasonable times without cost or liability to the Department. Unless the context clearly indicates otherwise, Project Records are the property of the Department. The Contractor must retain Project Records for at least three years after Final Acceptance or for any applicable warrantee period, whichever is longer. For related provisions, see Sections 101.2 - Definition of Project Records and 111.1.6 - Contractor's Obligation to Keep Records.

104.3.7 Laws To Be Observed The Contractor shall keep itself informed of and comply with all applicable federal and State laws, rules, regulations, orders, and decrees ("Law") affecting the Work including all environmental, wage, labor, equal opportunity, safety, patent, copyright, or trademark laws. If provided by Contract, the Contractor must also comply with local Law. The Contractor indemnifies the Department and holds the Department harmless against any and all claims or liabilities arising from or based upon the violation or alleged violation of any such Law caused directly or indirectly by or through the Contractor.

104.3.8 Wage Rates and Labor Laws Federal wage rates apply, unless expressly stated otherwise by Special Provision. The classification of construction type and related wage rates by the U.S. Department of Labor will be provided by Special Provision. If not provided, the

Contractor must contact the Department before Bidding to determine the applicable wage rates in accordance with Section 102.5.2 - Bidder's Duty to Notify Department if Ambiguities Discovered. The Contractor must pay according to said rates and must otherwise comply with all applicable federal and State labor laws, rules, and regulations. Persons registered with the Department as trainees must be paid at least at the prevailing wage for laborer, and upon completion of their program, trainees shall by paid the prevailing wage for the skill and classification trained.

104.3.9 Patents and Copyrights The Contractor must provide proof of legal Agreement with the patentee or Owner, if necessary, for use of any of the following: design(s), process(es), device(s), trademark(s), Material(s), and copyright(s). The Contractor indemnifies and holds harmless the Department and any affected third party or political subdivision from all claims of infringement that arise from use of any patented or copyrighted item listed above.

104.3.10 Responsibility for Damage to Work Except as provided in Section 104.2.7 - Damage to Project Caused By Uncontrollable Events, the Contractor shall bear all risk of loss relating to the Work until Final Acceptance, regardless of cause, including completed Work, temporary Structures, and all other items or Materials not yet incorporated into the Work. For a related provision, see Section 110.3.6 - Builders Risk Insurance.

The Contractor shall, at its sole expense, rebuild, repair, restore, or replace such damaged Work or otherwise make good any losses that arise from such damage ("rebuilding, etc."). If the Contractor fails to Promptly commence and continue such rebuilding, etc., the Department may, upon 48 hours advance written notice, commence rebuilding, etc. of the damaged property without liability to the Department with its own forces or with Contracted forces and all costs will be deducted from amounts otherwise due the Contractor. For the Contractor's responsibilities for the Work after Final Acceptance, see Section 106.9 - Warranty Provisions.

104.3.11 Responsibility for Property of Others The Contractor shall not enter private property outside the Project Limits without first obtaining permission from the Owners.

The Contractor shall be responsible for all damage to public or private property of any kind resulting from any act, omission, neglect, or misconduct of the Contractor until Final Acceptance. The preceding sentence includes damage to vehicles passing through the Work area.

The Contractor shall, at its sole expense, rebuild, repair, restore, or replace such damaged property or otherwise make any good losses that arise from such damage ("rebuilding, etc."). If the Contractor fails to commence and continue such rebuilding, etc. in a timely manner, the Department may, upon 48 hours advance written notice, commence rebuilding, etc. of the damaged property without liability to the Department with its own forces or with Contracted forces, and all costs will be deducted from amounts otherwise due the Contractor.

104.3.13 Materials and Items Found On the Project With the Department's approval, the Contractor may use suitable excavated Material in the Work and be paid for both the excavation and the placement of such Materials at the corresponding Contract Unit Prices. Except for Material used for riprap, stone ditch protection, and loam, the Contractor shall replace such excavated Material with other approved Material and properly compact it at no cost to the

Department. The Contractor shall obtain written permission from the Department before performing any excavation outside the Project Limits.

Unless expressly provided otherwise, the Contractor shall remove and assume Ownership of all incidental Structures and Materials to be removed such as guardrail, Drainage pipe, Culverts, curbing, Bridges, and other manufactured Materials. Utility Facilities, traffic control devices, and lights, together with all supporting Structures, are excluded from the provisions of this Section 104.3.13. The cost of removal of such Structures and Materials is Incidental to the Contract unless expressly provided otherwise.

104.3.14 Interpretation and Interpolation The Contractor is responsible for all interpretations and interpolations made from information provided in the Bid Documents and Contract, including data and test results related to location, survey, hydrology, hydraulics, soils, ledge quality, existing Structures, Environmental Information, and Geotechnical Information. For related provisions, see Sections 102.3 - Examination of Documents, Site, and Other Information; 102.5.2 - Bidder's Duty To Notify Department If Ambiguities Discovered; 104.3.3 - Duty to Notify Department If Ambiguities Discovered; and 105.6 - Construction Surveying.

104.4 Communication and Coordination

104.4.1 Partnering

A. Definition, Purpose, and Applicability Partnering is a process of voluntary structured communication between the Department, the Contractor, its principal Subcontractors and suppliers, and other Project stakeholders for the purpose of improving efficiency and minimizing Disputes. Partnering, including the establishment of a partnership charter, does not in any way waive, alter, or otherwise affect any provision of the Contract. For a related provision, see Section 111.1.3 - Relationship to Partnering.

Participation in Partnering is voluntary; either party may elect to not participate in Partnering for any reason. The associated costs of Partnering will be agreed to mutually and shared equally.

B. Initial Partnering Workshop If the Contractor and the Department elect to participate in Partnering, representatives of both parties will arrange a facilitated initial Partnering Workshop, which should be held before the start of on-site construction. The Project Manager and/or the Resident and the Superintendent will determine Workshop attendees, the facilitator, agenda, duration, and location. Key Project level supervisory personnel, corporate/State level management personnel, and key Project personnel of the Contractor's principal Subcontractors and suppliers should attend. Project design Engineers, FHWA, local government representatives, environmental regulators, emergency service personnel, Utility Companies, impacted business and/or landowners, and other stakeholders may also be invited to attend. The product of the initial Partnering Workshop will be a partnership charter. This charter will include mutually agreed upon Project goals and communication escalation procedures.

C. Follow-Up Workshops The Contractor and the Department may agree to hold follow-up Partnering Workshops periodically throughout the duration of the Contract.

104.4.2 Preconstruction Conference After the Contract has been executed and before the start of on-site construction by the Contractor, the Project Manager and/or the Resident will schedule a preconstruction conference that must be attended by the Superintendent. Others may be invited to attend, including Subcontractors, EPA, local government representatives, environmental regulators, public relations firms, emergency service personnel, Utility Companies, municipal officials, impacted business representatives and/or landowners, or other Project stakeholders.

The Project Manager or the Resident will prepare minutes of the preconstruction conference and distribute them to all attendees. Any requests to revise the minutes must be made to the preparer within 7 Days of Receipt. These minutes will constitute the final record of the meeting.

104.4.3 Progress Meetings Except as provided otherwise in this Section 104.4.3 - Progress Meetings shall be held at regular intervals, but at least monthly, throughout the duration of the Contract. The Resident and the Superintendent will co-chair Progress Meetings. All personnel of the Department and the Contractor who have significant information relevant to agenda items shall attend. Others may be invited to attend including Subcontractors, FHWA, municipal officials, environmental regulators, emergency service personnel, Utility Companies, impacted landowners, impacted business representatives, public relations firms, or other Project stakeholders.

The Co-Chairs shall agree upon the Agenda for each Progress Meeting, which may include:

A) Progress of Project since the last Progress Meeting
B) Expected activities before the next Progress Meeting
C) Contractor's Schedule of Work
D) Progress Payments
E) Field observations
F) Project control logs
G) Anticipated Traffic Delays or Related Issues
H) Working Drawing Submittals
I) Updates to Pre-Construction Submittals (if any)
J) Contract Modifications, RFIs, correspondence (if any)
K) Issues, Disputes, claims and resolutions (if any)

The Resident will prepare minutes of these meetings and distribute them to all attendees. Any requests to revise the minutes must be made to the Resident within 7 Days of Receipt. These minutes will constitute the final record of the Progress Meeting.

104.4.4 Requests for Information Either the Department or the Contractor may request that the other party provide information that the requesting party needs to fulfill its Contract obligations by Delivering a written Request for Information (RFI). The Department may require that RFIs be on forms and media approved by the Department. The request must (A) be of reasonable scope, (B) explain why such information is necessary to fulfill Contract obligations, and (C) provide a requested response time, which must be reasonable in relation to its scope (at least 72 hours). The party receiving an RFI shall use its best effort to respond to the RFI within the time requested. The response shall be in writing. The status of outstanding RFIs shall be discussed at each Progress Meeting.

104.4.5 Early Negotiation

A. Notice Required When the Contractor becomes aware of facts or circumstances that may cause the Contractor to seek additional compensation, time, or any other change in Contract requirements ("Issue"), then the Contractor shall notify the Resident within 48 hours and before commencing any part of the Work relating to the Issue. The notice must describe the basic nature and extent of the Issue.

Such notice may be verbal only if confirmed in writing in one of the two following ways: (A) if a Progress Meeting is held within 14 Days of the date that the Issue became known, such Notice may be confirmed with an entry in the Progress Meeting minutes. Such entry must describe the basic nature and extent of the Issue. (B) Otherwise, the Contractor shall confirm a verbal notice by Delivering to the Resident, within 14 Days of the date the Issue arose, a written Notice that describes the basic nature and extent of the Issue.

The written notice or confirmation will be known as a "Notice of Issue for Consideration". The Contractor will not be entitled to any additional compensation, time, or any other change to Contract requirements without a timely Notice of Issue for Consideration.

B. Negotiation When the Resident receives the Notice of an Issue for Consideration Conforming to Section 104.4.5(A) - Notice Required, the Resident and the Contractor will negotiate in good faith to attempt to resolve the Issue. Any resolution will be noted in the Progress Meeting minutes or confirmed otherwise in writing by the Department. Any changes to the Contract that affect compensation, time, quality, or other Contract requirements shall be by written Contract Modification as provided by Section 109.8 - Contract Modifications.

For related provisions, see Sections 109.5 - Adjustments for Delay and 109.7 - Equitable Adjustments to Compensation.

C. Additional Consideration If negotiation fails to resolve the Issue within 45 Days of the date the Resident receives the Notice of Issue for Consideration, and if the Contractor desires additional consideration by the Department, then the Contractor must comply with Section 111.2 - Detailed Notice of Dispute and all other requirements of Section 111 - Resolution of Disputes.

104.4.6 Utility Coordination

A. Utilities Within Right-of-Way Except as provided otherwise in the Contract including subsection E - Temporary Relocations below, all Utility Facilities of all Utility Companies within the Right-of-Way will be relocated and adjusted as provided in the Contract by and at the expense of the affected Utility Company, provided, however, that the Contractor is responsible for scheduling its Work in accordance with the time allowed for utility relocation as provided in the Contract. Utility relocation Work may not proceed without authorization from the Department.

B. Contractor’s Responsibilities

1) The Contractor must exercise every reasonable precaution to prevent damage to Utility Facilities or interruption to utility services known to or discovered by the Contractor, whether or not shown on the Plans. Such precautions must include notice to Utility Companies before undertaking Work that could damage Utility Facilities. The Contractor must provide each Utility Company with notice at least three Business Days before the date a Utility Company will have to support any pole.

2) The Contractor must take all reasonable precautions to determine the presence of underground Utility Facilities before commencing any excavation Work and must provide all affected Utility Companies with at least 72-hour prior notice of the proposed excavation. The Contractor must comply with 23 M.R.S.A. § 3360-A, entitled "Protection of Underground Facilities," Maine's "Dig Safe" statute.

3) The Contractor must maintain initial markings (spray paint, stakes, etc.) made by the authorized representative of a Utility Company to indicate the location of underground Utility Facilities and otherwise comply with 23 M.R.S.A. § 3360-A(4).

4) The Contractor must cooperate with Utility Companies in their relocation or operations so that these operations proceed in a logical sequence, minimize duplication of Work, and avoid unnecessary interruptions to utility service.

5) If utility services are interrupted as a result of the Contractor's Work, the Contractor must Promptly notify the appropriate Utility Company and must cooperate fully in the restoration of service. If service is interrupted, repair Work will be continuous until the service is restored. No Work can be undertaken around fire hydrants until the local fire authority has approved provisions for continued services.

6) The Contractor must schedule its Work so as to provide for all Utility Company Work and to complete the Work within the Contract Time. The estimated number of workdays required by each Utility Company to perform its relocation Work contained in the Contract is provided by the Utility Companies and are estimates only. Such Utility Facility relocation times assume normal Working times (Monday through Friday, 8 hours per day), and are dependent upon normal weather, normal Working conditions, and freedom from emergencies. The Department is not responsible for the accuracy of these estimates. If a Utility Company fails to perform its Work within the time frames set forth in the Contract or in the minutes of the pre-construction utility conference, and such failure impacts the Contractor's Critical Path, the Contractor may request a suspension of Work pursuant to Section 107.5.2 and such Delay will be analyzed in accordance with Section 109.5 - Adjustments for Delay.

7) Any clearing and tree removal that is a part of the Contract and that must be done in areas where Utility Companies are involved must be completed by the Contractor before the Utility Company can relocate its Utility Facilities. Any clearing, cutting of single trees, or limbing required for the temporary or permanent Utility Facility location must be approved by the Department. The Contractor must provide the Department with notice of at least 4 Days before removing or trimming any trees or other vegetation.

8) If blasting occurs on the Project, the Contractor must provide each Utility Company having Utility Facilities that could be damaged by the blast with at least 24-hour prior notice that includes the anticipated time of the initial blast.

9) If the Contractor actually observes a Utility Company Working within the Project Limits in a manner that (a) obviously violates the MUTCD, the Contractor's Traffic Control Plan, or an applicable OSHA requirement or commonly accepted safety practices, and (b) represents a clear and immediate risk of significant bodily injury to any person within the Project Limits, then the Contractor must notify the Resident and the Utility Company immediately.

10) The Contractor agrees to indemnify, defend, and hold harmless the Department from and against any and all claims or causes of action arising from any act or omission of the Contractor, the Subcontractors or their respective agents, representatives, or employees for failure to comply with this Section 104.4.6.

C. Temporary Relocations The Contractor may request temporary changes of location of Utility Facilities for the Contractor's convenience. The Contractor must satisfy the Department that the proposed temporary change will not interfere with the Work, the Work of Utility Companies, or the Work of other Contractors and will not impede the free and safe flow of traffic. If acceptable to the Department, the Contractor may make its own request to the Utility Company or other party affected by such temporary changes. The expense and risk of temporary changes will be borne solely by the Contractor; no changes to compensation or time will be made.

D. Unforeseeable Utility Relocations The Department may order utility adjustments in accordance with Section 109.4 - Differing Site Conditions.

E. Cost The cost of all Work related to utility coordination is Incidental to the Contract.

104.4.7 Cooperation With Other Contractors The Department reserves the right to Contract for, perform, or allow other Work to be performed within or near the Project Limits. The Contractor must take all reasonable steps to avoid interfering or hindering such other Work. The Contractor must cooperate with Contractors or others performing such other Work as directed by the Department.

If the basic nature and scope of such other Work is provided or referenced in the Bid Documents or is otherwise known or foreseeable to the Contractor, then the Contractor assumes all risks and liability associated with such other Work and shall indemnify and hold harmless the Department from all claims related to such other Work that arise from the Contractor's acts or omissions.

104.5 Subcontracting

104.5.1 Limits on Subcontracting The Contractor shall perform at least 30% of the value of the Work with its own Work force, excluding any specialty items designated by the Department.

The Contractor shall not carry the Workers of another recognized Contractor or firm on its payroll or a Subcontractor's payroll. The Contractor shall not use any Subcontractors that are debarred from Bidding by the Federal Government or any agency of the State of Maine.

104.5.2 Contractor's Duties Regarding Subcontractors Subcontractors are solely the responsibility of the Contractor. The Contractor is responsible for assuring that its Subcontractors have sufficient skill and experience to perform the Work properly and for coordinating and managing it's Subcontractors to achieve the intent of the Contract. Except as provided otherwise in this Contract, the Contractor waives all claims arising from failure to coordinate and manage its Subcontractors and indemnifies and hold harmless the Department from any such claims. Subcontracting does not alter the Contractor's obligations under the Contract. For a related provision, see Section 105.1 - Intent of the Contract.

104.5.3 Documentation Regarding Subcontracting Before any Work is performed by a Subcontractor, the Contractor shall provide the Department a Subcontract approval package from all Subcontractors that the Contractor anticipates will be providing Work within the Project Limits The Contractor shall continuously update the Subcontractor information and provide it to the Department throughout the duration of the Project.

If requested by the Department, the Contractor shall provide the Department with copies of any subcontract or other document that establishes the relationship of the Contractor and any Subcontractors.

104.5.4 Discharge of Subcontractors The Department, upon written notice to the Contractor, may require that the Contractor discharge any Subcontractor without cost or liability to the Department. If the Department determines that a Subcontractor's performance jeopardizes the intent of the Contract otherwise, the Department may, but is not required, to notify the Contractor of such a determination. Such notice, or lack thereof, does not affect the Contractor's duties regarding Subcontractors. Upon Receipt of such notice, the Contractor shall take any action it determines is necessary to fulfill its obligations under the Contract. For related provisions, see Sections 104.3.4 - Workers and Equipment, 104.5.2 - Contractor's Duties Regarding Subcontractors, 105.1 - Intent of the Contract, and 105.2 - Health and Safety.

104.5.5 Prompt Payment of Subcontractors

A. Pay When Paid The Contractor shall pay Subcontractors for all Work satisfactorily performed and Invoiced by the Subcontractor no later than 30 Days from the date the Contractor receives payment from the Department for such Subcontractor's Work.

B. Retainage The Contractor is not allowed to hold retainage on any Subcontractor.

104.5.6 Subcontractor Claims for Payment The Contractor agrees to notify all Subcontractors of the claim filing procedure contained in 23 MRSA § 52-A(2). As provided in this statute, the Department may use retainage to discharge Subcontractor claims.

104.5.7 Flow Down All subcontracts of the Contractor, and all lower tier subcontracts, shall contain or reference all applicable provisions of the Contract, including all safety, wage, Prompt payment, labor, environmental, and equal opportunity provisions. The Contractor indemnifies

and hold harmless the Department against any and all claims or liabilities arising from the failure to include such flow down provisions.

104.5.8 No Third Party Beneficiaries The Contractor and the Department agree that this Contract is not intended to create any third-party beneficiaries or to authorize anyone not a party to the Contract to maintain an action under Contract provisions.

104.5.10 Warranty and Maintenance Bonds Warranty and Maintenance Bonds may be required of the Contractor or the subcontractor for specified items that the Department deems appropriate. Specific requirements will be given via Special Provision. These bonds may be for specified items in the Contract Schedule of Items. The Bond must name the "Treasurer-State of Maine" as an obligee. The Contractor shall provide a copy of said bond to the Department before the performance of any affected on-site Work. Should the subcontractor be required by special provision to provide a Warranty or Maintenance Bond, the Contractor hereby authorizes the Department to directly contact Landscape Subcontractor and/or its Surety in the event of a failure of the bonded item to perform as specified.

SECTION 105 - GENERAL SCOPE OF WORK

Scope of Section This Section contains Work requirements that are generally within the scope of all Projects. These include provisions related to health and safety, traffic control, maintenance of Work, hauling of Materials and Equipment, construction surveying, Working Drawings, the environment, historic and archeological considerations, equal opportunity and civil rights, and other federal requirements. This Section is not all-inclusive. The scope of these items is often described more specifically and fully elsewhere in the Contract and in other specific items that appear elsewhere.

This Contract is federally funded, unless expressly provided otherwise in the Bid Documents. As a federally funded Contract, it includes all federal requirements set forth in the Bid Book.

105.1 Intent of the Contract The intent of the Contract is to provide for the construction and Completion of a functionally complete Project in Conformity with the Contract. The Contractor shall furnish all Work to achieve this intent including all Work that may be reasonably inferred to be required from the Contract or from prevailing industry or trade custom, whether or not specifically called for.

105.2 Health and Safety

105.2.1 Contractor's Safety Program A copy of the Contractor's Safety Plan must be on file with the Contracts Section of the Department as a condition of Prequalification to be awarded a Construction Contract. A copy of the Safety Plan will be provided to the Department's Contracts Section in an electronic media format prior to Contract award. The Contractor shall designate which portions such submissions it considers confidential business information. If such program is revised during the Contract Time, the Contractor shall provide the updated program to the Department. The Contractor shall comply with its safety program and this Section 105.2 - Health and Safety. The Contractor shall be responsible for all claims or

damages arising from failure to so comply and indemnifies and holds harmless the Department from all claims and damages arising from such non-compliance.

105.2.2 Project Specific Emergency Planning Unless the Contract provides for closure of an existing facility, the Contractor shall ensure that essential police, fire, rescue, and ambulance services have reasonable and timely access to and through the Project Limits. The Contractor shall contact all emergency service providers in the area, discuss potential impacts on emergency operations (including water supply for fire suppression), and minimize any negative impacts. Fire hydrants within or adjacent to the Project Limits shall be kept accessible to fire apparatus at all times, unless the fire Department agrees otherwise in writing. For a related provision, see Section 104.3.12 - Forest Protection and Laws.

If the nature of the Work involves deep trenching, confined spaces, toxic chemicals, or any other unusual hazards that could require specialized rescue, the Contractor shall inform and cooperate with the appropriate fire Department, rescue service, or EMS.

The Contractor shall provide the Resident with and post and maintain in conspicuous places within the Project Limits, a list containing (A) emergency response numbers with the names and telephone numbers (including cellular phone and pager numbers, if applicable) of local ambulance, police, fire, rescue, and hospitals, (B) emergency response numbers for hazardous Materials spills as required by Section 656.3.4(f) - Spill Prevention, (C) the Contractor's personnel with phone numbers who may be reached in case of emergency, and (D) the Department's personnel with phone numbers who may be reached in case of emergency.

105.2.3 Joint Duty Regarding Safety If the Contractor or the Department actually observes any person(s) performing Work in a manner that (A) the observing party actually knows is not in compliance with the MUTCD, the Contractor's TCP, an applicable OSHA requirement, or commonly accepted safety practices, and (B) creates a clear and immediate risk of significant bodily injury to any person, then the observing party shall immediately notify such person(s) Working in an unsafe manner and the other party to the Contract. The Contractor and the Department agree to cooperate in eliminating all such unsafe conditions. For related provisions, see Sections 104.3.4 - Workers and Equipment, 104.4.6 - Utility Coordination, 105.3 - Traffic Control and Management, and 105.4 - Maintenance of Work.

105.2.4 Compliance with Health and Safety Laws The Contractor shall comply with all applicable federal, State, and local laws governing safety, health, and sanitation including all applicable laws and regulations of OSHA.

105.2.5 Safety and Convenience of the Public The Contractor shall provide all safeguards, safety devices, and protective Equipment and take all other action that is necessary to continuously and effectively protect the safety and health of all persons from hazards related to the Work. Such safeguards include providing a sufficient number of security guards.

At all times the Contractor shall perform the Work to minimize obstructions to pedestrian, vehicular, railroad, and marine traffic. All temporary and permanent pedestrian access ways must comply with the Americans with Disabilities Act (ADA). Footways, gutters, sewers, inlets, and portions of the Highway adjacent to the Work must not be obstructed unless allowed by the Contract.

If the Contractor receives notice from the Department that the Contractor has failed to comply with the provisions of this Section 105.2 - Health and Safety, the Contractor shall remedy such non-compliance immediately. If the Contractor fails to do so, the Department may remedy such non-compliance by any means and deduct the cost of the remedy from amounts otherwise due the Contractor.

For related provisions, see Sections 105.2.3 - Joint Duty Regarding Safety, 105.3 - Traffic Control and Management, and 105.4 - Maintenance of Work.

105.2.6 Use of Explosives

A. Standards When using explosives, the Contractor shall use the utmost care to protect life and property. Explosives must be transported, stored, and used in compliance with this Contract, in compliance with all applicable federal, State, and local laws, rules and regulations, and in accordance with all applicable provisions of the latest version of the Blasters' Handbook published by the International Society of Explosives Engineers (ISEE) of Cleveland, Ohio. In any case, the Contractor shall comply with the recommendations contained in Chapter 13 - "Blasting Safety" of said Blasters' Handbook, unless a qualified person conducting the blasting operations for the Contractor certifies to the Department in writing that certain provisions of said Chapter 13 are not necessary to protect life and property.

B. Blasting Zone - Signage and Flaggers The Contractor shall define a blasting zone. When using electric detonators, the blasting zone must allow safe distances from radio transmitters based upon their power output frequency. The blasting zone must include all areas within which people could be injured or property could be damaged by the blast. The Contractor shall mark Highways conspicuously at the perimeter of the blasting zone with signs in accordance with MUTCD. If applicable, the Contractor shall place signage along railroads and appropriate notice shall be provided to marine traffic. The Contractor shall provide a sufficient number of flaggers stationed outside the blasting zone to stop all approaching traffic during blasting operations.

C. Other Requirements The Contractor shall provide to the Department (1) a pre-blast survey, (2) a blasting plan and procedure including shot-size composition, frequency, and special problems, (3) seismography readings prior to and during the blast, (4) blasting logs, and (5) general liability insurance coverage covering use of explosives in accordance with Section 110.3.2 - Commercial General Liability. Immediately after the blast, the Contractor shall remove any debris that is obstructing Highway, pedestrian, railroad, or marine traffic flow. For related provisions, see Sections 104.4.6(C)(8) - Blasting Notice, 104.3.11 - Responsibility for Property of Others, and 110.1 - Indemnification.

105.3 Traffic Control and Management The Contractor shall provide continuous and effective traffic control in compliance with Section 652 - Maintenance of Traffic.

105.3.1 Notices Required The Contractor shall plan paving operations so that the Resident will have sufficient advance notification to provide the necessary inspection and testing. Sufficient notification will be considered 48 hours. In the event that paving is suspended, the 48-hour notification shall be required again before restarting the paving operations unless

otherwise agreed by the Resident. A verbal warning will be given before starting the offense process for paving notification.

The Contractor shall plan granular material operations so that the Resident will have sufficient advance notification to provide a proctor for the material to be placed. Sufficient notification will be considered 7 days. Changes in source will also require this notification.

Failure to provide the above notifications will result in the following actions:

First offense - written warning
Second and subsequent - liquidated damages will be charged for one calendar day

In addition, work on these items will not be allowed to commence unless the appropriate inspection and testing personnel are available and/or the required test results have been received.

105.4 Maintenance of Work

105.4.1 Maintenance During Construction The Contractor shall maintain the Project and all related Work in a safe and satisfactory condition until Final Acceptance. Such maintenance requires continuous and effective Work conducted daily.

105.5 Hauling of Materials and Equipment

105.5.1 General Requirements Except as provided otherwise and limited in this Contract, the Contractor may use any public Road or Bridge for the hauling of Materials and Equipment in legally registered vehicles that are carrying legal loads and operating otherwise in accordance with all applicable State or federal laws. If the Contractor violates such laws or the terms of this Contract relating to hauling, the Contractor shall, at its expense, repair damage to any Road or Bridge that the Department determines was caused by the Contractor to the satisfaction of the governmental entity that maintains the Road or Bridge.

The Contractor must abate any dust nuisances caused by such hauling.

105.5.2 Bond for Use of Municipal Roads If the Contractor wants to use Roads maintained by a municipality for hauling, the municipality may require the Contractor to purchase a bond for each mile of traveled length. The face value for such bond shall not exceed $50,000/mile. The cost of said bond shall be Incidental to the Contract.

105.5.3 Posted Roads or Bridges The Contractor must comply with all restrictions set forth pursuant to 29-A MRSA §2395, including springtime posting of load restrictions. An overlimit movement permit pursuant to 29-A MRSA §2382 will not relieve the Contractor of its obligation to repair damage to such posted Roads or Bridges. For a related provision, see Section 104.3.2 - Furnishing of Other Property Rights, Licenses, and Permits.

105.5.4 Narrow Roads The Contractor shall not haul on Roads having a bituminous surface width of less than 20 feet unless there is no practical alternative.

105.5.5 Overlimit Loads

A. Within Project Limits Within the Project Limits, the Contractor shall not haul over the base courses, surface course, or accepted subgrades with loads that exceed legal limits, except for Equipment used in grading operations including the preparation of the subgrade.

B. Outside Project Limits Outside the Project Limits, the Contractor must comply with 29-A MRSA §2382 - Overlimit Movement Permits before moving vehicles or hauling loads in excess of legal limits. The Contractor is responsible for all damage caused by the movement of loads in excess of legal limits whether under permit or not.

105.6 Construction Surveying

105.6.1 Department Provided Services The Department will provide the Contractor with the description and coordinates of vertical and horizontal control points, set by the Department, within the Project Limits, for full construction Projects and other Projects where survey control is necessary. For Projects of 1,500 feet in length, or less: The Department will provide three points. For Projects between 1,500 and 5,000 feet in length: The Department will provide one set of two points at each end of the Project. For Projects in excess of 5,000 feet in length, the Department will provide one set of two points at each end of the Project, plus one additional set of two points for each mile of Project length. For non-full construction Projects and other Projects where survey control is not necessary, the Department will not set any control points and, therefore, will not provide description and coordinates of any control points. Upon request of the Contractor, the Department will provide the Department's survey data management software and Survey Manual to the Contractor, or its survey Subcontractor, for the exclusive use on the Department's Projects.

105.6.2 Contractor Provided Services Utilizing the survey information and points provided by the Department, described in Subsection 105.6.1, Department Provided Services, the Contractor shall provide all additional survey layout necessary to complete the Work. This may include, but not be limited to, reestablishing all points provided by the Department, establishing additional control points, running axis lines, providing layout and maintenance of all other lines, grades, or points, and survey quality control to ensure conformance with the Contract. The Contractor is also responsible for providing construction centerline, or close reference points, for all Utility Facilities relocations and adjustments as necessary to complete the Work. When the Work is to connect with existing Structures, the Contractor shall verify all dimensions before proceeding with the Work. The Contractor shall employ or retain competent engineering and/or surveying personnel to fulfill these responsibilities.

The Contractor must notify the Department of any errors or inconsistencies regarding the data and layout provided by the Department as provided by Section 104.3.3 - Duty to Notify Department If Ambiguities Discovered.

105.6.2.1 Survey Quality Control The Contractor is responsible for all construction survey quality control. Construction survey quality control is generally defined as, first, performing initial field survey layout of the Work and, second, performing an independent check of the initial layout using independent survey data to assure the accuracy of the initial layout; additional iterations of checks may be required if significant discrepancies are discovered in this process. Construction survey layout quality control also requires written documentation of the

layout process such that the process can be followed and repeated, if necessary, by an independent survey crew.

105.6.3 Quality Assurance It is the Department's prerogative to perform construction survey quality assurance. Construction survey quality assurance may, or may not, be performed by the Department. Construction survey quality assurance is generally defined as an independent check of the construction survey quality control. The construction survey quality assurance process may involve physically checking the Contractor's construction survey layout using independent survey data, or may simply involve reviewing the construction survey quality control written documentation. If the Department elects to physically check the Contractor's survey layout, the Contractor's designated surveyor may be required to be present. The Department will provide a minimum notice of 48 hours to the Contractor, whenever possible, if the Contractor's designated surveyor's presence is required. Any errors discovered through the quality assurance process shall be corrected by the Contractor, at no additional cost to the Department.

105.6.4 Boundary Markers The Contractor shall preserve and protect from damage all monuments or other points that mark the boundaries of the Right-of-Way or abutting parcels that are outside the area that must be disturbed to perform the Work. The Contractor indemnifies and holds harmless the Department from all claims to reestablish the former location of all such monuments or points including claims arising from 14 MRSA § 7554-A. For a related provision, see Section 104.3.11 - Responsibility for Property of Others.

105.7 Working Drawings

105.7.1 General The Contractor shall provide all necessary Working Drawings to the Department for review. The Contractor shall not allow final assembly or fabrication of structural units before the Department completes its review of the applicable Workings Drawings and comments on them. The Contract price shall include the cost of furnishing and revising all Working Drawings.

The Department's review of and comment on Working Drawings may be limited to basic Contract requirements relating to design compliance and Material type(s). Such review shall not relieve the Contractor of responsibility under the Contract including the overall correctness of Working Drawings including Engineering and mathematical computations, shop fits, and field connections.

105.7.2 Review Times The Contractor's Schedule of Work shall allow the Department the following review and comment times prior to the start of production. For a related provision, see Section 107.4 - Scheduling of Work.

First Submission: 21 Days or 1 day per drawing, whichever is greater.

Second Submission: 10 Days or 1/2 day per drawing, whichever is greater.

Each subsequent submission: 10 Days or 1/2 day per drawing, whichever is greater.

The above review times shall double for submittals that require design computations.

The Department may combine separate submissions of analytically common elements of Work and require the per drawing review times set forth above when it determines that the Contractor has divided Working Drawings into separate submissions for the purpose of avoiding said per drawing review times.

Delay caused by exceeding the time periods listed above will be analyzed in accordance with Section 109.5 - Adjustments for Delay.

105.7.3 Cost of Review The Department will review the first and second submission at no cost to the Contractor. For subsequent submissions, the Department will charge the Contractor a rate of $75 per person-hour of review. Such costs will be deducted from amounts otherwise due the Contractor.

105.7.4 Submittal Requirements The Contractor shall indicate the order of preference for review and return of Working Drawings and organize all Drawings in the order of their importance.

The Contractor shall submit 3 sets of Drawings to the Department.

All submittals shall use the same system of units as that used in the Department's Plans.

105.7.5 Review Standards and Procedures If the first submission does not meet accepted industry standards for Working Drawings or Engineering design Drawings and Specifications, as determined by the Department, the entire submission will be returned without review and will be recorded as the first submission. When resubmitted, the review time requirements shall be those applicable to a first submission.

One set of reviewed Working Drawings will be marked with comments and returned to the Contractor. The Contractor shall then revise its Working Drawings accordingly. Except as provided otherwise in the Contract, the Contractor shall furnish the Department with 2 reproducible copies of the final Working Drawings before construction of the element(s) depicted in the Working Drawing(s).

105.8 Environmental Requirements

105.8.1 Temporary Soil Erosion and Water Pollution Control The Contractor shall provide continuous and effective soil erosion and water pollution control.

105.8.2 Permit Requirements

A. Permits Granted To Department Permits are to be included in or incorporated by reference into the Bid Documents. If Permits are not so included and the Contractor is aware the Work will impact a regulated resource such as waterbodies or wetland, the Contractor shall notify the Department before Bidding. For a related provision, see Section 102.5.2 - Bidder’s Duty to Notify Department If Ambiguities Discovered.

The Contractor is responsible for complying with all Permit conditions. If the Contractor desires to modify or seek interpretation of any permit granted to the Department, it must coordinate any such requests through the Department.

B. All Other Permits Except as expressly provided otherwise in the Contract, the Contractor, at its expense, shall procure all other environmental or land use Permits, licenses, or other permissions that are necessary or appropriate to perform the Work. At the time of application, the Contractor shall provide the Department with notice of all applications for such Permits, licenses, or other permissions, and upon request, a copy of all such applications. For a related provision, see Section 104.3.2 - Furnishing of Other Property Rights, Licenses, and Permits.

105.8.3 Wetland and Waterbody Impacts

A. General Prohibition Except as specifically allowed by the Contract, there shall be no permanent or temporary impacts to waterbodies or wetlands identified on the Plans or otherwise known to the Contractor. For a related provision, see Section 656.3.4 - "Water Pollution Control Requirements".

B. Wetlands Outside Project Limits If the Contractor desires to conduct an activity that can disturb the soil in an area that is outside the Project Limits, but is contiguous or in close proximity to such Limits, the area first must be examined and analyzed by a qualified wetlands specialist in order to determine whether wetlands exist, and if so, to delineate them. The Contractor must notify the Department of all such examinations and analyses and the results thereof. Wetlands so delineated must not be impacted unless properly permitted.

Any fill Material generated from this Project shall not be placed, stored, or disposed of in a wetland at an off-site location unless the Contractor provides the Department with written evidence that all Permits necessary for such use have been obtained. Such evidence must be signed by the Owner of such site and otherwise acceptable to the Department.

105.8.5 Dredge Spoils (Dredge Materials) Unless otherwise provided in the Contract, dredge spoils may not be used as fill within the Project Limits. Any use or disposal of dredge spoils must be in accordance with all applicable federal and State laws.

105.8.6 Pit Requirements

A. General Pits that are sources of Material for the Project, including loam fields, shall meet the requirements of this Section 105.8.6. The Contractor must procure an Agreement from the Owners of such pits stating that the Owners will comply with these requirements. If requested by the Department, the Contractor will provide the Department with a copy of such Agreement.

B. Excavation Requirements Surface Material stripped from the pit shall be stored to allow for restoration of the pit. The Contractor shall not excavate from pit faces that are vertical or have an overhang. The Contractor must stop excavating within a 2 horizontal to 1 vertical slope 10 feet inside of a property line of a deposit, even though the Material within the pit may have a steeper angle of repose. The exception may be when an additional Agreement is reached with an adjacent property Owner to allow the extension of a pit onto the adjacent property Owner’s land. The Contractor must insure that hazards such as steep pit faces and ponds are protected by flattening slopes or by erecting suitable fencing.

C. Rehabilitation If the pit is licensed by MDEP or LURC, the Contractor shall follow the rehabilitation provisions of said license. In the absence of such license requirements, pits, including loam fields, shall be rehabilitated as provided below and in Section 657 - Rehabilitation of Pits.

1. Newly opened pits and loam fields from which any Material has been removed for the Project shall be completely rehabilitated, as defined below.

2. Areas of extensions of existing pits from which common borrow, granular borrow, gravel borrow, rock borrow, or loam have been removed for the Project shall be completely rehabilitated.

3. Areas of extensions of existing pits that have become depleted, as defined below, by the removal of other gravel, sand, Aggregate items, or loam for the Project shall be completely rehabilitated.

4. Areas of extensions of pits which have not become depleted by the removal of other gravel, sand, Aggregate items, or loam shall be rehabilitated to the extent of grading the slopes to 1 horizontal to 1 vertical or flatter.

For the purposes of this Section 105.8.6, the following definitions apply:

"Completely Rehabilitated" means grading all areas disturbed as a result of the MDOT Project and treating of the ground surface.

"Depleted" means when the only remaining Material is within 10 feet of a property line on a 1 horizontal to a 1 vertical slope or when the character of the Material so radically changes that it can no longer be used as originally anticipated.

105.8.7 Environmental Non-compliance - Remedies and Costs The Contractor shall be in non-compliance if it, or Subcontractors at any tier, fail to comply with the terms of this Contract or, pursuant to Section 104.3.7 - Laws To Be Observed, any applicable environmental or land use law or regulation including Project specific permit conditions.

If the Contractor is in non-compliance, the Department may, at its discretion:

A. Withhold all Progress Payments, or any portion thereof, during the period the Contractor is in non-compliance;

B. Remedy such non-compliance using State forces or another Contractor and deduct all costs incurred by the Department from Progress Payments. Such costs include direct costs, Project Engineering costs, and Contractor costs from amounts otherwise due the Contractor, and/or

C. Suspend the Work for cause and without cost or liability to the Department. Said suspension shall continue until the Contractor has addressed all non-compliance issues as directed by the Department.

The Contractor shall be responsible for any fines and penalties assessed by environmental or land use regulatory agencies due to such non-compliance. Such penalties may be withheld from

amounts otherwise due the Contractor. For related provisions, see Sections 108.5 - Right to Withhold Payments and 108.9.3 - Amounts Due the Department.

105.9 Historic and Archeological Considerations Unless expressly provided otherwise by the Contract, the Maine State Historic Preservation Office has determined that the Project will have no effect upon any site of historic or archaeological significance, as identified by the National Historic Preservation Act of 1966 and the Archaeological and Historic Preservation Act of 1974.

If the Contractor discovers any object of potential archaeological, paleontologic, or other historic interest, all Work that could disturb said object shall immediately cease and shall not be resumed until an investigation of the object and related deposits have been completed and the removal of articles of interest has been accomplished. Should such a deposit be discovered, the Contractor shall notify the Department immediately.

The first indication of archaeological deposits may be the burial grounds or campsites of Native Americans that reveal the bones of the dead and the people's implements. The first indications of paleontologic deposits may be the exposure of marine fossils or shells found mainly in clay deposits. Indications of deposits of more recent historic interest may be the exposure of dumps in landfill areas, abandoned campfire sites, and building foundations.

Any Delay of the Contractor's operations resulting from the above will be analyzed in accordance with Section 109.5 - Adjustments for Delay, except that in no event will such Delay be a Compensable Delay.

The Contractor is notified of a Maine statute, 27 MRSA §371, which States that artifacts, specimens, and material, which are public property by virtue of having been found on, in, or beneath State controlled lands, and places Ownership of the same in the State of Maine.

105.10 Equal Opportunity and Civil Rights

105.10.1 Requirements Applicable to Federally Funded Contracts Unless expressly provided otherwise in the Bid Documents, the provisions contained in Section 2 - Federal Equal Opportunity & Civil Rights Requirements are incorporated into the Bid Documents and Contract.

These provisions include requirements regarding Non-discrimination & Civil Rights - Title VI, Non-discrimination and Affirmative Action - Executive Order 11246, Goals for Employment of Women and Minorities, On-the-Job Training (OJT) Requirements, and Disadvantaged Business Enterprise (DBE) Requirements.

105.10.2 Requirements Applicable to All Contracts Unless expressly provided otherwise in the Bid Documents, the provisions contained in this Section 105.10.2 apply to this Contract.

A. Maine Code of Fair Practices and Affirmative Action The Contractor must comply with the provisions of Maine's Code of Fair Practices and Affirmative Action, 5 M.R.S.A. §781, et seq., and all regulations promulgated thereunder. This Code, at 5 M.R.S.A. §784(2), reads as follows.

"During the performance of this Contract, the Contractor agrees as follows:

1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religious creed, sex, national origin, ancestry, age, physical handicap, or mental handicap. Such action shall include, but not be limited to, the following: Employment, upgrading, demotions, transfers, recruitment or recruitment advertising; layoffs or terminations; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, State that all qualified applicants will receive consideration for employment without regard to race, color, religious creed, sex, national origin, ancestry, age, physical handicap, or mental handicap.

3) The Contractor will send to each labor union or representative of the Workers with which he has a collective or bargaining Agreement, or other Contract or understanding, whereby he is furnished with labor for the performances of [sic] his Contract, a notice, to be provided by the Contracting Department or agency, advising the said labor union or Workers' representative of the Contractor's commitment under this Section and shall post copies of the notice in conspicuous places available to employees and to applicants for employment.

4) The Contractor will cause the foregoing provisions to be inserted in all Contracts for any Work covered by this Agreement so that such provisions will be binding upon each Subcontractor.

5) Contractors and subcontractors with contracts in excess of $50,000 will also pursue in good faith affirmative action programs."

B. Maine Human Rights Act The Contractor must comply with the provisions of Maine's Human Rights Act, 5 M.R.S.A. §4551, et seq., and all regulations promulgated thereunder. This Act provides, among other things, that it is unlawful discrimination for any employer to fail or refuse to hire or otherwise discriminate against any applicant for employment because of race or color, sex, physical or mental disability, religion, age, ancestry or national origin, except when based on a bona fide occupational qualification.

C. EEO Notice to Labor Sources Contractors and Subcontractors that are required by Maine's Code of Fair Practices and Affirmative Action or by federal law to notify a labor union or a representative of workers with which the Contractor or the Subcontractor has a collective or bargaining agreement, contract or understanding through which labor is furnished must provide notice on the letter shown on this page below. The letter must be written on the Contractor's or Subcontractor's letterhead stationery.

D. Prevention of Sexual Harassment It is the policy of the Department that all parties have a right to Work in an environment free from harassment, including sexual harassment. Maine State Law and the Department prohibit any and all forms of sexual harassment in the Workplace, on the job site or that which may have an effect on the Work environment.

THEREFORE:

The Contractor hereby agrees to the following requirements in order to provide and promote a non-discriminatory Workplace free of sexual harassment.

1. No Contractor, supervisor, or employee shall allow repeated, objectionable, or unwanted verbal or physical advances, sexually explicit derogatory Statements, or sexually discriminatory remarks which cause discomfort, humiliation, or are in any way offensive to the recipient, or which interfere with the quality of any employee's Work environment in any way. Furthermore, no one on any job shall threaten or insinuate either explicitly or implicitly that any employee's submission to or rejection of sexual advances will have any effect on that person's employment, job assignment, training, evaluation, promotion, wages, or any other term or condition of employment or future job opportunity. Contractors, under Maine State Law, are responsible for ensuring and maintaining a Work environment, which is free from sexual harassment.

2. Any Contractor whose employee sexually harasses another employee shall be subject to disciplinary action. Contractors who fail to adequately and expeditiously investigate sexual harassment claims will be subject to enforcement proceedings and such sanctions as are authorized by law. Contractors are required to provide detailed written reports to the Department when so requested which shall describe the investigation and corrective actions taken by Contractors in all instances of sexual harassment allegations.

Contractors shall also be responsible for ensuring that no retaliation, reprisal, or intimidation be directed against any complainant or other employee who provides information to any person or agency investigating an allegation or complaint of sexual harassment.

E. DBE Reporting Requirements The Contractor must submit quarterly reports of actual dollars paid to Disadvantaged Business Enterprises (DBE's) on this Contract to the MDOT Office of Human Resources by the end of the first week of January, April, July, and October for the period covering the preceding three months considered Federal Fiscal Year quarters. The reports will be submitted directly to the Office of Human Resources on the form provided in the latest version of the DBE Program Manual. The Department may withhold Progress Payments if the Contractor fails to submit the report.

F. Certification of Continuing EEO Efforts The Contractor must certify, to the best of its knowledge and belief, that the Contractor has made and will continue to make a good faith effort to comply with all applicable State requirements on equal employment opportunity, non-discrimination, and affirmative action including employment of women and minorities as journeyed trade workers. Contractors not having achieved company-wide trade employment goals of 6.9% for females and 0.5% for minorities will, where indicated by Contract and to the maximum extent practical, comply with Section 660 - On-the-Job Training.

105.11 Other Federal Requirements Unless expressly otherwise provided in the Bid Documents, the provisions contained in Section 3 - Other Federal Requirements are hereby incorporated into the Bid Documents and Contract.

These provisions include material requirements, and Standard Contract Provisions governing Non-discrimination, Non-segregated Facilities; Payment of Predetermined Minimum Wage, Statements and Payrolls; Record of Materials, Supplies, and Labor; Subletting or Assigning the Contract; Safety and Accident Prevention; False Statements; Implementation of Clean Air Act and Federal Water Pollution Control Act; Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion; and Certification Regarding Use of Contract Funds for Lobbying. For a related provision, see Section 104.3.8 - Wage Rates and Labor Laws.

SECTION 106 - QUALITY

Scope of Section This section contains general provisions related to the Quality of Work including roles, standards, Materials, Quality Control, Acceptance, Non-conforming Work, and warranties. When specified in the contract, the Department will use the quality level analysis in this Section to determine quality-based financial incentives and disincentives.

106.1 Roles Regarding Quality

106.1.1 Cooperation The Contractor and the Department shall work cooperatively within their respective Quality Assurance (QA) responsibilities to produce and document a high quality project, meeting or exceeding the quality requirements of the contract.

106.1.2 Role of the Contractor The Contractor is responsible for all aspects of the quality of construction, including labor, equipment, materials, incidentals, processes, construction methods, and QC. When required by the contract, the Contractor shall develop, submit for approval, implement, and adjust if necessary a QCP for the work specified.

106.1.3 Role of the Department The Department is responsible for providing a quality design, approving the QCP, and assuring that the Contractor is following the QCP. The Department will perform acceptance sampling, testing, and inspection for any element of the work to ensure compliance with the QCP and contract requirements. The Department may also perform IA sampling and testing at any time.

106.2 Quality Standards

106.2.1 Conformity with Contract The Contractor shall comply with all contract requirements in performance of the work. Any required plans are binding upon the Contractor as contract requirements.

106.2.2 Conformity with Other Standards Unless otherwise provided in the contract, all work shall conform to the following standards, as applicable.

A. MDOT
B. AASHTO
C. ASTM
D. AREMA
E. Standard conditions and special conditions contained in any permit
F. Manual on Uniform Traffic Control Devices (MUTCD)

G. American with Disabilities Act (ADA)

106.2.3 Industry Standards If there is no applicable standard set forth in this Contract for a particular item of work, then the Contractor shall perform that item of work in accordance with industry standards prevailing at the time of bid.

106.3 Material Quality

106.3.1 General Materials and manufactured products incorporated into the work shall be new unless otherwise specified, free from defect, and in conformity with the contract.

When material is fabricated or treated with another material or where any combination of materials is assembled to form a finished product, any or all of which are covered by specifications, the Department may reject the finished product if any of the components do not comply with the specifications.

Title to all hot mix asphalt to be furnished by the Contractor shall pass to the State of Maine, Department of Environmental Protection, immediately before installation. The preceding sentence shall not in any way affect any right or remedy the Department has relating to the quality of the material, installation, or workmanship.

106.3.2 Quality Requirements Materials shall meet the requirements of the contract at the time they are incorporated into the work. The Contractor shall test proposed sources of materials, and materials shall not be used in the work until passing results are obtained.

The Contractor shall perform QC inspection, sampling, testing, and documentation in accordance with the contract requirements. For work without specific QC requirements, the Contractor shall perform inspection, sampling, and testing, as the Contractor deems necessary to ensure adequate process control and end product quality.

The Contractor shall provide all facilities, testing equipment, and material samples as the Department may require to collect and forward Acceptance and IA samples, and conduct related field tests.

The Contractor shall supply materials and perform work using methods and equipment in a manner, which will not degrade the quality of the materials. Materials with prior approval that become unfit for use or fall outside the specification limits will result in the affected product being declared non-conforming work. For a related provision, see Section 106.8 - Non-conforming Work.

The cost of the Contractor's QC activities and for furnishing facilities, testing equipment, and samples for the Department's Acceptance and IA activities is incidental to the related Pay Items.

106.3.4 Storage The Contractor shall store materials to preserve their quality and fitness for the work. If materials fail to meet the requirements of the Contract, the materials will be rejected. The Department may inspect stored materials at any time. The Contractor shall locate stored materials to facilitate their prompt inspection. The Department may approve portions of land within the Right-of-Way for storage purposes and for the placing of the

Contractor's equipment, but the Contractor shall provide any additional land required without cost to the Department. The Contractor shall not use private property for storage purposes without written permission of the owner, with copies of the written permission furnished to the Department upon request. The Contractor shall restore all storage sites, whether within the Right-of-Way or on private property, to original condition at the completion of the project, without cost to the Department.

106.3.5 Handling The Contractor shall handle all materials in a manner that preserves their quality and fitness for the work. The Contractor shall transport aggregates in tight vehicles to avoid loss or segregation of materials after loading and measuring.

106.3.6 Unacceptable Materials The Department may reject materials not conforming to the Specifications at any time, and the Contractor shall remove them immediately from the project site unless otherwise instructed by the Department. The Contractor shall not store or use rejected materials on any Department project.

106.3.7 Sampling and Testing Qualified Departmental personnel may take samples for Acceptance Testing. Work in which material is used without the Department's approval will be at the Contractor's sole risk and the work will be considered non-conforming work. Unless otherwise designated, the Department's testing costs will be at the expense of the Department. Materials being used are subject to inspection, testing, or rejection at any time. The Department will furnish copies of test reports to the Contractor upon request.

The Contractor is responsible for the quality of construction and materials incorporated into the work. The Contractor shall perform all necessary QC inspection, sampling, and testing in accordance with the approved QCP. If a QCP is not required, the Contractor is still responsible for all QC necessary for a high quality project. The Contractor shall not rely on the results of the Department's Acceptance Testing being available for process QC.

The Contractor may observe the Department's sampling and testing activities. If the Contractor observes a deviation from the specified sampling or testing procedures, then the Contractor shall describe the deviation to the Department immediately and document the deviation in writing within 24 hours to preserve their ability to dispute the sample.

The Department will randomly sample and test items designated for Acceptance in accordance with the procedure specified for that item. The Department may also sample and test at any time if the material appears defective or when the Department determines that a change in the process or product has occurred. Acceptance Tests will govern in all cases for determination of pay factors without regard to QC tests, unless otherwise specified in the Contract.

When directed by the Department, the Contractor shall sample and test any material, which appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or corrected by the Contractor. All sampling shall be in accordance with Department, AASHTO, or ASTM procedures as specified for the material being sampled.

The Department will not sample or test for process control or assist in controlling the Contractor's production operations. The Contractor shall provide QC personnel and testing equipment capable of providing a quality product that meets or exceeds the Contract

requirements. Continued production of non-conforming work for a reduced price as determined by the Department, instead of making adjustments to bring work into conformance, is not allowed.

The Contractor shall maintain original documentation of all inspections, tests, and calculations used to generate reports. The records shall indicate the nature, number, and type of deficiencies found, the quantities approved and rejected, and the nature of corrective actions taken. The Contractor shall maintain standard testing equipment and qualified personnel as required by the Contract.

106.5 Quality Assurance The Department will conduct Quality Assurance by:

-Review of QC Reports provided by the Contractor.
-Random inspection of work previously inspected by the Contractor.
-Randomly accompanying the Contractor's inspector during QC Inspections/Testing.
-Acceptance and IA sampling and testing of materials or completed work.

The Department's objective is a high quality project through a cooperative effort with the Contractor. Items, which are to be buried, covered, are of high cost, or affect the long-term durability of the work; will receive extra attention in the QA effort.

Unacceptable work, found by the Department's Inspector, will be brought to the attention of the Resident, who will determine what corrective action that the Contractor will take. The Contractor shall schedule the corrective work with the Resident, and both the QC and Department's Inspectors will witness the corrective work. Failure of the Contractor to correct unacceptable work in a timely manner, as determined by the Department, may result in the withholding of progress payment(s) or suspension of the work, or both. The Contractor will not be eligible for either additional monetary compensation or a time extension should this happen. If necessary for protection of the work or for public convenience, the Department may accomplish corrective work by other means and deduct the cost from any monies due the Contractor.

The Department may review and obtain copies of all QC test reports (including original test data), inspections reports, and control charts at all reasonable times without cost to the Department.

If the Department decides to inspect the materials or operations at the plant, then the following conditions shall be met:

A. The Department shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has arranged for materials.

B. The Department shall have full access at all times to the parts of the plant that concern the manufacture and production of the materials being furnished.

C. The Contractor shall provide any needed equipment for safe access to plant stockpiles, equipment, and operations.

106.6 Acceptance The Department is responsible for determining the acceptability of the Work. Acceptance of the material is based on the visual inspection of the construction, monitoring of the Contractor's QC, and Acceptance Test results. Acceptance sampling and testing is the responsibility of the Department (unless alternate procedures are specified) except for furnishing facilities, testing equipment, transportation, and material samples as required.

Prior to knowledge of the sample location, the Contractor may remove and replace defective material at no cost to the Department. This will not preclude visual rejection of obviously defective material. The Department will sample, test, and evaluate new material for acceptance.

106.8 Non-Conforming Work

106.8.1 Substantially Conforming Work If the Department determines the work substantially conforms to the Contract, the Department may accept the non-conforming work and may require a credit to the Department to be deducted from amounts otherwise due the Contractor. If the Department and Contractor cannot agree to the amount of the credit, the work shall be unacceptable work.

106.8.2 Unacceptable Work The Contractor shall remove, replace, or otherwise correct all unacceptable work as directed by the Department at the expense of the Contractor, without cost or liability to the Department.

106.8.3 Unauthorized Work Prior to Final Acceptance and upon written order by the Department, the Contractor shall remove or uncover unauthorized work. After examination, the Contractor shall rebuild the uncovered work to a condition conforming to the Contract at the expense of the Contractor and without cost or liability to the Department. Any delay arising from unauthorized work shall be an inexcusable delay.

106.8.4 Uninspected Work Prior to Final Acceptance and upon written order by the Department, the Contractor shall uncover uninspected work. After examination, the Contractor shall rebuild the uncovered work to a condition conforming to the Contract. If the Department determines that the uninspected work is acceptable, the uncovering, removing, and rebuilding will be paid as extra work, and any resulting delay shall be an excusable delay. If the Department reasonably determines that the uninspected work is unacceptable, the uncovering, removing, and rebuilding shall be at the Contractor's expense and any resulting delay shall be an inexcusable delay.

106.9 Warranty Provisions

106.9.1 Warranty By Contractor The Contractor unconditionally warrants and guarantees that the project will be free from warranty defects for one year from the date of Final Acceptance. For a related provision, see Section 107.9.3.

If the Department discovers any warranty defects during the warranty period, the Contractor agrees to promptly perform all remedial work at no additional cost or liability to the Department.

106.9.2 Warranty Definitions Notwithstanding any other provision of the Contract, the following words or phrases have the following definitions for the purposes of the Contractor's warranty obligation under this Contract.

Warranty Defects Conditions that result from material, manufacture, or workman-ship and that are not in conformity with the Contract or with industry standards applicable to the work prevailing at the time of submission of the bid. Warranty defects do not include (A) normal wear and tear, (B) conditions caused by occurrences clearly beyond the Contractor's control and not attributable to material, manufacture, or workmanship, and (C) Defects in landscape items that are the subject of Landscape Establishment Period Obligations. Examples of such excepted occurrences might be fires, floods, abnormally poor weather for the site of work, accidents, improper use, improper maintenance, vandalism, or acts of God.

Emergency Emergency means necessary for public safety or convenience, as determined by the Department.

Promptly Unless an emergency, "Promptly" means in the first construction season after the Contractor has been notified of the defect(s), but always within one year of such notice. In case of emergency, Promptly means within 48 hours.

Remedial Work "Remedial Work" means all work necessary to make the item in like new condition as reasonably determined by the Department and performed in accordance with the Contract and in a good and skillful manner. Remedial Work includes all design, permitting, project management, supervision, materials, and labor, including erosion control and traffic control.

106.9.3 Remedial Work Procedure and Requirements Within (30) Days of being notified of warranty defects, the Contractor shall submit to the Department for approval a Remedial Work Plan including the scope of work, conceptual work methods, schedule, construction phasing, and other significant aspects of the work (the "Work Plan"). Unless otherwise provided by the Department in writing, any work commenced prior to Department's approval of the Work Plan will be at the Contractor's sole risk. Before starting any on-site work, the Contractor shall deliver to the Department certificates of insurance complying with Section 110.3 - Insurance. If the estimated cost of remedial work exceeds $100,000, the Contract shall provide performance and Payment Bonds complying with Section 110.2 - Performance and Payment Bonds.

If (A) the Contractor fails to submit a Remedial Work Plan, (B) the Contractor does not comply otherwise with written instructions from the Department, or (C) a State of emergency exists in which delay would cause serious risk of loss or damage, then the Department may perform or Contract for such remedial work and the Contractor will be responsible for all claims, costs, damages, losses, and expenses arising out of such work including fees and charges of engineers, consultants, attorneys, dispute resolution professionals, and court costs.

Upon a final inspection satisfactory to the Department, the Department will issue a written acceptance of the remedial work. The Contractor warrants and guarantees all remedial work to be free from warranty defects for one year after such acceptance.

106.9.4 Other Warranty Provisions The Contractor hereby assigns to the Department the right to enforce all manufacturer's warranties or guarantees on all materials, equipment or

products purchased for the work that exceed the nature or duration of the warranty obligations assumed by the Contractor under this Contract.

The Performance Bond and/or Warranty Bond required by Section 110.2.1 - Bonds shall cover all warranty obligations of the Contractor provided by this Contract. Final Acceptance by the Department does not relieve the Contractor of any warranty obligations provided by this Contract.

The Contractor agrees that the warranty obligations provided by this Contract shall be reported as an outstanding obligation in the event of bankruptcy, dissolution, or the sale, merger, or cessation of operations of the Contractor.

SECTION 107 - TIME

Scope of Section This Section contains general time-related provisions of the Contract including the Contract Time, allowable Work times, schedule requirements, Liquidated Damages, and Project Closeout.

107.1 Contract Time and Contract Completion Date All Work must be Complete by the Contract Completion Date and within the Contract Time. Unless expressly provided otherwise by the Department in writing, the Contract Time shall be all time between the Contract Execution and the Completion date specified in the Contract, and any authorized extensions.

107.2 Commencement of Contract Time and Work Unless provided elsewhere in this Contract or in writing from the Department, the Contract Time will commence on the date of Contract Execution. For related provisions, see Sections 101.2 - Definitions of Contract Execution and 103.8 - Execution of Contract by the Department.

Unless specified otherwise, Work may commence upon Contract Execution, unless the Contractor has not secured and provided the Performance and Payment Bonds and Insurance Certificates required by Sections 103.5 - Award Conditions, 110.2 - Bonding, and 110.3 - Insurance. Any Work performed before the requirements of these sections are met is Unauthorized Work and is at the sole risk of the Contractor. Pursuant to Section 110.1 - Indemnification, the Contractor and Surety shall indemnify and hold harmless the Department from any claims arising from Work.

107.3 Allowable Work Times

107.3.1 General Work can be performed at any time except Sundays and Holidays, unless expressly specified otherwise in this Contract, including any applicable Permit conditions. If a Holiday occurs on a Sunday, the following Monday shall be considered a Holiday. Sunday or Holiday work must be approved by the Department, except that the Contractor may work on Martin Luther King Day, President’s Day, Patriot’s Day, the Friday after Thanksgiving, and Columbus Day without the Department’s approval.

107.3.2 Night Work If the Contractor performs Work during periods of darkness, the Contractor shall comply with Contract requirements governing night Work. If the Contractor elects to perform Work during periods of darkness on its own initiative and without direction from the Department, then the Contractor shall also comply with all municipal ordinances

affecting such Work including noise ordinances. When pricing and scheduling the Work, the Contractor shall not assume that such non-directed night Work will be allowed. Accordingly, the Contractor shall not be entitled to any adjustment to either compensation or time due to its inability to secure any required municipal approvals.

107.3.3 Sundays and Holidays The Contractor shall not carry on construction operations on Sundays or Holidays unless (A) expressly specified otherwise in this Contract, (B) authorized by the Department, or (C) necessary to avoid or eliminate a clear and immediate risk of significant bodily injury to any person.

107.3.4 Seasonal Work Restrictions The Contractor shall meet all seasonal restrictions on time of Work contained in the Contract including all Permits.

107.4 Scheduling of Work

107.4.1 General Duty of Contractor The Contractor is solely responsible for the planning and execution of Work in order to complete the Work within the Contract Time.

107.4.2 Schedule of Work Required Within 21 Days of Contract Execution and before beginning any on-site activities, the Contractor shall provide the Department with its Schedule of Work in a Critical Path Method (CPM) in the form of an activity on node (AON) diagram. This CPM schedule will become the basis for claims involving delay. The Department will waive this CPM requirement for appropriate contracts through a special provision. The Contractor shall plan the Work, including the activity of Subcontractors, vendors, and suppliers, such that all Work will be performed in Substantial Conformity with its Schedule of Work. The Schedule must include sufficient time for the Department to perform its functions as indicated in this Contract, including QA inspection and testing and review of Working Drawings.

At a minimum, the Schedule or Work shall show the major Work activities, milestones, durations, and a timeline. Milestones to be included in the schedule include: (A) start of Work, (B) beginning and ending of planned Work suspensions, (C) Completion of Physical Work, and (D) Completion. If the Contractor Plans to Complete the Work before the specified Completion date, the Schedule shall so indicate.

Any restrictions that affect the Schedule of Work such as paving restrictions or In-Stream Work windows must be charted with the related activities to demonstrate that the Schedule of Work complies with the Contract.

The Department will review the Schedule of Work and provide comments to the Contractor within 20 days of receipt of the schedule. The Contractor will make the requested changes to the schedule and issue the finalized version to the Department.

107.4.3 Projected Payment Schedule Within 21 Days of Contract Execution, the Contractor shall also provide the Department with a Projected Payment Schedule that estimates the value of the Work as scheduled, including requests for payment of Delivered Materials. The Projected Payment Schedule must be in accordance with the Contractor's Schedule of Work and prices submitted by the Contractor’s Bid. The Contractor shall revise the Projected Payment Schedule to reflect the actual progress of the Work.

107.4.4 Schedule Revisions The progress of the Work shall be compared against the Schedule of Work at each Progress Meeting. If the Department determines that the Contractor's actual progress is not in Substantial Conformity with the Schedule of Work, then the Contractor shall either increase Project resources to get back on schedule or submit a revised Schedule of Work and Projected Payment Schedule to the Department.

107.4.5 No Separate Payment Unless expressly provided otherwise, the cost for providing a Schedule of Work, a Projected Payment Schedule, and all revisions and updates is Incidental to the Contract.

107.5 Suspension of Work

107.5.2 Suspensions Due To Uncontrollable Events Upon request of the Contractor or upon its own initiative, the Department may suspend the Work due to Uncontrollable Events. Any Delay related to such a suspension will be analyzed in accordance with Section 109.5 - Adjustments for Delay. For a related provision, see Section 101.2 - Definition of Uncontrollable Event.

107.5.3 Suspensions for Cause The Department may suspend the Work if the Contractor violates any provision of the Contract that may affect the quality, cost, timeliness or Conformity of the Work. Any Delay related to such a suspension will be an Inexcusable Delay. For a related provision, see Section 109.5 - Adjustments for Delay.

107.5.4 Suspensions for Convenience The Department may suspend the Work for any other reason it determines is in the best interest of the Department. Any Delay related to such a suspension will be analyzed in accordance with Section 109.5 - Adjustments for Delay.

107.5.5 Pre-Suspension Work If Work is to be suspended for an extended period of time, the Contractor shall store all Materials in a manner that does not obstruct the free and safe flow of vehicular, pedestrian, railroad, or marine traffic and that protects the Materials from damage. The Department may direct the Contractor to install guardrail or other traffic control devices necessary to protect the traveling public. The Contractor shall take all precautions to prevent damage or deterioration of the Work already performed, provide suitable Drainage of the Roadway by opening ditches and Shoulder drains, erecting temporary Structures, and providing temporary erosion control where necessary. The cost of such pre-suspension Work will be analyzed in accordance with Section 109.5 - Adjustments for Delay.

For related provisions, see Sections 104.2.6 - Right to Suspend Work, 105.4.4 - Maintenance During Suspension of Work, 107.7 - Liquidated Damages, and 109.5 - Adjustments for Delay.

107.6 Completion Incentives and Disincentives When provided in the Contract, financial incentives for early Completion and disincentives for late Completion will be added to or deducted from amounts otherwise due the Contractor. Incentives/Disincentives are separate and distinct from Liquidated Damages and Supplemental Liquidated Damages.

107.7 Liquidated Damages

107.7.1 General Except as expressly provided otherwise in this Contract, the Contractor shall owe the Department the per diem amount specified in Section 107.7.2 - Schedule of Liquidated Damages for each Calendar Day that any portion of the Work remains incomplete after the Contract Time has expired. Liquidated Damages will be deducted from amounts otherwise due the Contractor. For related provisions, see Sections 107.1 - Contract Time, 107.5.1(D) - Winter Suspensions - Impact on Liquidated Damages, and 109.5 - Adjustments for Delay.

Permission for the Contractor or the Surety to continue and finish Work after the Contract Time has expired shall not waive the Department's rights to assess Liquidated Damages.

107.7.2 Schedule of Liquidated Damages The specific per diem rates for Liquidated Damages are set forth below. By executing the Contract, the Contractor acknowledges that such an amount is not a penalty and that the daily amount set forth in the Contract is a reasonable per diem forecast of damages incurred by the Department due to the Contractor's failure to Complete the Work within the Contract Time.

Original Contract Amount		Per Diem Amount of Liquidated Damages
From More Than	To and Including	Calendar Day
$0	$100,000	$225
$100,000	$250,000	$350
$250,000	$500,000	$475
$500,000	$1,000,000	$675
$1,000,000	$2,000,000	$900
$2,000,000	$4,000,000	$1,000
$4,000,000	and more	$2,100

107.8 Supplemental Liquidated Damages Supplemental Liquidated Damages, if any, will be specified by Special Provision and are separate and distinct from Liquidated Damages. Supplemental Liquidated Damages will be deducted from amounts otherwise due the Contractor.

107.9 Project Closeout

107.9.1 Final Cleanup and Finishing To prepare for Final Acceptance, the Contractor shall clean the Project and all ground, lawns, streams, Structures, and other areas adjacent to the Project of all rubbish, excess Material, temporary Structures, and Equipment. The ground shall be backfilled with Material that is generally the same as the surrounding Material, graded to drain properly, and finished such that the surface matches the surrounding surface (examples - loam and seed, compacted gravel, pavement). The Contractor must leave all areas impacted by the Work in a condition that is reasonably acceptable to the Department.

107.9.2 Notice / Inspection / Punch List The Contractor will notify the Department in writing that it considers the Project complete. As soon as practicable thereafter, the Department will inspect the Work. If Incomplete or unsatisfactory Work is noted, the Department will prepare a written list of all items that must be completed or corrected before the Physical Work

is Complete ("Punch List"). The Contractor shall immediately take such measures as are necessary to complete all Punch List items.

107.9.3 Notices / Final Inspections / Physical Work Completion The Contractor shall notify the Department in writing that all Punch List items have been completed and/or corrected and that the Contractor considers the Project Complete. As soon as practicable thereafter, the Department will make another inspection of the Work. The Department and the Contractor will attend this inspection jointly. If Incomplete or unsatisfactory Work is noted, the Department will prepare a revised Punch List [which may include items not on previous Punch List(s)] and the Contractor shall immediately take such measures as are necessary to complete the revised Punch List items. Additional iterations will occur in a like manner until the Department finds that the Physical Work is Complete and in Conformity with the Contract (Final Acceptance). If the Contractor has not already done so, the Contractor will Promptly remove all temporary traffic control devices.

107.9.4 Closeout Documentation The Department will notify the Contractor in writing that the Physical Work is Complete and in Conformity with the Contract. The Contractor shall Deliver all Closeout Documentation, exclusive of the All Bills Paid and Request for Final Payment Letters, to the Department within 30 Days of receiving the above notification. Liquidated Damages will cease upon the physical completion of the Work. For a related provision, see Section 101.2 - Definition of Closeout Documentation.

107.9.5 Final Closeout Within 75 Days of the receipt of the documents required by Section 107.9.4, the Department will advise the Contractor in writing of the Final Quantities and any damages to be assessed for the Project. The Contractor shall resolve any Project issues that remain and provide the All Bills Paid and Request for Final Payment Letters to the Department within 30 Days. The Department will make Final Payment, including the release of all remaining retainage, and release any escrowed bid documents within 20 Days of receipt of the above letters, which complete the Closeout Documentation. For a related provision, see Section 108.8 - Final Payment.

If the Contractor fails to resolve issues and deliver Closeout Documentation within the 30 Days provided in Section 107.9.5, the Department may provide a final notice informing the Contractor in writing that unless the Contractor Delivers all Closeout Documentation within 30 Days of the date of Receipt of final notice, the Contractor shall be in Default under the Contract. The Contractor shall become ineligible to Bid on any Department Contracts. The Department may then pursue all remedies provided by the Contract or by law, including withholding Final Payment. For a related provision, see Section 102.1.1 - Eligibility to Bid - Basic Requirements.

107.9.6 No Waiver of Legal Rights Final Acceptance does not preclude the Department from correcting any measure, estimate, or certificate made. The Department may recover from the Contractor or its Surety, or both, overpayments made due to failure to fulfill Contract obligations.

A waiver on the part of the Department of any breach of any part of the Contract is not a waiver of any other or subsequent breach.

The Contractor retains liability for latent Defects, fraud (or such gross mistakes as may amount to fraud), and warranty obligations.

SECTION 108 - PAYMENT

Scope of Section This Section contains general provisions related to payment including measurement of quantities, progress payment, retainage, the right to withhold payment, and other payment-related terms.

108.1 Measurement of Quantities for Payment

108.1.1 Use of Plan Quantities Payment for all items labeled in the Bid Documents as "Plan Quantity" will be based upon the estimated quantity for the work described in the Bid Documents. The Contractor shall accept such payment as full and complete compensation for that item without physical measurement. Areas included in the plan quantity amount but not accomplished will be theoretically measured and deducted from the plan quantity. Areas not included in the plan quantity amount but completed will be measured and added to the plan quantity. Upon mutual written Agreement by the Department and the Contractor through a Contract Modification, the estimated quantity of any item of Work may be used as the final quantity for that item without physical measurement.

108.1.2 General Measurement Provisions The Department will use the U.S. Customary system for all measurements unless the Contract utilizes the International System of Units (SI). Measurement of Bid Items shall include all resources necessary to complete the Pay Item of Work under the Contract. The Department will measure items for payment in accordance with the "Method of Measurement" provisions of the applicable Specification. For all items of Work, other than those paid for by lump sum, the Department shall determine the quantities accepted as the basis for Final Payment after the Physical Work is Completed.

108.1.3 Provisions Relating to Certain Measurements Unless expressly provided otherwise, the Department and the Contractor shall use the following general measurement provisions.

Lump Sum or Each Lump Sum payment is total reimbursement for all resources necessary to complete the item of Work. Quantities provided for items measured and paid by Lump Sum are estimated quantities and are provided for informational purposes, only. There will be no additional payment made by the Department or reduction in payment to the Contractor if the actual, final, quantities for items measured and paid by Lump Sum are different than the quantities estimated by the Department. The only exception to this is when an item is eliminated, in which case Standard Specification Section 109.2, Elimination of Items, would take precedence.

Each is payment per complete unit.

Length Length is defined as linear measurement parallel to the item base or foundation.

Area Area refers to the length, as defined above, multiplied by the width, which is defined as the linear measurement perpendicular to the item base or foundation. When calculating area for payment, use horizontal, longitudinal, and plan (neat) transverse measurements for surface area computations. Make no deductions for individual fixtures

having an area of 1 square yard or less. For purposes of the preceding sentence, "fixtures" means small subareas that do not receive material(s) or on which no Work is performed.

Volume Measure Structures using plan (neat) or approved Contract Modification dimensions. Use the average end area method to compute excavation volumes. Use hauling vehicles approved by the Department, when transporting Materials measured by volume. Measure Materials at the point of Delivery. Ensure the body shape allows contents to be accurately measured. Load and level vehicles to the lesser of their water level or legal capacity. Obtain the Department's approval to convert Materials specified for measure by mass to volume. Use specified conversion factors.

Measure water to the nearest gallon with calibrated tanks, distributors, certified scale weights or water meters.

Measure bituminous Materials by the gallon or ton. Measure liquid volumes at 60°F or correct to volume at 60°F under ASTM D1250 or ASTM D633.

Use net certified scale weights or certified rail car volumes. Correct for bituminous Material lost, wasted, or otherwise not incorporated in the Work. Correct net certified bituminous Material weights or volumes for loss or foaming when shipped by truck or transport.

Measure timber by the board foot. Base measurement on nominal widths and thicknesses and individual maximum lengths.

Mass A ton is 2000 pounds. Use certified scales to determine mass (weight). Accept certified "car weights" for Material shipped by rail, except for Material to be subsequently processed in mixing plants. Obtain certified haul truck tares as specified. Each Haul Truck shall display a legible identification mark.

Measure cement by the pound or ton.

Accept nominal mass or dimensions for standard manufactured items unless otherwise specified.

Accept industry-established manufacturing tolerances, unless otherwise specified.

Measure Aggregate mass in the saturated surface dry condition.

The Contractor shall furnish and maintain weigh systems tested and certified by the State or use certified permanently installed commercial scales. The Contractor shall provide certifications after each set-up and before use or as requested by the Department. The weigh system shall be scaled after certification and display and certification stamp. Only mechanical or electronic scales shall be used.

The beams, dials, platforms, and other scale Equipment shall be arranged for safe and convenient viewing by the operator and inspector. Scales shall be tested for accuracy before use at a new site. Platform scales shall be level and with rigid bulkheads at each end. The Department will adjust quantities of Materials received on scales found to be outside of

specified tolerances, using a correction based on the last documented test within specified tolerances.

All materials, which are measured or proportioned by weight, shall be weighed on approved weighing systems. When a delivery slip is required for payment of Materials measured by weight, weighing, except for automatic ticket printer systems, shall be performed on approved platform truck scales by a Licensed Public Weighmaster furnished by the Contractor, in accordance with the following requirements.

(A) Licensed Public Weighmaster A Licensed Public Weighmaster shall be any person satisfying the requirements of the State Sealer of Weights and Measures and granted a license as a Public Weighmaster. Each Licensed Public Weighmaster shall provide him/her with an impression seal as required by the State Sealer and shall impress this seal upon delivery slips issued by him/her. When completed by a Licensed Public Weighmaster, delivery slips shall be considered as the Weight Certificates required by the Maine Weights and Measures Law, MRSA Title 10. The Weighmaster shall perform all duties required of him/her by law and the specifications.

(B) Weighing Trucks Tare weights of trucks hauling stone, bituminous mixes and similar items shall be determined twice daily, once during the forenoon and once during the afternoon. The tare weight thus found shall be used to determine the net load until the next tare weighing of the empty truck. Tare weights of trucks hauling liquid and bituminous cement materials or other items not generally on a repeat basis shall be determined immediately before being loaded and the weight thus found shall be used for that load only. The tare weight of a truck shall be defined as the weight of the empty vehicle including the driver, but with no passengers.

(C) Platform Truck Weighing Systems An approved platform truck scale, meeting the following requirements shall be provided, installed and maintained, when required, by the Contractor or be available to him/her at an approved nearby location:

1) The weighing system shall conform to the specifications, tolerances and regulations for commercial weighing devices of the National Institute of Standards and Technology and shall be accurate within maximum tolerances of plus or minus 2 pounds for 1000 pounds of load.

2) No auxiliary indicators, in combination with the beams or dial of the weighing system shall be used to increase the maximum allowable load above 105 percent of the manufacturer's rated capacity, as stated in the National Institute of Standards and Technology Handbook 44 S.1.7.

3) The platform of the weighing system shall be sufficient size to accommodate the entire vehicle or combination of vehicles. If a combination of vehicles must be divided into separate units in order to be weighed, each unit shall be entirely disconnected before weighing and a separate weight certificate, delivery slip, or ticket shall be issued for each separate unit.

4) The value of the minimum graduation on the indicator of the scale shall not be greater than 20 pounds. All weighing shall be read and recorded to the nearest 20 pounds or one-hundredth ton.

5) The weighing system shall be set on concrete or other approved foundation. The recording mechanism of the scale shall be suitably housed or protected from weather.

6) The Contractor shall have the weighing system inspected and approved by the State Sealer of Weights and Measures or by a Repairman registered and approved by the State Sealer within a period of 12 months preceding the date of any weighing and again after each change of location.

(D) Check Weighing for Platform Truck Weighing System Check weighing shall be made on the weights and on the weighing in scales during production in the following manner:

1) At least twice during 5 days of production, in the presence of a State Inspector, a loaded truck which has been weighed and issued a weigh slip shall be turned and a new weighing made of the truck and load with the truck heading in reverse direction and at the opposite end of the weighing system platform from the first weighing. The new weight will be recorded. If the variation from the first weight is 0.2 percent or less, the fact will be so noted in the project records. However, if the variation exceeds 0.2 percent, the scales may not be used until rechecked and resealed by the State Sealer of Weights and Measures.

2) At least twice during 5 days of production, a loaded truck, which has moved off the weighing system, will be intercepted, directed back to the scales, and reweighed under supervision of a State Inspector.

3) At least twice during 5 days of production, in the presence of a State Inspector, a truck which has been emptied will be directed to the weighing system before being loaded at a time other than the normal tare weighing and weighed again for a check on the tare weight.

4) Check weighing will be on a plant basis and, although a plant may produce material for more than one project or Contract, check weighing will not be required for each project or Contract.

5) Although at least twice during 5 days of production, additional checks will be made occasionally at the discretion of the Engineer. Claims by the Contractor for delays or inconvenience due to check weighing will not be considered.

(E) Reciprocal Agreements Weighing of materials on weighing systems located outside the State of Maine will be permitted for materials produced or stored outside the State, when requested by the Contractor and approved. Out-of-state weighing, in order to be approved, must be performed by a Licensed Public Weighmaster or a person of equal authority in the State concerned, on scales accepted in the State concerned and meeting the requirements of this Section.

(F) Delivery Slips Serially prenumbered delivery slips of acceptable size and format for stating the following minimum information shall be furnished by the Contractor, in as many copies as may be necessary. One copy shall be retained by the Resident or Inspector upon accepting delivery of the material.

1) Vehicle identification
2) Date loaded
3) Project number
4) Identification of material:
   a) Source location of supplier
   b) Type and grade
   c) Tank number from which loaded, if liquid
5) Quality information as necessary for bituminous liquids
   a) Specific gravity at 60°F
   b) Serial number of the Certificate of Analysis as furnished according to Division 700, General Statement
   c) The Certificate Statement as required in Division 700, General Statement
   d) The Viscosity of the material: if asphalt cement, in poises at 140°F and in centistokes at 275°F; if other bituminous liquid, the specified viscosity according to the type and grade shown in Section 702
6) Quantity information as necessary: gross, tare and net weights, volume of load if not material requiring weighing, net gallons at 60°F if bituminous liquids
7) Signatures (legible initials acceptable) of: Weighmaster (if weight measured material), Contractor's representative (if volume measured material), and Resident (Cover Slips).

If materials are shipped by rail the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for materials to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily, at such times as directed. Each truck shall bear a legible identification mark.

Rail shipments of bituminous liquid shall be measured directly by volume. Correction shall be made when liquid bituminous material has been lost from the car, wasted, or otherwise not incorporated in the work. Other shipments of bituminous liquids will be measured by the gallon or ton. Volumes will be measured at 60°F or will be corrected to the volume at 60°F using the tables in ASTM D1250.

When bituminous liquids are shipped by truck or transport, net certified weights or volume subject to correction for loss or foaming may be used for computing quantities. Net certified weight shall be determined upon loading for all bituminous liquids when shipped by truck or transport. The net weight of each load shall be converted to net gallons at 60°F by a conversion factor expressed in pounds per gallon.

Time Measure Equipment by hours in accordance with Section 631 - Equipment Rental.

108.2 Progress Payments

108.2.1 Generation of Progress Payment Estimates The Department will estimate the amount of Work performed at least monthly and make payment based upon such estimates. Estimates may be paid once every two weeks if, in the opinion of the Resident, the amount of Work performed is sufficient to warrant such payment. No such estimates or payment will be made if, in the judgment of the Resident, the Work is not proceeding in accordance with the provisions of the Contract, or when the total value of the Work performed since the last estimate amounts to less than $5,000. The Contractor agrees to waive all claims related to the timing and amount of such estimates.

If the Contract requires, the Contractor will submit an application for progress payment with a detailed written explanation of the payments requested, on forms and media approved by the Department, to the Resident for approval. The Resident may request that the Contractor submit backup documentation including copies of receipts, invoices, and itemized payments to Subcontractors.

108.2.2 Payment The Department will make payment within 15 Days if the Contractor agrees to accept electronic transfer of payments in a manner approved by the Department, except as otherwise provided in the Contract. In other cases, the Department will make payment within 30 days, except as otherwise provided in the Contract. These payment obligations shall not apply in the event of unforeseeable circumstances such as insufficient legislative appropriations, information systems failure, and other Uncontrollable Events. All payments made are subject to correction in subsequent Progress Payments and the Final Payment. For related provisions, see Sections 108.8 - Final Payment, and 108.9.2 - No Inflation Adjustments/ Interest.

108.2.3 Mobilization Payments Mobilization includes the mobilization and demobilization of all resources as many times as necessary during the Work. The maximum amount that the Department will pay for Mobilization is 10% of the Bid less the amount bid for Mobilization. The Department will pay any amounts in excess of 10% upon Final Acceptance.

Upon approval of all pre-construction submittals required for approval by this Contract including those listed in Section 104.4.2 - Preconstruction Conference, the Contractor will receive payment of 50% of the Lump Sum price for Mobilization, not too exceed 5% of the Bid less the amount bid for Mobilization. After the Department determines that the Work is 50% complete, the Contractor will receive the other 50% of the Lump Sum price for Mobilization, not to exceed 5% of the Bid less the amount bid for Mobilization. Any remaining Mobilization will be paid upon Final Acceptance.

108.3 Retainage The Department will pay 100% of each approved Progress Payment until the Work is approximately 50% complete. Thereafter, the Department will deduct 5% of the amount of each Progress Payment as retainage up to a total of 2.5% of the Modified Contract Amount. The Modified Contract Amount will be the current contract amount less the amount of approved Subcontracts. In the event that the Department reasonably believes that the retainage will be insufficient to cover all Contractor obligations under this Contract, the Department may withhold a greater percentage of the money to cover Contractor obligations.

The Department may hold, temporarily or permanently, retainage as needed to reflect amounts due the Department under the Contract and to assure timely Completion of the Work in Conformity with the Contract. The Department may also disburse retainage to Subcontractors

pursuant to 23 M.R.S.A. § 52-A(2). For a related provision, see Section 104.5.6 - Subcontractor Claims for Payment.

The Contractor may withdraw retainage by depositing certain securities with the Treasurer of State as provided by 23 M.R.S.A. § 52-A(1).

Upon Completion of Physical Work, the Contractor may request that the Department reduce retainage. The Department may grant or deny such request as it deems desirable and prudent. Otherwise, retainage will be held until the receipt of all Closeout Documentation

108.4 Payment for Materials Obtained and Stored Acting upon a request from the Contractor and accompanied by bills or receipted bills, the Department will pay for all or part of the value of acceptable, non-perishable Materials that are to be incorporated in the Work, including Materials that are to be incorporated into the Work, not delivered on the Work site, and stored at places acceptable to the Department. Examples of such Materials include steel piles, stone masonry, curbing, timber and lumber, metal Culverts, stone and sand, gravel, and other Materials Delivered on or near the Work site at acceptable storage places. The Department will not make payment on living or perishable Materials until acceptably planted in their final locations.

If payment for Materials is made to the Contractor based on bills, only, then the Contractor must provide receipted bills to the Department for these Materials within 14 days of the date the Contractor receives payment for the Materials. Failure of the Contractor to provide receipted bills for these Materials within 14 days of the date the Contractor receives payment will result in the paid amount being withheld from the subsequent progress payment, or payments, until such time the receipted bills are received by the Department.

Materials paid for by the Department are the property of the Department, but the risk of loss shall remain with the Contractor. Payment for Materials does not constitute Acceptance of the Material. If Materials for which the Department has paid are later found to be unacceptable, then the Department may withhold amounts reflecting such unacceptable Materials from payments otherwise due the Contractor.

In the event of Default, the Department may use or cause to be used all paid-for Materials in any manner that is in the best interest of the Department.

108.5 Right to Withhold Payments The Department may withhold payments claimed by the Contractor on account of:

A. Defective Work,
B. Damages for Non-conforming Work,
C. Failure to provide the Department the opportunity to inspect the Work,
D. Damage to a third party,
E. Claims filed or reasonable evidence indicating probable filing of claims,
F. Failure of the Contractor to make payments to Subcontractors or for Materials or labor,
G. Substantial evidence that the Project cannot be completed for the unpaid balance,
H. Substantial evidence that the amount due the Department will exceed the unpaid balance,
I. Regulatory non-compliance or enforcement,

J. Failure to submit Closeout Documentation
K. All other causes that the Department reasonably determines negatively affect the State's interest.

108.6 Taxes, Fees, Allowances, and Notices The Contractor shall pay all taxes, charges, fees, and allowances and give all notices necessary and incidental to the due and lawful prosecution of the Work. Except as expressly provided otherwise in this Contract, all such taxes, charges, fees, and allowances are Incidental to the Contract.

Most items are exempt from Maine sales tax. The Contractor shall Bid in accordance with the Maine statutory exemption from sales tax located at 36 M.R.S.A. §1760, subsections (2) and (61).

108.7 Damages for Non-Conforming Work If the Contractor performs Non-conforming Work that causes the Department to incur costs including environmental costs or penalties, failure of the Federal Highway Administration to participate in certain costs for reasons due to the Contractor's performance, Departmental staff time related to the non-Conformity, penalties, or other damages of any nature whatsoever ("Damages"), then the Contractor shall be liable to the Department for such Damages. The Department, at its option, and without liability, may deduct such Damages from amounts otherwise due the Contractor and/or postpone disbursement of Progress Payments until the non-Conformity is corrected.

108.8 Final Quantity Voucher The Department will prepare a final quantity voucher reflecting final quantities of the items of Work performed. The Department may require the Contractor to provide information necessary to substantiate Pay Items, including Statements itemizing Force Account Work.

108.9 General Payment Provisions

108.9.1 Full Compensation Payments to the Contractor shall be full compensation for furnishing all labor, Equipment, Materials, services, and Incidentals used to perform all Work under the Contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of any kind arising from the nature or prosecution of the Work.

108.9.2 No Inflation Adjustments / Interest No payments due the Contractor will be adjusted for inflation. No interest shall be due and payable on any payment due the Contractor, except that the Department will pay statutory interest on uncontested Final Payments for any period of time that extends beyond 60 Days of the date of Receipt of all Conforming Closeout Documentation. The preceding exception expressly does not include payments regarding pending Issues, a Dispute or claim.

108.9.3 Amounts Due the Department Unless expressly provided otherwise in this Contract, in cases where the Department may deduct sums from amounts otherwise due the Contractor and where the sums to be deducted are more than the funds otherwise due the Contractor, the Contractor shall remit all amounts due the Department within 30 Days of receiving an Invoice from the Department. After such 30 Days, the Contractor shall be in Default of this Contract and shall not be entitled to any additional cure period. Statutory interest shall accrue after 60 Days of Receipt of the Invoice.

SECTION 109 - CHANGES

Scope of Section This Section contains general provisions related to changes in quantities, scope, time and payment.

109.1 Changes in Quantities

109.1.1 Changes Permitted The Department may increase or decrease Pay Item quantities from the estimated quantities shown in the Bid Documents, and such increase or decrease shall not be considered Extra Work. Except as expressly provided otherwise in this Contract, the Contractor shall be paid for actual quantities in place and Accepted at the Unit Prices contained in the Contractor's Bid. The Contractor accepts such payment as full and complete compensation. There will be no adjustment to Contract Time due to an increase or decrease in quantities, compared to those estimated, except as addressed through Contract Modification(s).

109.1.2 Substantial Changes to Major Items If quantities of Major Items vary from the estimated quantities contained in the Bid Documents by more than 25%, then the Department may increase or decrease the Unit Price of such item using the extra work process. For related provisions, see Section 109.3 - Extra Work and Section 109.8 - Contract Modification. If an adjustment to the Unit Price is made, it will apply only to that portion of the actual quantity that is less than 75% of the estimated quantity or more than 125% of the estimated quantity. Contract Time adjustments may be made for substantial changes to Major Items when the change affects the Critical Path, as determined by the Department.

109.2 Elimination of Items Upon written notification to the Contractor, the Department may entirely eliminate item(s) of Work for any reason. Upon notification, the Department is entitled to a credit. For Minor Items, the credit shall be the Contractor's Bid price for the eliminated item(s). For Major Items, the amount of the credit shall be the Contractor's Bid price for the eliminated item(s), less (A) direct costs actually incurred by the Contractor after Award, including mobilization, shipping, and restocking expenses that the Contractor cannot recoup on other Projects as reasonably determined by the Department, and (B) 10% for overhead and profit. The Department may withhold said credit from amounts otherwise due the Contractor.

109.3 Extra Work The Department reserves the right to revise the Contract by adding Extra Work. Such revisions neither invalidate the Contract nor release the Surety. The Contractor and/or its Surety agree to perform all such Extra Work. The Department will pay for Extra Work by written Contract Modification in accordance with Section 109.7.1 - General and Section 109.7.2 - Basis of Payment. Any Delay related to Extra Work will be analyzed in accordance with Section 109.5 - Adjustments for Delay. For a related provision, see Section 109.8 - Contract Modification.

109.4 Differing Site Conditions

109.4.1 Definition "Differing Site Conditions" are subsurface or latent physical conditions that, at the time of Bid submittal, were:

(A) Materially different from conditions indicated in the Bid Documents, and
(B) Not discoverable from a reasonable site investigation prior to Bid, and

(C) Materially different from conditions ordinarily encountered and generally recognized as inherent in Work like that specified by the Contract by Contractors experienced in such Work, and

(D) Actually unknown to the party seeking relief due to such conditions, which in the case of the Contractor includes its Subcontractors.

109.4.2 Risk of Other Conditions All costs, Work, Delays, or other damages related to or arising from site conditions that are not Differing Site Conditions are the sole risk and responsibility of the Contractor.

109.4.3 Notice and Procedural Requirements If the Contractor discovers what it considers Differing Site Conditions that may cause adjustments to compensation, time, or other Contract requirements, the Contractor shall provide "Notice of Issue for Consideration" within 48 hours of discovery and before doing any Work relating to such conditions as provided in Section 104.4.5 - Early Negotiation. The Contractor shall then comply with all other requirements of Section 104.4.5 - Early Negotiation, and Section 111 - Resolution of Disputes. The Contractor will not be entitled to any change to compensation, time, or Work requirements without proper notice as specified herein. Failure to provide such notice or to otherwise comply with this Section 109.4 will constitute a waiver of all claims related to such conditions.

If the Department discovers what it considers Differing Site Conditions that may cause adjustments to compensation, time, or other Contract requirements, then the Department will provide the Contractor with notice within 48 hours of discovery. If the Contractor disagrees with the Department's finding of Differing Site Conditions or the related adjustments, then the Contractor shall provide "Notice of Issue for Consideration" within 48 hours and comply with the requirements of Section 104.4.5 - Early Negotiation and Section 111 - Resolution of Disputes.

109.4.4 Investigation / Adjustment Upon notification by the Contractor or upon the Department's own initiative, the Department will investigate the conditions. If the Department determines that Differing Site Conditions exist and that the Differing Site Conditions have caused an increase in the cost or time required for the performance of the Work, then the Contractor is entitled to an Equitable Adjustment for the additional costs of compensable items listed in Section 109.7.2 - Basis of Payment that are caused directly by the Differing Site Conditions. If the Department determines that Differing Site Conditions exist and that the Differing Site Conditions have caused a decrease in the cost or time required for the performance of the Work, then the Department is entitled to a credit in the amount of savings to compensable items listed in Section 109.7.2 - Basis of Payment, that are caused directly by the Differing Site Conditions. Delays caused by Differing Site Conditions will be considered in accordance with Section 109.5 - Adjustments for Delay.

109.5 Adjustments for Delay

109.5.1 Definitions - Types of Delays Delays are defined as follows and may be divided into more than one type depending upon cause.

A. Excusable Delay Except as expressly provided otherwise by this Contract, an "Excusable Delay" is a Delay to the Critical Path that is directly and solely caused by an Uncontrollable Event.

B. Compensable Delay A "Compensable Delay" is a Delay to the Critical Path that is directly and solely caused by: (1) a weather related Uncontrollable Event of such an unusually severe nature that a Federal Emergency Disaster is declared. The Contractor will only be entitled to an Equitable Adjustment if the Project falls within the geographic boundaries prescribed under the disaster declaration and receives project-specific emergency funds, (2) an Uncontrollable Event caused by a Utility Company or other third party (not Subcontractors) Working on Project-related Work within the Project Limits if, and only if, the Utility Company or such other third party offers the Department reimbursement for such Delay, or (3) acts by the Department that are in violation of applicable laws or the Contract.

C. Inexcusable Delay "Inexcusable Delays" are all Delays that are not Excusable Delays or Compensable Delays.

For a related provision, see Section 101.2 - Definition of Uncontrollable Event.

109.5.2 Entitlement to Adjustments

A. Types of Adjustments Provided the Contractor meets the requirements of Section 109.5.2(B) below and complies with the notification, documentation, and procedural requirements set forth in the Contract, the Contractor is entitled to certain adjustments to the Contract depending upon the type of Delay.

1. If an Excusable Delay, the Contractor is entitled to an extension of time, but no additional compensation.

2. If a Compensable Delay, the Contractor is entitled to an extension of time and an Equitable Adjustment as set forth in Section 109.7 - Equitable Adjustments to Compensation.

3. If an Inexcusable Delay, the Contractor is entitled to neither an extension of time nor additional compensation.

For related provisions, see Sections 104.2.7 - Damage to Project Caused By Uncontrollable Events and 104.3.10 - Responsibility for the Damage to Work.

B. Requirements for Entitlement To be entitled to any adjustments for an Excusable Delay or a Compensable Delay, the Contractor must demonstrate all of the following.

1. The Contractor consistently utilized its Schedule of Work to schedule, coordinate, and manage the Work as evidenced by documentation created as the Work progressed including Progress Meeting minutes;

2. The Delay impacted the Critical Path of the Schedule of Work; and

3. There are no concurrent Inexcusable Delays.

C. Concurrent Delays The Contractor is not entitled to a time extension for the period of time when Excusable and Inexcusable Delays are concurrent. The Contractor also is not entitled to either time extension or an Equitable Adjustment for the period of time when Compensable and Inexcusable Delays are concurrent. In the event Compensable and

Excusable Delays are concurrent, the Contractor is only entitled to time extension, not an Equitable Adjustment, for the period of time such Delays are concurrent.

109.5.3 Early Completion Date Delay Claims For the purposes of this Section 109.5.3, a "Contractor's Early Completion Date" means a Project Completion date shown on the Contractor's initial Schedule of Work submitted in accordance with Section 107.4.2 - Schedule of Work Required that is earlier than the Contract's specified Completion date. The Department will not be liable for any claims or expenses related to the period of time between the Contractor's Early Completion Date and the Contract's specified Completion date, unless the Contractor demonstrates, by clear and convincing evidence that: (A) all requirements of Section 109.5.2(B) - Requirements for Entitlement are met, and (B) that the Contractor's Early Completion Date was reasonable at the time of Bid in light of the surrounding facts and circumstances, including the Contractor's available resources, and the requirements of the Work.

109.5.4 Notice and Procedural Requirements If the Contractor becomes aware of facts or circumstances that may cause a Delay for which the Contractor may seek adjustments to compensation, time, or other Contract requirements, the Contractor must notify the Resident of such "Issue" within 48 hours and before doing any Work relating to such facts or circumstances as provided in Section 104.4.5 - Early Negotiation. Except as otherwise provided in this Section 109.5, the Contractor shall then comply with all other requirements of Part 111 - "Resolution of Disputes". The Contractor will not be entitled to any change to compensation, time, or Work requirements without proper and timely notice. Failure to provide such notice constitutes a waiver of all claims related to such conditions.

109.5.5 Documenting the Delay and Request for Adjustments

A. Weekly Reports During Delay To be entitled to any adjustments for Delay, the Contractor must keep records as provided in Section 111.1.6 - Contractor's Obligation to Keep Records. Further, the Contractor must submit weekly written reports containing the following information.

1. Number of Days of impact to the Critical Path.
2. A summary of all operations that have been Delayed, or will be Delayed on the impact of the Contractor's Critical Path.
3. A narrative describing how the cause of the Delay meets the definition of "Excusable Delay" or "Compensable Delay" contained in Section 109.5.1(A) or (B).
4. Itemization of all extra costs being incurred, including (A) how the extra costs relate to the Delay, (B) the identification of all non-salaried Project employees for whom costs are being compiled, and (c) a summary of time charges for Equipment, identified by the manufacturer's number for which costs are being compiled.

B. Request and Report After Completion Within 14 Days of Completion of the phase of Work that the Contractor claims has been Delayed, the Contractor shall submit a written report to the Department that contains the following information.

1. A description of the operations that were Delayed and the documentation and narrative of how the cause for the Delay meets the definition of "Excusable Delay" or "Compensable Delay" contained in Sections 109.5.1(A) or (B), including all reports prepared for the Contractor by consultants, if used;

2. An as-built chart showing when Work operations were actually performed;

3. A graphic depiction of how the operations were Delayed and the impact on the Critical Path; and

4. An item-by-item request for additional time and compensation, including measurement and explanation.

The Department may require that all costs shown in the report be certified by an accountant, and that the Contractor provide all other information described in Section 111.2.2 - Detailed Notice of Dispute.

109.5.6 Decision by Program Manager Within 30 Days of receiving all information described in Section 109.5.5(B) - Request and Report After Completion, the Program Manager will Deliver a written decision on the request made to the Contractor. Failure to provide a decision within said 30-day period shall be considered a denial of the Contractor's request, unless the parties mutually agree to an extension of time for such decision.

109.5.7 Additional Consideration By Department If the Contractor wants additional consideration, the Contractor shall Deliver a “Notice of Unresolved Dispute” to the Department's appropriate Bureau Director within 14 Days of Receipt of the Program Manager’s decision. Such Notice shall comply with Section 111.3.1 - Notice of Unresolved Dispute. The parties must then comply with all other Dispute resolution provisions of this Contract, beginning with Section 111.3 - Negotiation By Management.

109.6 Value Engineering

109.6.1 Overview - General Requirements A Value Engineering Change Proposal (VECP) is a proposal made by a Contractor after Contract Execution that is intended to produce cost savings without impairing essential characteristics of the Project including function, serviceability, safety, durability, maintainability, and aesthetics, all as determined by the Department.

A VECP shall contain proven features that have been used under similar conditions. A proposal is not a VECP if equivalent options are already provided in the Contract.

A VECP must be approved by the Department. Unless otherwise agreed in writing, the Contractor and the Department will equally share the Net Savings generated by the VECP as provided in Section 109.6.4(C) - Contract Modification - Amount of Payment

Unless mutually agreed otherwise, the VECP approval process will occur in three steps: (A) Conceptual VECP submission and review, (B) Detailed VECP submission and evaluation, and if approved, (C) Contract Modification including the amount of payment due to the Contractor

and credit due to the Department. When the nature and scope of a VECP warrants, the parties may agree to truncate the VECP approval process.

109.6.2 Conceptual VECP

A. Submittal To propose a VECP, the Contractor must submit a written "Conceptual VECP" to the Resident. The Conceptual VECP is not a formal and complete submittal based upon detailed technical analysis, but instead relays a conceptual idea based upon the Contractor's knowledge and experience. The Conceptual VECP should include the following information based upon the Contractor's best knowledge and belief.

1. General Description A narrative that describes the proposed change in concept and includes the basic differences between the existing Contract and the proposed change.

2. Advantages and Disadvantages A listing and brief description of the comparative advantages and disadvantages of the VECP including effects on function, serviceability, safety, durability, maintainability, aesthetics, and any other factors significantly altered by the VECP.

3. Identification of Prior Similar VECPs If the VECP was submitted previously on another Departmental Project, the date, PIN, and the action taken by the Department should be indicated.

4. Known Use or Testing A description of any previous use or testing of the concept(s) included in the VECP that is known to the Contractor, including the tester, the conditions, and the results.

5. Estimate of Net Savings An estimate of the Net Savings as defined in Section 109.6.4(C) - Contract Modification - Amount of Payment below.

6. Estimate of Development Costs A scope of Work and related cost estimate to develop and submit a Detailed VECP and, if desired by the Contractor, a request for the Department to share such costs.

7. Savings and Schedule Impacts An estimate of the time necessary for the Contractor to submit a Detailed VECP. Such estimate must specify the date by which the Department must approve the VECP to obtain the maximum cost reduction, and the latest date by which the Department must approve the VECP for the Contractor to avoid significant impacts on the estimated Net Savings or the Contractor's Schedule of Work. If the Department determines that the time for response is insufficient for review, the Contractor will be so notified Promptly.

B. Conceptual Review and Response The Department will use its best efforts to review a Conforming Conceptual VECP and respond to the Contractor within 14 Days of Receipt. The Department may, in its sole discretion, (1) invite the Contractor to submit a Detailed VECP, (2) reject the Conceptual VECP for reasons that will be described briefly, or (3) request additional information. The Department may also, in its sole discretion, agree to partially reimburse the Contractor for the costs to develop and submit a Detailed VECP.

Except under extraordinary circumstances, such reimbursement will range up to 50% of such development costs to a maximum Stated upset amount.

109.6.3 Detailed VECP

A. Submittal If invited by the Department as provided by Section 109.6.2(B) - Conceptual Review and Response, the Contractor may submit a "Detailed VECP" within the time specified by the Department. The Detailed VECP shall contain the following Materials and information that is sufficient in detail to clearly define and explain the proposed change(s).

1. Updated and more complete information regarding items included in the Conceptual VECP including the general description of the VECP, advantages and disadvantages, use or testing elsewhere, a detailed computation of the estimated Net Savings to be generated as defined in Section 109.6.4(C) - Contract Modification - Amount of Payment, actual VECP development costs to date, and estimated savings and schedule impacts including approval date(s) required. If the Department determines that the time for response is insufficient for review, the Contractor will be notified Promptly.

2. A complete set of Plans and Specifications showing the proposed revisions relative to the original Contract features and requirements. All VECP's that require Engineering design, computations, or analysis shall be prepared under the responsible charge of and sealed by a Professional Engineer licensed in the State of Maine.

B. Evaluation

1. Additional Information The Department may request any additional information that it determines is necessary to properly evaluate the VECP. Where design changes are proposed, such additional information may include results of field investigations and surveys, design computations, Specifications, and field change sheets. The Contractor will Promptly provide any such requested information.

2. Cost Verification The Department may require the Contractor to provide additional information to verify the Contractor's cost analyses.

C. Response The Department will use its best effort to evaluate a Conforming Detailed VECP and provide the Contractor with a written response within 14 Days of Receipt of all of the information it has determined was necessary to properly evaluate the VECP. Such response will include a brief description of the Department’s reason(s) for its decision. The Department, in its sole discretion, will either approve the Detailed VECP, approve it with conditions, or rejected it. The Department may base its decision on any reason that is in the best interest of the Department including: (1) unacceptable impact on the function, serviceability, safety, durability, maintainability, or aesthetics of the Project, (2) insufficient testing or use of the VECP concepts elsewhere, (3) insufficient justification of cost savings, (4) unacceptable schedule impacts, (5) insufficient review time, or (6) differing Engineering judgment. The Contractor may Promptly request that the Department reconsider certain portions of the decision. If requested, the Department will Promptly

reconsider its decision. After reconsideration, the Department's decision is final and not subject to review or appeal.

D. Termination of VECP Process If the Department rejects the VECP or the Contractor does not desire to proceed with the VECP as approved by the Department, the VECP process will terminate and the Department will reimburse the Contractor for all VECP development costs that the Department agreed to pay as provided in Section 109.6.2(B) - Conceptual Review and Response, if any.

109.6.4 Contract Modification - Amount of Payment If the VECP was approved, or if it was approved with conditions and the Contractor wants to proceed, a Contract Modification will be executed by the parties. In addition to the requirements of Section 109.8 - Contract Modifications, the VECP will set forth the credit due the Department calculated as the difference between the cost of performing the Work, as originally specified, and the amount payable to the Contractor for the revised work. This revised Work payment will only include the following amounts:

A. The cost of performing the Work as revised by the VECP at agreed upon unit or lump sum prices.

B. The VECP development costs that the Department agreed to reimburse the Contractor as provided in Section 109.6.2(B) - Conceptual Review and Response, if any.

C. Fifty percent (50 %) of the Net Savings generated by the VECP (NS) as determined by the Department, calculated as follows.

$$NS = EGS - CUDC - DVEC$$

Where:

NS = Net Savings generated by the VECP

EGS = Estimated Gross Savings is an agreed upon difference between the cost of performing the Work as originally specified in the Contract and the cost of performing the Work as revised by the VECP.

CUDC = Contractor's Unreimbursed Development Costs related to the preparation of the Detailed VECP including costs of the Contractor's design subconsultants and Subcontractors, but excluding all such costs paid by the Department under Section 109.6.4(B) above.

DVEC = Department's VE Costs related to review, approval, and implementation of the VECP including design costs, field inspection, and the value of any Department provided property.

The Contract Modification shall also set forth any adjustments to Contract Time related to the Work as revised by the VECP, if any.

109.6.5 Subsequent Payment Adjustments Upon Completion of the portion of the Work revised by the VECP, the Department, on its own initiative or upon request by the Contractor, may review the actual net savings realized by the VECP. The Contractor will be afforded an opportunity to review and comment on such a review. If the actual net savings were greater

than set forth in the Contract Modification, the increased savings will be shared equally by the parties. If the net savings were less than set forth in the Contract Modification, the reduction in savings will be borne equally by the parties by a reduction of amounts otherwise due the Contractor.

109.6.6 General Conditions Regarding VECP's

A. VECP's will remain the property of the Contractor, provided that the Department will have the unrestricted right to use any approved VECP, or any VECP in which the Department has reimbursed the Contractor for any portion of the development costs, on other MDOT Projects without notice, cost, or liability to the Contractor.

B. Only the Contractor may submit VECP's. The Contractor shall review, be responsible for, and submit all proposals initiated by the Contractor's Subcontractors.

C. The Contractor shall not anticipate Departmental approval of a VECP when Bidding or otherwise before approval of a Detailed VECP. The Contractor is responsible for all Delays caused by the VECP that were not negotiated in the Contract Modification.

D. If a VECP is rejected, the Contractor shall perform the Work in accordance with the Contract.

E. Except as otherwise provided in this Section 109.6, the Contractor shall have no claim against the Department for additional compensation or time resulting from the Delayed review or rejection of a VECP, including but not limited to, development costs, loss of anticipated profits, and increased Material or labor costs.

F. Cost sharing applies only to the Contract for which the VECP was submitted.

G. Because the Department has no obligation to change the terms of the original Contract, all VECP decisions by the Department are final and are not subject to the Dispute resolution provisions provided in this Contract or otherwise available at law.

109.7 Equitable Adjustments to Compensation

109.7.1 General Equitable Adjustment means an adjustment to compensation due to a change in the nature or scope of Work as defined in this Section 109.

This Section 109.7 applies to all changes to the nature or scope of the Work excepting (A) changes in quantities, which are governed by Section 109.1, (B) elimination of items of Work which is governed by Section 109.2, and (C) payment for Value Engineering Change Proposals, which is governed by Section 109.6.

109.7.2 Basis of Payment Equitable Adjustments will be established by mutual Agreement based upon Unit or Lump Sum Prices. These agreed Unit or Lump Sum prices will be full compensation and no additions or mark-ups are allowed. If Agreement cannot be reached, the Contractor shall accept payment on a Force Account basis as provided in Section 109.7.5 - Force Account Work, as full and complete compensation for all Work relating to the Equitable Adjustment.

109.7.4 Non-Compensable Items The Contractor is not entitled to compensation or reimbursement for any of the following items:

A. Total profit or home office overhead in excess of 15%,

B. Lost profits or lost opportunity costs,

C. Labor inefficiencies,

D. Consequential damages, including but not limited to loss of bonding capacity, loss of Bidding opportunities, and insolvency,

E. Indirect costs or expenses of any nature,

F. Dispute resolution costs of any nature including attorneys fees, claims consultant fees, expert witness fees, claims preparation expenses, and costs related to DRB proceedings, mediation, arbitration, or litigation, and

G. Interest.

109.7.5 Force Account Work Compensation for Force Account Work will be computed according to this Section 109.7.5.

A. Labor The Contractor will receive the actual hourly wages paid to Workers actually engaged in the changed Work and the foreman in direct charge of the changed Work as determined from certified payrolls, plus 90 percent of the sum thereof for all fringe benefits, payroll taxes, overhead, and profit.

B. Materials For Materials incorporated in the permanent Work, the Contractor will receive the Actual Cost of Materials including freight and Delivery charges (but excluding any sale or use tax) plus a single 15 percent markup. For all Materials not incorporated in the permanent Work, the Contractor will receive the difference of actual value of such Material at the time of its use less the fair salvage value of Material when released, plus 15 percent of said difference. There shall be no markup on markups.

C. Equipment For all authorized usage of power-operated machinery, trucks, or other Equipment, the Contractor will receive the rental rates for the actual time to the nearest ¼ hour that such Equipment is in operation on the Work. Time spent moving Equipment within the Project Limits and any approved idle time may be measured for payment when authorized. Time spent servicing, maintaining, and changing attachments will not be paid for. The rental rates shall include the cost of all fuel oil, lubrication, supplies, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, small tools, and all other Incidentals.

The maximum Hourly Equipment rental rates (R) will be determined using the most current Blue Book rates and the following formula:

$$R = A \times B \times E + C + D$$

Where:

A = Blue Book monthly rate divided by 176
B = Blue Book regional adjustment factor for Maine
C = Blue Book estimated operating costs per hour
D = Operator's hourly payroll rate plus 90 percent
E = Factor from the Rate Adjustment Table for the year the machine was made

When the Contractor's Equipment is ordered to be available for Force Account Work, but is idle for reasons not the fault of the Contractor, standby time will be paid at 70% of the hourly Equipment rental rate excluding all operating costs.

For each piece of Equipment, the Contractor shall provide the following information: the manufacturer's name, Equipment type, year of manufacture, model number, type of fuel used, horsepower rating, attachments required, together with its size or capacity and any further information necessary to ascertain the proper rate. The Contractor shall also provide a photocopy of the appropriate pages from the Blue Book that were used to arrive at the rates and prepare a chart that fully shows all the details of the Equipment costs.

Unless otherwise specified, manufacturer's ratings and manufacturer-approved modifications will be used to classify Equipment for the determination of applicable rental rates. A unit of at least the minimum rating recommended by the manufacturer shall power equipment that has no direct power unit.

If the Department specifies Equipment not listed in the above publication, the Department will establish a suitable rate for such Equipment. If requested by the Department, the Contractor will produce cost data to assist the Department in the establishment of such rental rate, including all records that are relevant to the Actual Costs including rental Receipts, acquisition costs, financing documents, lease Agreements, and maintenance and operational cost records.

Equipment leased by the Contractor for Force Account Work and actually used on the Project will be paid for at the actual invoice amount plus 10% markup for administrative costs.

D. Superintendence No part of the salary or expense of anyone connected with the Contractor above the grade of foreman or having general supervision of the Work will be included in the labor items as specified above, except when the Contractor’s entire on-site Workforce is occupied with Force Account Work, in which case, the salaries of the Superintendent may be included in the labor item specified above when the nature of the Work is such that their services are required, as determined by the Department.

E. Documentation Requirements All Statements shall be accompanied and supported by Receipted Invoices for all Materials used and transportation charges. If Materials used on the Force Account Work are not specifically purchased for such Work but are taken from the Contractor's stock, then instead of Invoices, the Statements shall contain or be accompanied by an affidavit of the Contractor certifying that such Materials were taken from stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the Actual Cost to the Contractor, excluding storage costs.

No payment will be made for Work performed on a Force Account basis until the Contractor has furnished duplicate itemized Statements of the cost of such Force Account Work detailed to the following:

1) Name, classification, date, daily hours, total hours, rate, and amount for each foreman and laborer.

2) Designation, dates, daily hours, total hours, rental rate, and amount for each unit of Equipment.

3) Quantities of Materials, prices, and amounts.

4) Transportation charges on Materials.

F. Subcontractor Quoted Work When accomplishing Force Account Work that utilizes Subcontractors, the Contractor will be allowed a maximum markup of 5% for profit and overhead on the Subcontractor's portion of the Force Account Work. If the Department does not accept the Subcontractor quote, then the Subcontractor work will be subject to the Force Account provisions with a 5% markup for profit & overhead.

109.8 Contract Modification Excepting changes to quantities as provided in Section 109.1.1 - Changes Permitted, all changes to the Contract that affect compensation, time, or quality must be made by written Contract Modification. The Contract Modification will describe the underlying issue that resulted in the Contract Modification and will specify adjustments to compensation, time, or other Work requirements, as applicable. If adjustments to compensation or time are not shown on the face of the Contract Modification, then there are no such adjustments.

All Contract Modifications must be signed by the Project Manager or Resident. By signing a Contract Modification, the Contractor agrees to all the terms thereof and waives any and all claims for additional compensation, time, or other Work requirement adjustments relating to the issue that is the subject of the Contract Modification. All Contract Modifications are to be noted in Progress Meeting minutes.

SECTION 110 - INDEMNIFICATION, BONDING AND INSURANCE

Scope of Section This Section contains general requirements for indemnification, bonding, and insurance by the Contractor.

110.1 Indemnification The Contractor agrees to indemnify, defend, and hold harmless the Department and its officers, directors, employees, agents and consultants from and against all claims, actions, torts, costs, losses, and damages for bodily injury (including sickness, disease, or death) and property damage arising out of or relating to this Contract or the performance of Work by the Contractor and its Subcontractors, subconsultants, Engineers, suppliers, any individuals or entities directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, excepting only claims directly and solely caused by the negligence of the Department. Damages covered include, but are not limited to, all Dispute resolution costs including court costs, attorney's fees, and the fees of Engineers and consultants, arbitrators, and other professionals related to Dispute defense and preparation.

This indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor, subconsultant, Engineer, supplier, or other individual or entity under Workers' Compensation acts, disability benefit acts, or other employee benefit acts.

110.2 Bonding

110.2.1 Bonds The Contractor shall provide signed, valid, and enforceable Performance and Payments Bonds complying with the Contract. The Department may also require Warranty and Maintenance Bonds for specific items using a Contract specific special provision. For a related provision, see Section 103.5 - Award Conditions.

The Contractor shall procure bonds from a company organized and operating in the United States, licensed or approved to do business in the State of Maine by the State of Maine Department of Business Regulation, Bureau of Insurance, and listed on the latest Federal Department of the Treasury listing for "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies".

The bonds shall each be in the full Contract amount, payable to the "Treasurer - State of Maine," and on the Department's forms, on exact copies thereof, or on forms that do not contain any significant variations from the Department's forms as solely determined by the Department.

By issuing a bond, the Surety agrees to be bound by all terms of the Contract, including those related to payment, time of performance, quality, warranties, and the Department's self-help remedy provided in Section 112.1 - Default to the same extent as if all terms of the Contract are contained in the bond(s).

Regarding claims related to any obligations covered by these bonds, the Surety shall provide, within 60 Days of Receipt of written notice thereof, full payment of the entire claim or written notice of all bases upon which it is denying or contesting payment. Failure of the Surety to provide such notice within the 60-day period constitutes the Surety's waiver of any right to deny or contest payment and the Surety's acknowledgment that the claim is valid and undisputed.

If the Surety becomes financially insolvent or stops operating in the United States, the Contractor shall file new bonds complying with this Section within 10 Days of the date the Contractor is notified of such change.

For a related provision, see Section 106.9.4 - Other Warranty Provisions.

110.2.2 Bond for Use of Municipal Roads A bond for use of municipal Roads may be required as provided in Section 105.5 - Hauling of Materials and Equipment.

110.3 Insurance The Contractor shall provide signed, valid, and enforceable certificate(s) of insurance complying with this Section. All insurance must be procured from insurance companies licensed or approved to do business in the State of Maine by the State of Maine, Department of Business Regulation, Bureau of Insurance. The Contractor shall pay all

premiums and take all other actions necessary to keep required insurances in effect for the duration of the Contract obligations, excluding warranty obligations.

110.3.1 Workers' Compensation For all operations performed by the Contractor and any Subcontractor, the Contractor and each Subcontractor shall carry Workers' Compensation Insurance or shall qualify as a self-insurer with the State of Maine Workers' Compensation Board in accordance with the requirements of the laws of the State of Maine. If maritime exposures exist, coverage shall include United States Long Shore and Harbor Workers coverage.

110.3.2 Commercial General Liability With respect to all operations performed by the Contractor and any Subcontractors, the Contractor and any Subcontractors shall carry commercial general liability insurance in an amount not less than $1,000,000.00 per occurrence and $2,000,000.00 in the Aggregate. The coverage must include products, completed operations, and Contractual liability coverages, and Insurance Services Office (ISO) form #CG25031185 or equivalent. The Contractual liability insurance shall cover the Contractor's obligations to indemnify the Department as provided in this Contract including Section 110.1 - Indemnification. The coverage shall also include protection against damage claims due to use of explosives, collapse, and underground coverage if the Work involves such exposures.

110.3.3 Automobile Liability The Contractor shall carry Automobile Liability Insurance covering the operation of all motor vehicles including any that are rented, leased, borrowed, or otherwise used in connection with the Project. The minimum limit of liability under this Section shall be $1,000,000.00 per occurrence.

110.3.4 Professional Liability Contractors who engage in design Work, preliminary Engineering Work, and environmental consulting Work for the Department shall maintain a Professional Liability policy for errors and omissions with a minimum limit of liability of $500,000.00. "Design Work" includes the design of temporary Structures and all other Work that requires design computations. This policy shall cover "Wrongful Acts," meaning negligent acts, errors or omissions by the Contractor, or any entity for whom the Contractor is legally liable, arising out of the performance of, or failure to perform, professional services.

110.3.5 Owners and Contractors Protective Liability If required by Special Provision, the Contractor shall carry an Owners and Contractors Protective (OCP) Policy covering all operations performed by the Contractor and any Subcontractor, in an amount not less than $1,000,000.00 per occurrence and $2,000,000.00 in the Aggregate, naming the Department as the sole insured party under the policy.

110.3.6 Builders Risk Unless required by Special Provision, the Department does not require the Contractor to carry Builders Risk Insurance. However, the Contractor is advised of its risks for damage to the Work as provided in Section 104.3.10 - Responsibility for Damage to the Work. The Contractor is responsible for managing and insuring these risks as it deems appropriate.

110.3.7 Environmental Impairment If required by Special Provision, the Contractor shall carry Environmental Impairment insurance to cover the risk of sudden or accidental discharge of pollutants during the prosecution of the Work. The limits of liability for this coverage shall be in the amount of $1,000,000.00 per occurrence and $2,000,000.00 in the Aggregate.

Regardless of whether such insurance is carried by the Contractor, the Contractor is responsible for managing these risks as it deems appropriate.

110.3.8 Administrative & General Provisions

A. Additional Insured Each policy with the exception of Workers' Compensation and Professional Liability insurance shall name the Department of Environmental Protection as an additional insured.

B. Defense of Claims Each insurance policy shall include a provision requiring the carrier to investigate, defend, indemnify, and hold harmless all named insureds against any and all claims for death, bodily injury, or property damage, even if groundless.

C. Primary Insurance The insurance coverage provided by the Contractor shall be primary insurance with respect to the State, its officers, agents, and employees. Any insurance or self-insurance maintained by the State for its officers, agents, and employees is in excess of the Agent's insurance and shall not contribute with it.

D. Reporting Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the State, its officers, agents, and employees.

E. Separate Application The insurance provided by the Contractor shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

SECTION 111 - RESOLUTION OF DISPUTES

Scope of Section This Section contains provisions for resolving Disputes early, efficiently, fairly, and as close to the Project level as possible. For related provision, see Section 104.4 - Communication and Coordination.

111.1 General

111.1.1 Definitions "Dispute" is defined in Section 101.2 - Definitions. An "Issue," as used in Sections 111.1 through 111.3 below, is a matter that may give rise to a Dispute, but has not yet been negotiated as provided in Section 104.4.5 - Early Negotiation.

111.1.2 Escalation Process To resolve Issues or Disputes, the Contractor and the Department may mutually agree in writing at any time to any form of Dispute resolution including mediation, facilitated negotiation, neutral case evaluation, arbitration, or litigation.

In the absence of such written Agreement, the parties must pursue resolution of Issues or Disputes that arise after Contract Execution as follows: (A) first through negotiation at the Project level as provided in Sections 104.4.5 - Early Negotiation and 111.2 - Project Level Negotiation, (B) next through negotiation by management as provided in Section 111.3 - Negotiation by Management, (C) next, if the parties consent, through a Dispute Review Board as provided in Section 111.4 - Dispute Review Board, and (D) next through the Commissioner as set forth in Section 111.5 - Appeal to Commissioner. If the Dispute remains unresolved after

final agency action by the Commissioner, then, and only then, may a party seek judicial review of a Dispute as provided in Section 111.6 - Judicial Review.

111.1.3 Relationship to Partnering Partnering, including the establishment of a partnership charter, does not in any way waive, alter, or otherwise affect any provision of the Contract including those requiring notice and all other provisions governing the resolution of Issues or Disputes. For a related provision, see Section 104.4.1 - Partnering.

111.1.4 Mandatory Notice The Contractor shall comply with all notice provisions of this Contract relating to Issues or Disputes including those contained in Sections 104.3.3 - Duty to Notify If Ambiguities Discovered; 104.4.5(A) - Early Negotiation, Notice Required; 109.4.3 - Differing Site Conditions, Notice and Procedural Requirements; 109.5.4 - Adjustments for Delay, Notice and Procedural Requirements; and 111 - Resolution of Disputes. In order to promote the purposes of this Section 111, all notice provisions are mandatory and are to be strictly construed. Failure to provide Conforming notice constitutes waiver by the Contractor of any and all claims to additional compensation, time, or modification of Contract requirements related to the Issue or Dispute. Such waiver of claims shall not be affected by the Department's willingness to enter into discussions or negotiations regarding Issues or Disputes for which the Contractor failed to provide proper notice.

111.1.5 Work to Proceed Despite Issue or Dispute Regardless of the status or disposition of any Issue or Dispute, the Contractor and the Department must perform their Contractual responsibilities Promptly and diligently. Unless expressly directed otherwise by the Department, the Contractor shall proceed without Delay to perform the Work or to Conform to the decision or Order of the Department.

111.1.6 Contractor's Obligation to Keep Records Throughout the course of any Issue or Dispute, the Contractor shall keep daily records, including supporting documentation, of extra costs and time related to the Issue or Dispute. Such records shall include all non-salaried labor, Material costs, Equipment expenses, and location for all operations that are affected by the Issue or Dispute. The Contractor will not be entitled to any change to compensation, time, or Work requirements without such records. The Contractor shall permit the Department daily access to and shall provide copies of these and any other records needed for evaluating the Dispute. The Contractor shall retain those records for the duration of the Dispute and as provided in Section 104.3.6 - Project Records.

111.1.7 Dispute Resolution Time Extensions All deadlines provided in this Section 111 may be extended only by mutual written consent signed by both parties.

111.1.8 Commissioner Communications Before Appeal Because the Commissioner may hear an Appeal and render final agency action under Section 111.5 - Appeal to Commissioner, the following persons shall not communicate with the Commissioner regarding the substance of a Dispute, except upon notice and opportunity for all parties to participate: (A) the Contractor or any agent for the Contractor and (B) Department staff, counsel, or consultants who are directly participating in Dispute resolution processes in an advocate capacity. The preceding sentence does not prohibit the Commissioner from communicating with, or having the aid or advice of all other Department staff, counsel, or consultants.

111.1.9 Contract Modification Required All changes to the Contract that regard Issues or Disputes and that affect compensation, time, quality, or other Contract requirements must be made by written Contract Modification as provided by Section 109.8 - Contract Modification.

111.2 Project Level Negotiation

111.2.1 Early Negotiation The parties must first comply with all requirements of Section 104.4.5 - Early Negotiation.

111.2.2 Detailed Notice of Dispute If Early Negotiation fails to resolve the Issue within 45 Days of the date of Receipt of the written Notice of Issue for Consideration Conforming to Section 104.4.5(A) - Early Negotiation, and if the Contractor desires additional consideration by the Department, then the Contractor must Deliver a written Detailed Notice of Dispute to the Program Manager within 14 Days of the expiration of said 45-day period. At a minimum, the Detailed Notice of Dispute shall include all of the following information in sufficient detail to allow reasoned analysis as determined by the Program Manager:

A. A description of the background of Dispute including the date(s) the Issue or Dispute first arose and the date the Contractor provided the Project Manager or Resident with the "Notice of Issue for Consideration" Conforming to Section 104.4.5(A) - Early Negotiation;

B. All Contract provisions that are relevant to the Dispute;

C. All facts relevant to the Dispute including all non-Contract Documents and all non-documentary facts including identification of all persons with knowledge of relevant facts and a synopsis of their testimony;

D. The Contractor's position as to why the Contract and facts demonstrate that the Contractor is entitled to additional compensation and/or time;

E. The estimated dollar cost, if any, of the Disputed Work and how the estimate was determined;

F. If the Contractor is asserting an Excusable or Compensable Delay occurred, an analysis of the progress schedule showing the impact on the Critical Path; and

G. A specific request for additional compensation or time, or other change to provisions of the Contract.

111.2.3 Decision by Program Manager Within 30 Days of receiving a Detailed Notice of Dispute Conforming to Section 111.2.2 - Detailed Notice of Dispute, the Program Manager will Deliver a written decision to the Contractor on the specific request made.

111.3 Negotiation by Management

111.3.1 Notice of Unresolved Dispute If the Contractor desires additional consideration, the Contractor shall Deliver a written “Notice of Unresolved Dispute” to the Department's appropriate Bureau Director (hereafter "Director" in this Section 111 - Resolution of Disputes

within 14 Days of receiving the Program Manager's decision provided for in Section 111.2.3 - Decision by Program Manager.

At a minimum, the Notice of Unresolved Dispute must include the following information in sufficient detail to allow reasoned analysis as determined by the Director or the director's designee(s): A) all documentation submitted to the Resident for Project-level negotiation, (B) all decisions rendered by the Program Manager or equivalent Bureau level manager, and (C) all additional information the Contractor desires the Department to consider.

111.3.2 Additional Documentation Within 14 Days of the receiving a Notice of Unresolved Dispute Conforming to Section 111.3.1, the Director or the Director's designee(s) may require the Contractor to provide Additional Documentation. If required, the Contractor shall completely and accurately supply all requested information in writing within 21 Days of receiving said request. Failure to provide all Additional Documentation constitutes a waiver of all claims for additional compensation or time.

Additional Documentation may include the following.

A. The date(s) on which facts arose which gave rise to the Issue or Dispute.

B. The dates the Department Received the "Notice of Issue for Consideration" Conforming to Section 104.4.5(A) - Early Negotiations - Notice Required and the "Detailed Notice of Dispute" Conforming to Section 111.2.2.

C. A list of all Contract provisions that is relevant to the Dispute and a Statement of which specific Contract provisions the Contractor believes controls the outcome of the Dispute.

D. A narrative setting forth the Contractor's position regarding additional compensation and time, if any, including all supporting facts including dates, locations, and items of Work affected by the Dispute, and how the Contract provisions set forth in subparagraph C support the Contractor's position.

E. A list of and copies of all documents that are relevant to the Dispute organized chronologically. With respect to each document, the list must include its date, the author(s) (including address and telephone numbers), and the recipient(s).

F. A list of all persons that is involved in or knowledgeable of the Dispute including addresses, and telephone numbers of such persons. If such person has knowledge of oral Statements upon which the Contractor is relying, the list must also include the substance of the oral Statements, the date(s) they were made, and all people present at the time the Statement was made.

G. If an extension of time is sought:

1. The specific Days or dates for which it is sought, including an explanation of impact on the Critical Path;
2. The specific reasons the Contractor believes a time extension should be granted;
3. The specific provisions of the Contract under which it is sought.

H. If additional compensation is sought, the exact amount sought and a breakdown of that amount into the categories provided by Section 109.7.2 - Basis of Payment.

I. An oath consisting of the following language:

> "ON OATH, and under the penalty of law for perjury or falsification, the undersigned, (Name of person signing oath and title) hereby certifies that the amounts claimed by the Contractor for additional compensation and time (as applicable) set forth in the Notice of Unresolved Dispute and this additional documentation are a true and complete Statement of the Actual Costs incurred and time sought, and are fully documented and supported in accordance with the Contract."

J. Date of signature, sworn signature, and acknowledgment by notary.

The Director or the Director's designee may also retrieve and review the Bid Escrow Documentation, if any, if the Contract required submission of Bid Escrow.

111.3.3 Decision by Director Within 21 Days of receiving a Notice of Unresolved Dispute Conforming to Section 111.3.1 - Notice of Unresolved Dispute or, if requested, all Additional Documentation, whichever is later, the Director or the Director's designee(s) will Deliver a written decision. The decision will affirm, reverse, revise, or amend the decision of the Program Manager and/or request a Dispute Review Board (DRB) proceeding as provided in Section 111.4 - Dispute Review Board below.

111.4 Dispute Review Board If the Contractor wants additional consideration and the Director has not requested a DRB proceeding, the Contractor may Deliver a written request for a DRB proceeding to the Director within fourteen 14 Days of receiving the Director’s decision as provided in Section 111.3.3 - Decision by Director.

Within 14 Days of receiving a request for a DRB proceeding ("DRB Consent Period"), the non-requesting party shall notify the other as to whether or not it consents to a DRB proceeding. If both parties consent, a DRB proceeding shall take place and shall conform to the Dispute Review Board Rules agreed upon by the Department and the Associated Constructors of Maine. If either party does not consent within the DRB Consent Period and the Contractor wants additional consideration, the Contractor must file an Appeal with the Commissioner as provided in Section 111.5.1 - Filing of Appeal. For a related provision, see Section 101.2 - Definition of Dispute Review Board.

The purpose of the DRB is to assist consenting parties in resolving Disputes in a manner that complies with the Contract and that is fair, impartial, less expensive, and less formal than litigation. The DRB will do so by issuing non-binding recommendations, unless the parties mutually agree in writing at the time of consenting to a DRB proceeding that such recommendations will be binding.

111.5 Appeal to Commissioner

111.5.1 Filing of Appeal If a DRB proceeding did not occur and the Contractor wants additional consideration, the Contractor must file an "Appeal of the Director's Decision" to the Commissioner within 14 Days of the expiration of the DRB Consent Period. If a DRB proceeding did occur and failed to resolve the Dispute and/or the Contractor or the Director want additional consideration, that party must file an "Appeal of DRB Recommendation" to the Commissioner within 30 Days of the date the DRB's recommendation is final. At a minimum, the Appeal must contain:

A. If a DRB proceeding did not occur, all Materials submitted to the Director and all decisions by the Director;

B. If a DRB proceeding did occur, all Materials submitted to the Dispute Review Board and all recommendations from the Dispute Review Board;

C. The specific findings of the Director and/or the Dispute Review Board that the appealing party claims are contrary to law and/or fact;

D. Any other pertinent new documentary evidence;

E. Any written arguments the appealing party wishes the Commissioner to consider; and

F. The specific relief sought.

Unless directed otherwise by the Commissioner, review of the Appeal will be limited to the documentation submitted.

111.5.2 Rebuttal Information The non-appealing party will have 14 Days of receiving notice that an Appeal was filed with the Commissioner to submit written rebuttal information.

111.5.3 Time and Alternatives for Commissioner Action Within 30 Days of receiving an Appeal Conforming to Section 111.5.1 - Filing an Appeal or, if applicable, the Receipt of the rebuttal information allowed by Section 111.5.2 - Rebuttal Information, the Commissioner will:

A. In writing, affirm the recommendation(s) of the Dispute Review Board or the decision of the Director, as applicable;

B. In writing, revise, amend, or reverse the recommendation(s) of the Dispute Review Board or the decision of the Director, as applicable; or

C. In writing, submit the claim to binding or non-binding alternative Dispute resolution.

111.5.4 Final Agency Action Any affirmation, revision, amendment, or reversal by the Commissioner is final agency action as of the date of Receipt of such action by the Contractor. If the Commissioner submits the Dispute to alternative Dispute resolution, the date of final agency action will be established by the mediator, arbitrator, or other Dispute resolution neutral by written notice to the parties. If the Commissioner takes no action within such 30-day period, the DRB’s final recommendation (if one exists) or the decision of the Director (if a DRB recommendation does not exist) shall be final agency action upon the expiration of said 30-day period.

111.6 Judicial Review The Contractor must comply with all of the notice and Dispute resolution provisions of this Contract in order to pursue judicial review. For related provisions, see Sections 111.1.2 - Escalation Process and 111.1.4 - Mandatory Notice.

All Bidders and the Contractor agree that any judicial review of any claim or cause of action arising from the Bid and/or the Contract must be commenced in the Superior Court of Maine, Kennebec County. Any petition for review must be in accordance with the Maine Administrative Procedure Act, 5 M.R.S.A. §11001, et seq. and Rule 80C of the Maine Rules of Civil Procedure.

SECTION 112 - DEFAULT AND TERMINATION

Scope of Section This Section contains general provisions related to Default and termination of the Contract.

112.1 Default

112.1.1 Grounds for Default The Contractor and the Surety are in Default of the Contract if the Contractor or the Surety:

A. Fails to Promptly begin the Work under the Contract after being authorized to proceed,

B. Fails to perform the Work with sufficient labor, Equipment, or Materials to assure the timely Completion of the Work,

C. Performs Defective Work, neglects or refuses to uncover, remove or rebuild Unacceptable Work, or neglects or refuses to uncover Unauthorized or Uninspected Work when directed by the Department;

D. Discontinues the prosecution of the Work without Departmental approval,

E. Continues to perform Work after the Department directs that Work be stopped,

F. Fails to resume Work which has been suspended as required by the Contract,

G. Becomes insolvent or is declared bankrupt or commits any act of bankruptcy or insolvency that could affect the Work in any way,

H. Allows any final judgment to stand against the Contractor unsatisfied for a period of ten Days,

I. Makes an assignment for the benefit of creditors without authorization by the Department, or

J. In any other manner, fails to perform the Work in Substantial Conformity with any material provision of the Contract.

112.1.2 Notice of Default / Cure Except as otherwise provided in this Contract, if Default occurs, the Department may give written Notice of Default to the Contractor and its Surety.

Failure to give Notice of Default is in no way a waiver by the Department of any provision of the Contract.

If the Contractor or Surety fails to completely cure such Default within a period of 14 Days after Notice of Default, then the Department may (A) terminate the Contract for cause in accordance with Section 112.2.1 - For Cause, or (B) take prosecution of the Work away from the Contractor without violating the Contract.

112.2 Termination The Department may, by written order to the Contractor, terminate the Contract as provided in this Section 112. Termination of the Contract or portion thereof shall not relieve the Contractor of its Contractual responsibilities for the Work completed (including warranty obligations), nor shall it relieve the Surety of its obligation for claims arising from the Work or the Contract.

112.2.1 For Cause If the Contractor fails to completely cure all Defects identified in the Notice(s) of Default provided for in Section 112.1.2 within the 14-day cure period provided, the Department may immediately terminate the Contract for cause by written Notice of Termination For Cause. In this event, the Department may use any or all Materials and Equipment for the Work and may enter into an Agreement with another entity for the Completion of the Work, or use such other methods as in the opinion of the Department are required for the Completion of the intent of the Contract in an acceptable and timely manner.

The Department will pay for all Accepted items of Work as of the date of Termination at agreed upon prices. Items eliminated in their entirety by Termination will be paid for as provided in Section 109.2 - Elimination of Items, except that there will be no reductions in the amount of the credit to the Department. The Contractor shall make all Work records available to the Department upon request regarding payment under this Section. All costs and charges incurred by the Department, together with the cost of completing the Work specified in the Contract, will be deducted from amounts otherwise due the Contractor. If such expenses exceed the sum that would have been payable under the Contract, then the Contractor and the Surety are liable and shall pay to the Department the amount of such excess within 30 Days of the Delivery of a Statement setting forth such expenses to the Contractor and the Surety, as applicable.

If the Contractor files for bankruptcy at any time before expiration of the warranty periods provided by this Contract, then the Contractor and its Surety agree, if requested by the Department and within 30 Days of such request, to take all actions necessary or convenient to reject or accept this Contract under the executory Contract provisions of the federal bankruptcy code.

112.2.2 For Convenience The Department may terminate this Contract for convenience or for any reason that is in the best interest of the Department. Terminations caused without fault of or for reasons beyond the control of the Contractor are Terminations for Convenience. The Department will notify the Contractor of such terminations by sending a Notice of Termination for Convenience.

In case of a Termination for Convenience, the Department will pay for all Accepted items of Work as of the date of termination at agreed upon prices. Items eliminated in their entirety by Termination will be paid for as provided in Section 109.2 - Elimination of Items. The

Contractor shall make all Work records available to the Department upon request regarding payment under this Section. Acceptable Materials, obtained by the Contractor for the Work but which have not been incorporated therein, may at the option of the Department be purchased from the Contractor at Actual Cost Delivered to a prescribed location or otherwise disposed of as mutually agreed.

After Receipt of Notice of Termination for Convenience from the Department, the Contractor may also submit a claim for additional damages or costs not covered above or elsewhere in this Contract to the Project Manager within 60 Days of the effective Termination date. Such claim may include such cost items as idle Equipment time, Bidding and Project investigative costs, overhead expenses attributable to the Project terminated, legal and accounting charges involved in claim preparation, Subcontractor costs not otherwise paid for, idle labor cost if Work is stopped in advance of termination date, guaranteed payments for private land usage as part of the original Contract, and any other cost or damage item for which the Contractor reasonably believes reimbursement should be made. In no event, however, will loss of anticipated profits be considered as part of any settlement.

The Contractor agrees to make the Bid Escrow, Documentation, if any, and its cost records available to the extent necessary to determine the validity and amount of each item claimed.

The Department will respond in writing to such claim within 60 Days of Receipt. If the Contractor wants additional consideration, the Contractor must Deliver a written "Notice of Unresolved Dispute" to the Director as provided in Section 111.3.1 - Notice of Unresolved Dispute and comply with all other applicable Dispute resolution provisions of Section 111 - Resolution of Disputes.

FINAL
BASIS OF DESIGN REPORT

OPERABLE UNIT 1
Callahan Mine Superfund Site
Brooksville, Maine

Prepared for:

Maine Department of Transportation
Augusta, Maine

Prepared by:

MACTEC Engineering and Consulting, Inc.
511 Congress St.
Portland, ME 04101

September 23, 2010

MACTEC PROJECT: 3612062047

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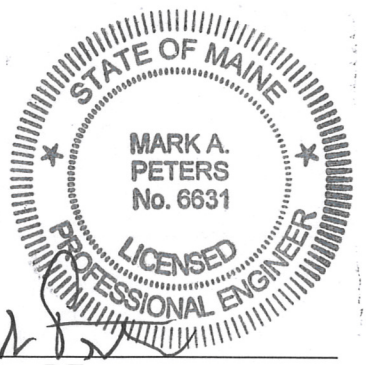

Peter S. Baker, C.G.
Principal Project Manager

Mark A. Peters, P.E.
Principal Engineer

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ACRONYMS AND ABBREVIATIONS

ABA	acid base accounting
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DRO	diesel range organics
GRO	gasoline range organics
ICP-MS	inductively coupled plasma and mass spectrography
MCL	Maximum Contaminant Level
MEG	Maximum Exposure Guideline
MEDEP	Maine Department of Environmental Protection
MaineDOT	Maine Department of Transportation
mg/kg	milligrams per kilogram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OSWER	USEPA Office of Solid waste and Emergency Response
OU	operable unit
PCB	polychlorinated biphenyl
ppm	parts per million
RI	remedial investigation
ROD	Record of Decision
Site	Callahan Mine Superfund Site
SPLP	Synthetic Precipitation Leaching Procedure
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
UTL	upper tolerance level
VE	value engineering
XRF	x-ray fluorescence

EXECUTIVE SUMMARY

This Design Basis report was prepared to provide the conceptual description and design basis for proposed remedial actions for soil and mine waste material for Operable Unit (OU) 1 at the Callahan Mine Superfund Site in the village of Harborside in the Town of Brooksville, Maine.

The U.S. Environmental Protection Agency is the lead federal agency for the cleanup action. The Maine Department of Environmental Protection (MEDEP) is the lead State agency for the implementation of the OU1 cleanup actions on behalf of the State of Maine. References to the Owner refer to the MEDEP.

The major scope elements of the OU1 project consist of 1) excavation and on-site disposal, at the Tailings Impoundment, of soil from the residential-use lots along Old Mine Road contaminated with arsenic, lead, and thallium exceeding residential use cleanup levels, 2) restoration of the residential use lots, 3) excavation and off-site disposal of soil from the former Mine Operations Area contaminated with polychlorinated biphenyls (PCBs) exceeding recreational use cleanup levels, and 4) excavation and off-site disposal of petroleum-contaminated soil commingled with Comprehensive Environmental Response, Compensation, and Liability Act waste at the former Mine Operations Area exceeding Park User (i.e., recreational) cleanup levels. In addition, depending on the implementation plan for the excavation of the PCBs and commingled petroleum-contaminated waste, the Contractor may be asked to implement the following optional work items: excavation of the former Ore Pad and additional areas of the Mine Operations Area to provide better drainage, sediment control, and minimize discharge of run-off with metal concentrations above water quality criteria and stability and drainage controls for the Tailings Impoundment; including storm water run-on and run-off controls and/or stabilization measures (that could include improved internal drainage) at the Tailings Impoundment.

A value engineering (VE) screen was completed for the Callahan Mine Site OU1 remedial design. The VE screen identified several components of the design that are critical items with respect to cost. The remedial design has taken these items into consideration.

1.0 INTRODUCTION

This Design Basis report was prepared to provide the conceptual description and design basis for proposed remedial actions for soil and mine waste material for Operable Unit (OU) 1 at the Callahan Mine Superfund Site (Site) in the village of Harborside in the Town of Brooksville, Maine.

The Site is located approximately 15 miles west of the Town of Blue Hill and 35 miles west of the Town of Bar Harbor on the northwest side of the Cape Rosier peninsula on Penobscot Bay. The Site includes the former Callahan Mine property, an elongated 120-acre property oriented north-south and accessed from Goose Falls Road (Figure 1) and the associated areas where contamination has come to be located. Goose Pond and Holbrook Island Sanctuary State Park are immediately east of the Site property. Private residences and seasonal homes are located adjacent to the Site property on Goose Falls Road and Cape Rosier Road. There are three residential use properties on Old Mine Road, the main entrance to the site, that are used on a seasonal basis.

Intermittent exploration and mining for copper and zinc occurred at the Site from the 1880s to the 1970s. For five years from 1968 through 1972, the massive-sulfide ore deposits were mined with an open pit mine in the drained Goose Pond estuary. Copper, lead, and zinc ores were crushed, milled, and concentrated on-site, and the concentrate shipped off site for smelting. Waste rock and tailings were disposed of on-site. Figure 2 shows major features at the Site.

The Site is a Superfund site and was added to the U.S. Environmental Protection Agency (USEPA) National Priorities List in September 2002. The Site is undergoing investigation and clean-up activities pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The USEPA is the lead federal agency for the cleanup action. The Maine Department of Environmental Protection (MEDEP) is the lead State agency for the implementation of the OU1 cleanup actions on behalf of the State of Maine. References to the Owner refer to the MEDEP.

1.1 GENERAL-PROJECT SCOPE

The major scope elements of the OU1 project consist of 1) excavation and on-site disposal, at the Tailings Impoundment, of soil from the residential-use lots along Old Mine Road contaminated

with arsenic, lead, and thallium exceeding residential use cleanup levels, 2) restoration of the residential use lots, 3) excavation and off-site disposal of soil from the former Mine Operations Area contaminated with polychlorinated biphenyls (PCBs) exceeding recreational use cleanup levels, and 4) excavation and off-site disposal of petroleum-contaminated soil commingled with Comprehensive Environmental Response, Compensation, and Liability Act waste at the former Mine Operations Area exceeding Park User (i.e., recreational) cleanup levels. In addition, depending on the implementation plan for the excavation of the PCBs and commingled petroleum contaminated waste, the Contractor may be asked to implement the following optional work items: excavation of the former Ore Pad and additional areas of the Mine Operations Area to provide better drainage, sediment control, and minimize discharge of run-off with metal concentrations above water quality criteria and stability and drainage controls for the Tailings Impoundment; including storm water run-on and run-off controls and/or stabilization measures (that could include improved internal drainage) at the Tailings Impoundment.

The remedial design reflects cleanup of the residential use lots to meet criteria for residential use and cleanup of Mine Operations Area soil contaminated with PCBs as well as Mine Operations Area soil contaminated with petroleum comingled CERCLA waste to meet criteria for anticipated future recreational use. These remedial actions are being performed pursuant to the USEPA Record of Decision (ROD) for OU1 (USEPA, 2009). In April 2010, USEPA divided the selected remedy described in the OU1 ROD into two components: "new" OU1 which included the activities described above, and OU3 which included all other components of the "old" OU1 ROD. The State of Maine is obligated to perform the remediation in order to implement the work required under the Administrative Settlement Agreement and Order on Consent for Remedial Design for OU1 ROD and OU2 Early Action.

The preparation of the remedial design is based on the approach set forth in the OU1 ROD as modified by USEPA in April 2010. The components of the proposed remedial actions include:

Residential Use Area

- Performing pre-excavation characterization of Residential Use Area soil to delineate contamination extent exceeding cleanup levels;
- Excavation of soil (including Old Mine Road) containing arsenic, lead, and thallium above cleanup levels in the residential use area of the Site to a depth at which cleanup level exceedances no longer occur and disposal of excavated material on site at the Tailings Impoundment;

- Restoring excavated lawn areas by backfilling with clean borrow and topsoil, grading, fertilizing, and seeding;
- Restoring excavated garden and landscaped areas by backfilling with clean borrow and topsoil, grading, fertilizing, mulching, and installing plantings similar to those removed; and
- Restoring excavated driveways and roadway by backfilling with clean gravel, grading, and compacting.

Establishing Interim Stockpile Area

- Preparing for approval grading, cover, and drainage plans for stockpiling excavated Residential Use Area soil at the Tailings Impoundment;
- Covering stockpiled material in a manner to prevent erosion, route runoff away from the Tailings Impoundment, and minimize infiltration to the Tailings Impoundment; and
- Implementing measures, as necessary, to ensure the stability of the Tailings Impoundment after the increase in loading from any material placed in a stockpile on the Tailings Impoundment.

PCB-Contaminated Soil

- Performing pre-excavation characterization of PCB contaminated soil to refine estimates of PCB-contamination extent equal to or exceeding 50 parts per million (ppm);
- Excavating soil with PCB concentrations equal to or greater than 50 ppm for disposal in a hazardous waste landfill permitted for PCB disposal (or at a PCB disposal facility approved under 40 CFR Part 761)
- Excavating soil with PCB concentrations greater than 1 ppm but less than 50 ppm for disposal of at a facility permitted, licensed, or registered to manage municipal solid waste, non-municipal non-hazardous solid waste, or a permitted hazardous waste landfill or PCB disposal facility;
- Characterizing and shipping excavated PCB-contaminated soil in accordance with the requirements of the disposal facility;
- Grading of excavated areas to blend excavation limits smoothly into surrounding grades, eliminating steep slopes, and providing proper drainage; and
- Grading of the Ore Pad Area, as necessary, to prevent discharge of surface water with high levels of metals into Dyer Cove.

Petroleum-Contaminated Soil Commingled with CERCLA Waste

- Performing pre-excavation characterization to delineate extent of petroleum contamination areas exceeding cleanup levels;
- Excavating petroleum-contaminated soil commingled with CERCLA waste and exceeding the following:

Tier 2 Cumulative Risk-Based Soil Remediation Guidelines for Petroleum Target Compounds and Hydrocarbon Fractions (Table 5, Park User) as listed in Remediation Guidelines for Petroleum Contaminated Sites in Maine, Maine Department of Environmental Protection, Bureau of Remediation and Waste Management, effective date December 1, 2009;

- Characterizing, shipping, and disposing excavated petroleum-contaminated soil with commingled CERCLA waste in accordance with the requirements of the disposal facility;
- Grading of excavated areas to blend excavation limits smoothly into surrounding grades, eliminating steep slopes, and providing proper drainage; and
- Grading and installation of sediment control structures as necessary, to prevent discharge of surface water with high levels of metals into Dyer Cove.

1.2 PROJECT WORK AREA

This subsection summarizes existing conditions at project work areas.

1.2.1 Residential Use Area

The residential use area comprises three properties along Old Mine Road which were identified as Lots A, B, C, and D during the remedial investigation (RI) (Figure 3). Lots B and C are, in fact, part of the same property. Each lot typically consists of a residence and one or more garages or sheds, although Lot B is a garage with a second floor apartment associated with Lot C. Bedrock outcrops are extensive and prominent, and the buildings are typically shoe-horned between the outcrops, sometimes building around them. Building foundations include field stone and mortar, concrete block, and poured concrete. The buildings are served by drilled wells with water lines that in some instances run above ground and between buildings. Available information indicates that domestic wastewater is disposed of by on-site (septic tank and leach field) treatment systems. At Lots B and C, aboveground piping is used to transport wastewater from Lot B to a treatment system shared with the main residence on Lot C. Aboveground piping also carries drinking water from a well at Lot B to Lot C. Approximate locations of water supply and waste water disposal system components, if known, are shown on Residential Lot Restoration Plan figures. Actual locations must be verified by the implementation contractor so as to avoid damage to system components. Sensitive foundations, water supply systems, and waste water treatment/disposal systems must all be protected from damage during site work or replaced/restored to meet applicable/relevant/appropriate codes and requirements. The abundance of outcrops notwithstanding, Lots A, C, and D all have lawns and ornamental gardens and plantings. Lawns,

gardens, plantings, and significant features removed or damaged during site work must be restored or replaced, unless otherwise directed by the Owner, consistent with the Restoration Plans provided. Excavation beyond the excavation limits in the Restoration Plans will require the implementation Contractor to develop and obtain approval of a revised Restoration Plan from the property owners and Owner.

The RI included surface soil sampling in residential areas bordering the northern portion of the former Callahan Mine property along Old Mine Road and Goose Falls Road. In addition, residential areas south of the former Callahan Mine property were sampled along the southern access road. These samples were used to assess whether surface soils had been affected by fugitive dust and/or contaminated fill.

Fifty residential area soil samples were collected for on-site x-ray fluorescence (XRF) analysis for metals, and six were collected for off-site metals analysis by inductively coupled plasma and mass spectrography (ICP-MS). The results for field XRF metals analyses are summarized in RI Appendix R, and results for ICP-MS metals analysis are summarized in RI Table 4.1-11 (MACTEC, 2009a). Summary statistics for the XRF analytical results are shown in the following table. XRF data are shown because they represent a larger data set than the ICP-MS data. The XRF and off-site data for arsenic, lead, and thallium collected during the RI for the Residential Use Area can be found in Appendix A.

Summary Statistics for Residential Area Surface Soil On-Site XRF Analytical Results - Arsenic, Cadmium, Copper, Lead, and Zinc

Analyte	Background Concentration	Frequency of Detection	Range of Detected Concentrations	Average Conc.	Percent > Background
Arsenic	15	38 / 50	10 - 86	24	52
Cadmium	NC	2 / 50	37 - 39	21	NC
Copper	99	41 / 50	25 - 1,400	297	46
Lead	124	48 / 50	22 - 1,500	395	58
Zinc	177	50 / 50	59 - 11,000	1,706	68

Notes:
All concentrations in milligrams per kilogram (mg/kg).
Statistics based on on-site XRF analyses for metals.
Average calculations use half the detection limit for non-detects.
Background concentration is based on on-site analysis 95-percent upper tolerance level (UTL).
NC = not calculated.
Source: MACTEC, 2009b, Subsection 4.1

Higher concentrations of metals contamination were observed primarily in the vicinity of Old Mine Lane. Arsenic, lead, and thallium (not shown above) in surface soil at residential use areas along Old Mine Road exceed USEPA risk management guidance for residential exposure based on the findings of the risk assessment performed as part of the RI. Metals data suggest that airborne migration of dust during mine operations most likely occurred and affected surface soils peripheral to Old Mine Road.

If not completed prior to award of this contract, the Contractor will be responsible for additional sampling to confirm the extent contamination exceeding cleanup levels at the Residential Use Area.

1.2.2 PCB-Contaminated Soil and Mine Operations Area

The Mine Operations Area is the former location of the machinery that was used to mill and process the ore that was staged at the Ore Pad. At least two underground fuel storage tanks were located in this area (2,000 and 4,000 gallons), but these were removed in 1987. The Mine Operations Area included a machine shop, and assay laboratory, the two rock crushers, and the concentrator building. All of these structures have been removed from the Site; except for some of the building foundations and breached walls of the concentrator building.

The Mine Operations Area is underlain by variable thicknesses of waste rock fill and native soil consisting of clay and silt overlying glacial till. The overburden thickness varies greatly from 12.5 feet to as much as 82 feet. In general, a thin layer (2 to 3 feet) of sandy and gravelly fill overlies the fine grained stratified clay and silt. In the absence of the clay and silt, the gravelly, sandy fill extends to bedrock (12.5 feet) near the former flotation building (near SB-614). The clay and silt varies in thickness from 10 to 31 feet across the Site. Up to 72 feet of till was encountered at SB-610, indicating the presence of a narrow and deep channel between the northern and southern ridges that dominated the pre-mine topography of the Site.

During the RI, 34 soil samples were collected at the Mine Operations Area for analysis for PCBs, seven were collected for on-site XRF analysis for metals, and five were collected for off-site metals analysis by ICP-MS. The results of PCB analyses are summarized in RI Table 4.1-1, results for field XRF metals screening are summarized in RI Appendix R, and results for ICP-MS metals analysis are summarized in RI Table 4.1-3 (MACTEC, 2009a). Summary statistics for the PCB

and XRF analytical results are shown in the following table. XRF data are shown because they represent a larger data set than the ICP-MS data. The XRF and off-site data for arsenic, lead, PCBs, DRO, and GRO collected during the RI for the Mine Operations Area can be found in Appendix A.

Summary Statistics for Mine Operations Area Surface Soil Analytical Results – PCBs, Arsenic, Cadmium, Copper, Lead, and Zinc

Analyte	Background Concentration	Frequency of Detection	Range of Detected Concentrations	Average Conc.	Percent > Background
Aroclor-1242	NC	9 / 34	0.051 - 7,900	245	NC
Aroclor-1248	NC	13 / 34	0.16 - 1,800	59	NC
Arsenic	15	7 / 7	34 - 99	62	100
Cadmium	NC	6 / 7	43 - 98	58	NC
Copper	99	7 / 7	1,900 - 21,000	7,543	100
Lead	124	7 / 7	520 - 3,000	1,613	100
Zinc	177	7 / 7	12,000 - 64,000	28,714	100

Notes:
All concentrations in mg/kg.
Statistics based on off-site analysis for PCBs and on-site XRF analysis for metals.
Average calculations use half the detection limit for non-detects.
Background concentration is based on on-site analysis 95-percent UTL.
NC = not calculated
Source: MACTEC, 2009b, Subsection 4.1

The presence of PCBs in the Mine Operations Area may be related to former transformers located near the southern portion of the Primary and Secondary Crusher buildings. A 10- by 20-foot buried concrete pad was identified that may have served as a transformer location serving the Secondary Crusher building. Very high concentrations of PCBs in surface soils suggest direct discharge of transformer oils to the ground surface. PCBs, arsenic, and lead in surface soil at the Mine Operations Area exceed USEPA risk management guidance for recreational exposure based on the findings of the risk assessment performed as part of the RI. In addition, PCB concentrations exceeded Toxic Substances Control Act PCB management standards.

1.2.3 Petroleum-Contaminated Soil Commingled with CERCLA Waste in Mine Operations Area

Two test pits completed in the Mine Operations Area showed the presence of oily soils. Oil stained subsurface soils were exposed in TP-7119 and TP-7124. TP-7124 was excavated in what is interpreted to be a tank grave associated with underground storage tanks (USTs) reportedly removed in 1987. Oil stained silt and clay materials were observed extending from 3 to 6 feet below ground surface (bgs). The sample collected at 3 feet bgs showed the presence diesel range

organics (DRO) and gasoline range organics (GRO) at concentrations of 13,000 mg/kg and 390 mg/kg, respectively.

TP-7119 was excavated downgradient of the tank grave depression. Oil stained soils were observed at the interface between waste rock and the underlying silty clay at 9 feet bgs. The sample collected at 9 feet bgs showed the presence DRO and GRO at concentrations of 4,900 mg/kg and 160 mg/kg, respectively. The presence of these DRO and GRO has been attributed to fuel storage and dispensing. The concentrations of DRO and GRO exceeded Maine Petroleum Remediation Guidelines in effect at the time of the RI and may or may not exceed current Remediation Guidelines for Petroleum Contaminated Sites in Maine, effective date December 1, 2009. The Contractor will be responsible for additional sampling to assess if and to what extent remediation of petroleum-contaminated soil is required under the current guidelines.

1.2.4 Surface Water Management and Ore Pad

The implementation plan shall take into consideration whether the removal of the waste from the Mine Operations Area and the creation of direct drainage to Dyer Cove would result in an unacceptable surface water discharge from the Ore Pad to Dyer Cove. The contractor shall include measures, to be implemented at the discretion of the owner, to remove the Ore Pad material and place this material in the stockpile created for the residential soils and non-PCB/petroleum contaminated mine waste.

The Ore Pad is where ore was stockpiled prior to crushing and milling (Figure 2). The unlined Ore Pad covers approximately 2.1 acres and contains an estimated 16,000 cubic yards of waste rock. Today, fragments of ore and mineralized rock are visible over much of the Ore Pad. Surface soil in the area is conspicuously limonite-stained, imparting a yellow-brown to orange-brown, and brownish-black color and coating on soil and rock surfaces that stretches from the top of the exposed slope downhill to the Mine Operations Area. In addition to zinc-, copper-, and lead-sulfide ore fragments, the soils in this area also have a considerable number of blue and blue-green mineral fragments and rarer whitish mineral coating that may have been supergene ore minerals (copper-, lead-, and zinc-carbonates and -sulfates), or hydrated copper sulfates and soluble sulfate salts produced from more recent weathering of material remaining on the Ore Pad. The primary ore crushers were located downslope from the Ore Pad.

The waste rock fill at the Ore Pad is relatively thin and is mixed together with the till at the till contact. The till varies in thickness up to 11 feet. Bedrock was encountered at depths ranging from 9 to 15 feet bgs. The Ore Pad has some of the most highly oxidized surface soils containing mineralized waste rock and ore observed at the Site.

During the RI, two surface soil samples were collected from the Ore Pad for off-site metals analysis by ICP-MS. The results of ICP-MS metals analysis are summarized in RI Table 4.1-2 (MACTEC, 2009a). Summary statistics for the analytical results are shown in the following table.

Summary Statistics for Ore Pad Surface Soil Off-Site Analytical Results - Arsenic, Cadmium, Copper, Lead, and Zinc

Analyte	Background Concentration	Frequency of Detection	Range of Detected Concentrations	Average Concentration	Percent >Background
Arsenic	14	2 / 2	46 - 50	48	100
Cadmium	0.15	2 / 2	0.37 - 24	12	100
Copper	11	2 / 2	6,600 - 14,000	10,300	100
Lead	37	2 / 2	350 - 1,600	975	100
Zinc	89	2 / 2	110 - 8,800	4,455	100

Notes:
All concentrations in milligrams per kilogram (mg/kg).
Statistics based on off-site ICP-MS analyses for metals.
Average calculations use half the detection limit for non-detects.
Background concentration is based on off-site 95-percent UTL
Source: MACTEC, 2009b, Subsection 4.1

Data collected during the RI to assess the potential for acid rock drainage included whole rock analysis, mineralogy, acid base accounting (ABA), Synthetic Precipitation Leaching Procedure (SPLP), field paste pH, and field leaching tests. Field leach tests indicated that cadmium and lead could leach at concentrations above the federal drinking water Maximum Contaminant Level (MCL) and/or the Maine Maximum Exposure Guidelines for Drinking Water (MEGs). In addition, SPLP results show potential for antimony, cadmium, copper, and lead to leach at concentrations above the MCL/MEG. Other metals that may leach include aluminum, cobalt, and zinc. ABA and paste pH data indicated net acid producing conditions persist at the Ore Pad, though some samples have a net neutralizing potential. Waste rock at the Ore Pad is considered a major source of groundwater contamination at the Site.

Arsenic and lead in surface soil at the Mine Operations Area exceed USEPA risk management guidance for recreational exposure based on the findings of the risk assessment performed as part of the RI.

The estimated area and volume of material at the Ore Pad are provided in Section 4.0.

Excavated areas will be graded to blend excavation limits smoothly into surrounding grades, eliminate steep slopes, and provide proper drainage.

1.2.5 Surface Water Drainage for Mine Operations Area

The implementation plan shall include drainage measures to reduce erosion and transport of surface material from the Mine Operations Area to Goose Pond. These measures may include construction of drainage ditches and storm water sedimentation ponds. Figure 4 provides a conceptual depiction in plan view of drainage measures at the Mine Operations Area. Figure 5 provides conceptual details of the drainage measures.

1.2.6 Stockpile Management

The implementation plan shall include measures to ensure that surface run-off from the stockpile does not adversely impact Goose Pond and that the stability of the Tailings Impoundment is acceptable during the period of interim storage of material prior to the implementation of OU3. Stockpile management may include measures to 1) reduce storm water run-on and infiltration at the Tailings Impoundment, 2) increase the overall stability of the Tailings Impoundment; and 3) reduce storm water erosion and transport of surface material to Goose Pond. These measures may include construction of drainage ditches and/or swales and storm water sedimentation ponds. Internal drainage controls may also be required if the stability analysis supports the need for such measures to promote the stability of the Tailings Impoundment. Figure 6 provides a conceptual depiction in plan view of drainage measures at the Tailings Impoundment Interim Stockpile Area. Figure 5 provides conceptual details of the drainage measures.

2.0 JURISDICTIONAL AND REGULATORY REQUIREMENTS

The Site is a Superfund site and is undergoing investigation and clean-up activities pursuant to CERCLA and the NCP. USEPA is the lead regulatory agency at the Site.

CERCLA and the NCP require that on-site Superfund remedial actions must attain federal standards, requirements, limitations, or more stringent state standards determined to be legally applicable or relevant and appropriate to the circumstances at a given site. CERCLA on-site remedial response actions must only comply with all substantive requirements that are "applicable" or "relevant and appropriate," but not the administrative requirements, such as any requirement to obtain federal, state, or local permits (CERCLA §121(e)). The NCP defines on-site as "the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action." The Residential Use Area is considered to be "on site". Off-site response actions must comply with both the substantive and administrative requirements of an applicable regulation.

3.0 CLEANUP LEVELS

The OU1 ROD established the following cleanup levels:

Residential Use Area Soil	
Arsenic	14 mg/kg
Lead	375 mg/kg
Thallium	15 mg/kg
Mine Operations Area PCB-Contaminated Soil	
PCBs	1 mg/kg

In addition, petroleum contaminated soil commingled with CERCLA waste at the Mine Operations Area will be cleaned up to meet Tier 2 Cumulative Risk-Based Soil Remediation Guidelines for Petroleum Target Compounds and Hydrocarbon Fractions (Table 5, Park User) as listed in Remediation Guidelines for Petroleum Contaminated Sites in Maine, Maine Department of Environmental Protection, Bureau of Remediation and Waste Management, effective date December 1, 2009.

4.0 ESTIMATED CLEANUP AREAS AND VOLUMES

The estimated areas and volumes exceeding cleanup levels based on data gathered during the RI are listed below. Actual areas and depths may differ based on field conditions and additional characterization to be performed by the Implementation Contractor.

Work Area	Estimated Area, sq. ft.	Estimated Average Depth/Thickness, ft.	Estimated Volume, c.y.
Residential Use Area	41,060	2	3,040
PCB-Contaminated Soil >1 ppm, < 50 ppm	26,708	2	1,980
PCB-Contaminated Soil ≥ 50 ppm	2,958	2	220
Petroleum-Contaminated Soil **	2,615	3	600
Ore Pad *	90,161	4.8	16,000

* Optional task depending on extent of funding available to Owner.
** Because of uncertainty in the delineation of petroleum-contaminated soil, volume estimated as twice that based on area and thickness.

With the exception of Old Mine Lane, the excavation at the Residential Use Area is not to extend beyond the residential lot boundaries unless directed by the Owner. Figures 3 and 7 show the estimated cleanup areas at the Residential Use Area and at the Mine Operations Area.

5.0 INTERIM STOCKPILE AREA

The Tailings Impoundment Area has been identified as the most likely area for the temporary stockpiling of material excavated from the Residential Use Area and the Ore Pad. The implementation plan developed by the contractor shall include the appropriate assessments to ensure that stability of the Tailings Impoundment. Additional stability controls, including run-on/run-off controls or internal drainage controls, may be necessary to meet acceptable stability criteria if the Tailings Impoundment is used as a stockpile. Material should be stockpiled in locations approved by USEPA and MEDEP. The design assumes that the stockpile should be placed at the western edge of the Tailings Impoundment and should be graded and covered to minimize infiltration, promote runoff, and prevent erosion. A clear area without stockpiled material should be maintained along the northern and southern berm. Material should not be stockpiled over the wetland area in the center of the Tailings Impoundment. Figure 6 provides a conceptual depiction of the stockpile area. The detailed implementation plan to be developed for OU1 may select another location for the stockpile based on a further evaluation of the estimated volume of material, nature of the material, and the results of the geotechnical analysis.

6.0 VALUE ENGINEERING SCREEN

A value engineering (VE) screen is required for all USEPA superfund lead cleanup actions. In the VE screen, the designer reviews the proposed process and identifies potential high cost design elements or subsystems that may become candidates for a formal VE study. Guidance for performing the VE screen is provided in the USEPA Remedial Design/Remedial Action Handbook EPA 540/R-95/059 and USEPA pamphlet Value Engineering (For Fund-Financed Superfund Remedial Design/Remedial Action Projects), OSWER 9355.5-24FS. A VE screen for the proposed OU1 actions is provided in Appendix B.

7.0 REFERENCES

MACTEC, 2009a. Final Remedial Investigation Report, Callahan Mine Superfund Site, Brooksville, Maine. April.

MACTEC, 2009b. Final Feasibility Study Report, Callahan Mine Superfund Site, Brooksville, Maine. July.

USEPA, 2009. Record of Decision, Operable Unit 1, Callahan Mine Superfund Site, Brooksville, Maine. September.

FIGURES

1:24,000 scale digital topographic map obtained from Maine Office of GIS at http://apollo.ogis.state.me.us/catalog

Prepared/Date: BRP 07/12/10 | Checked/Date: SWR 07/12/10

Figure 1
Site Location Map

OU1 Design
Callahan Mine Superfund Site
Brooksville, Maine
MACTEC, Inc.

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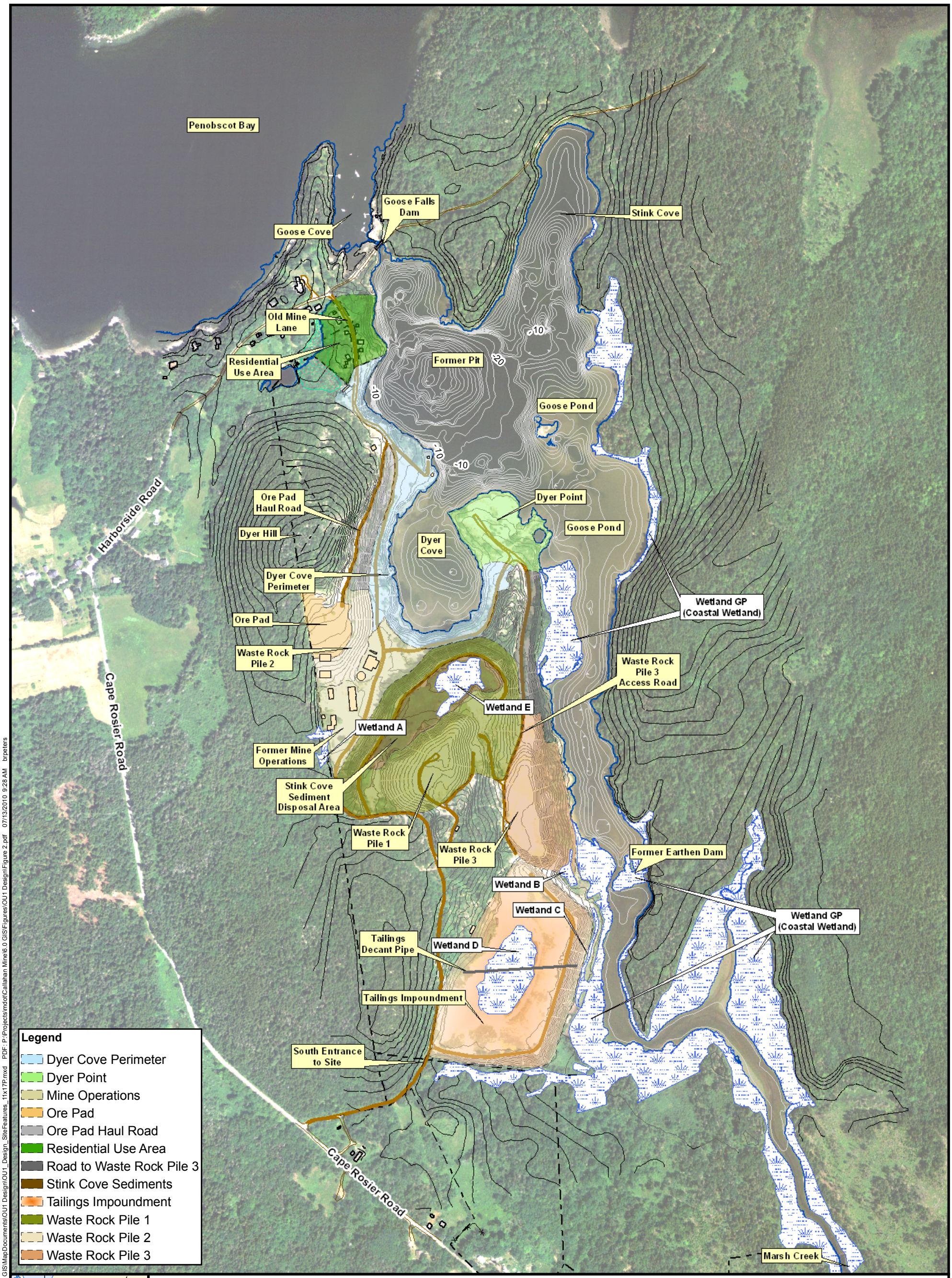

Note:
Contour intervals vary.
Off-site topo 10 foot
On-site topo 5 foot
Bathymetry 1 foot
Pit Bathymetry 20 foot

Legend
- Bathymetric Contour
- Delineated Wetlands

N

0 275 550 Feet

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Figure 2
Site Features

OU1 Design
Callahan Mine Superfund Site
Brooksville, Maine
MACTEC, Inc.

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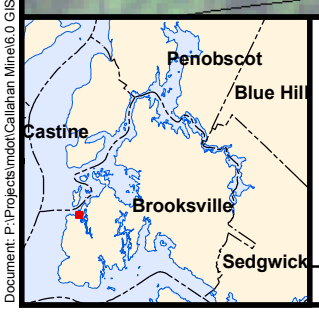
LOT A

LOT B

LOT C

LOT D



Legend

- Arsenic <= 14, Lead <= 375, and Thallium <= 15 mg/kg
- Arsenic > 14, Lead > 375, and Thallium > 15 mg/kg
- Bedrock Outcrops
- Risk Assessment Data Groups
- Area to be excavated - 41060 Sq. Feet
- Property Line

0 30 60 Feet

N

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Figure 3
Residential Use Area Remediation

OU1 Design
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Brooksville, Maine
MACTEC, Inc.

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NOTES:

1. THE NEED FOR ROADSIDE DITCHES, DIVERSION SWALES, AND SEDIMENTATION PONDS IS TO BE EVALUATED AS PART OF THE IMPLEMENTATION PLAN AND EXECUTED AT THE DIRECTION OF THE OWNER. THE DEPICTIONS ON THIS FIGURE ARE CONCEPTUAL IN NATURE. IF WORK IS EXECUTED, CONTRACTOR SHALL SUBMIT DETAILED DESIGNS OF SEDIMENT BASINS TO ENSURE ADEQUATE CAPACITY AND STABILITY.

2. ORE PAD REMOVAL MAY BE IMPLEMENTED AT THE DISCRETION OF THE OWNER. IF WORK IS EXECUTED, ORE PAD MATERAIL SHALL BE COMPLETEY REMOVED TO UNDERLYING BEDROCK WHICH IS ESTIMATED AT AN AVERAGE DEPTH OF APPROXIMATELY 5-FEET. FINAL GRADE AT REMOVAL LIMITS SHALL PROMOTE POSITIVE DRAINAGE AND BLEND IN WITH SURROUNDING TOPOGRAPHY AT A MAXIMUM SLOPE OF 3:1.

REBAR FND

LEDGE/ROCK OUTCROP

(NOT SHOWN ON ASSESSORS)
MAP 9 (NO LOT NO.)
LUCY D BORING
& FRANK E BORING
BK1874 P638

N32°56'53"E
310.00

MAP 9 LOT 301
SMITH COVE PRESERVATION TRUST
BK1671 P326
BK1738 P77
119.664 ACRES

LEDGE/ROCK OUTCROP

ORE PAD

DIRT/GRAVEL ROAD

MW-720R

N

DYER COVE

RIPRAP OUTLET PROTECTION APRON
12-INCH LAYER D50 = 6 INCHES (TYP)

CONCEPTUAL SEDIMENT POND 3
TOP OF BASIN = 35.00
BOTTOM = 32.00
OVERFLOW SPILLWAY = 34.50
(SEE NOTE 1)

SD-704

APPROXIMATE LIMIT OF
ORE PAD (SEE NOTE 2)

SB-616

MW-617R

CONCEPTUAL STABILIZED SEDIMENT BASIN OUTLET
(TYP -SEE BASIN AND OUTLET DETAIL ON FIGURE 5)

CONCEPTUAL SEDIMENT POND 2
TOP OF BASIN = 30.00
BOTTOM = 27.00
OVERFLOW SPILLWAY = 29.50
(SEE NOTE 1)

SB-611

STONE/GRAVEL

MW-615R

CONCEPTUAL 12"
CULVERT (TYP)

CONCEPTUAL SEDIMENT POND 1
TOP OF BASIN = 35.00
BOTTOM = 29.00
OVERLOW INV OUT = 33.00
(SEE NOTE 1)

WRP-1 END
42.46'

SB-609
MW-609R

RUINS

STONE/GRAVEL

MW-614R

42.70'
WRP-2-2/MLS CAL

PCB CLEAN UP AREA
(SEE FIGURE 7)

CONCEPTUAL ROADSIDE
DITCH (SEE NOTE 1)

STONE

EXISTING STINK COVE
SEDIMENT AREA
(SEE FIGURE 2)

SB-613

METAL BLD

BLOCK BLD ON CONC PAD

STONE/GRAVEL

MW-610R

WASTE ROCKPILE #1

54.26'
WRP-2-2/MLS CAL

MW-606R

STONE

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NOT FOR CONSTRUCTION

0 25 50 100
SCALE IN FEET

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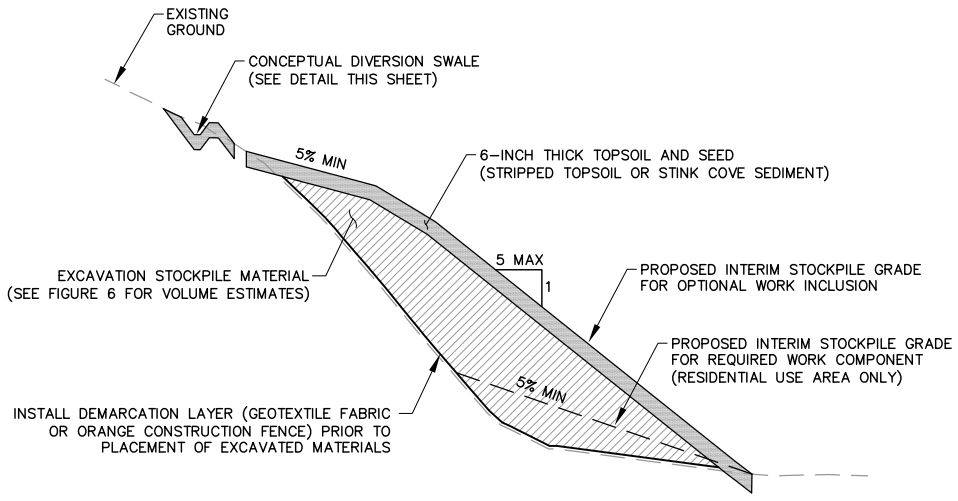
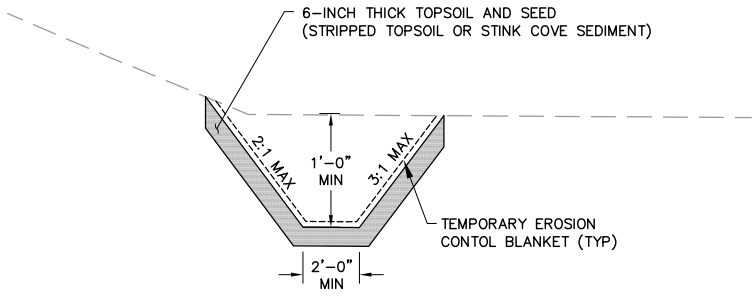
BROOKSVILLE, MAINE

MACTEC

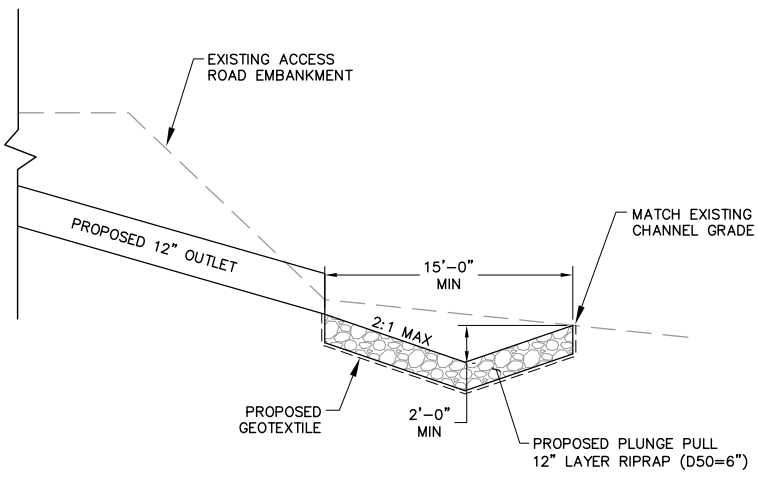
FIGURE 4
MINE OPERATIONS AREA CONCEPTUAL
DITCHES AND SEDIMENTATION PONDS



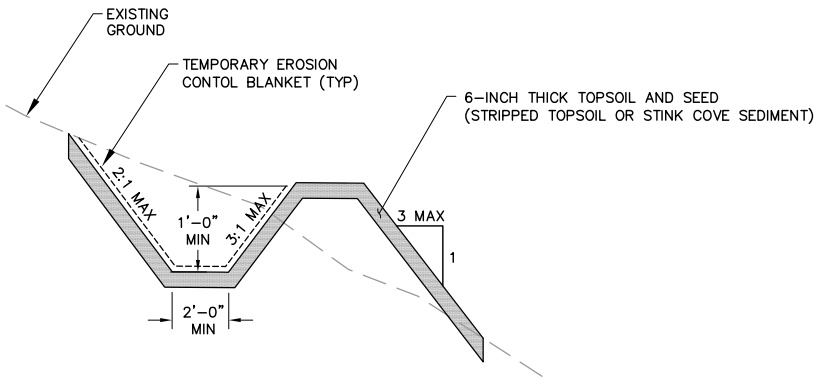
CONCEPTUAL TAILINGS IMPOUNDMENT INTERIM STOCKPILE SECTION
NTS



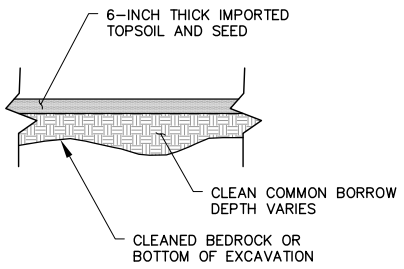
CONCEPTUAL ROADSIDE DITCH
NTS



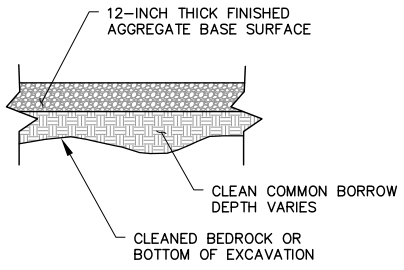
CONCEPTUAL PLUNGE POOL OUTLET PROTECTION DETAIL
NTS



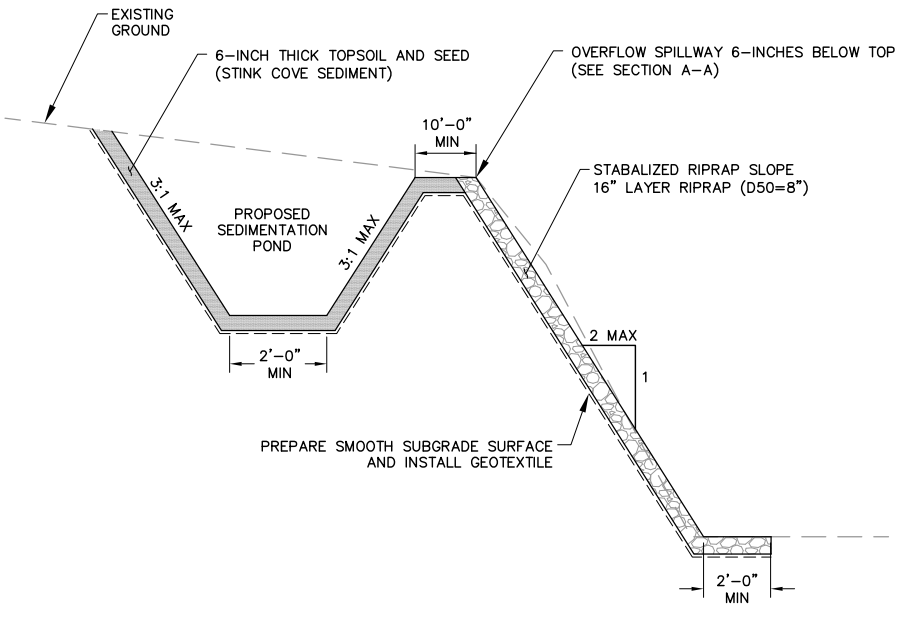
CONCEPTUAL DIVERSION SWALE
NTS



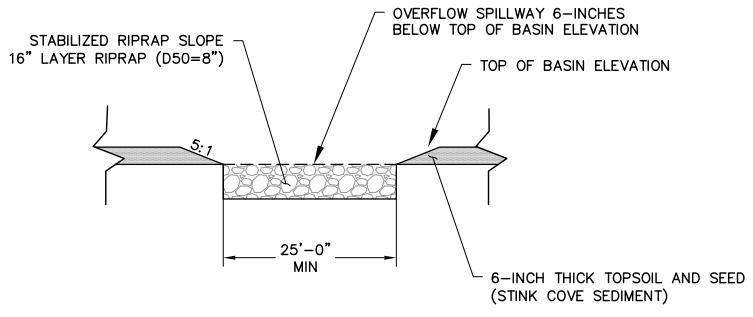
RESIDENTIAL VEGETATION RESTORATION DETAIL
NTS



RESIDENTIAL GRAVEL RESTORATION DETAIL
NTS



TYPICAL SECTION
NTS



SECTION A-A
NTS

CONCEPTUAL SEDIMENTATION POND AND OVERFLOW OUTLET DETAIL
NTS

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FIGURE 5
CONCEPTUAL DRAINAGE AND STOCKPILE DETAILS

APPROXIMATE LOCATION EXISITING 48" CMP

EXISTING FLOW PATH TO BE MAINTAINED

EXISTING WETLAND WITH BERMED RETENTION

EXISTING FLOOD LIMIT (TYP)

NO MATERIAL TO BE PLACED IN THIS AREA

CONCEPTUAL DIVERSION SWALE (SEE NOTE 3)

EXISTING TAILINGS IMPOUNDMENT WETLAND LIMIT (SEE NOTE 2)

CONCEPTUAL ROADSIDE DITCH (SEE NOTE 3)

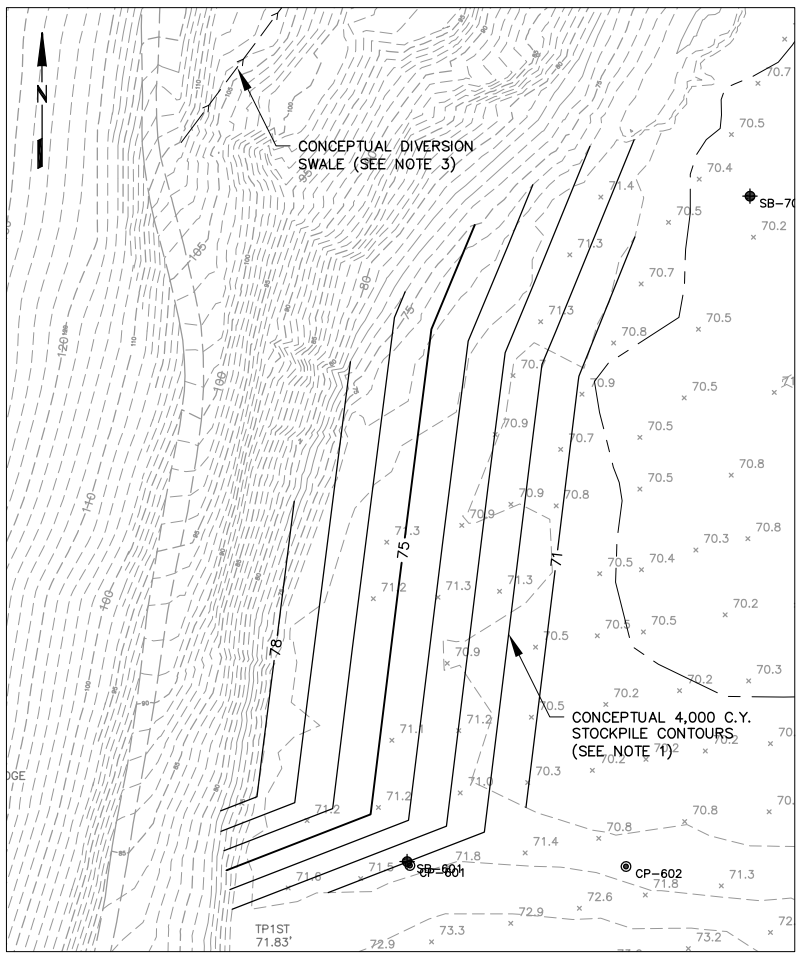
CONCEPTUAL 38,000 C.Y. STOCKPILE CONTOURS (SEE NOTE 1)

LIMIT OF CONCEPTUAL 4,000 C.Y. STOCKPILE (SEE INSERT THIS SHEET)

NO MATERIAL TO BE PLACED IN THIS AREA

CONCEPTUAL 12" CULVERT FROM PROPOSED ROADSIDE SWALE TO PLUNGE POOL OUTLET PROTECTION (SEE DETAIL ON FIGURE 6)

CONCEPTUAL 4,000 CY STOCKPILE



NOTES:

1. STOCKPILE CONTOURS REPRESENT CONCEPTUAL GRADING PROVIDING APPROXIMATELY 36,000 C.Y. OF STORAGE VOLUME. THE REQUIRED WORK COMPONENT FOR THIS PROJECT (RESIDENTIAL USE AREA) WILL GENERATE AN ESTIMATED EXCAVATION VOLUME OF 3,400 C.Y (SEE 4,000 C.Y INSERT). SHOULD CONTRACTOR BE REQUESTED TO COMPLETE ADDITIONAL WORK ITEMS (ORE PAD REMOVAL AND DRAINAGE IMPROVEMENTS – SEE FIGURE 4), EXCAVATION VOLUMES MAY EXCEED 30,000 C.Y. CONTRACTOR SHALL PREPARE AND SUBMIT A PROPOSED STOCKPILING PLAN TO ADEQUATELY ADDRESS MEANS AND METHODS BASED ON UNCERTAINTY IN VOLUMES.
2. STOCKPILE MATERIAL SHALL NOT ENCROACH INTO THE EXISTING WETLANDS DUE TO PRESENCE OF SOFT SOILS AND RELATED STABILITY ISSUES.
3. ROADSIDE DITCH AND DIVERSION SWALE CONSTRUCTION ARE TO BE EVALUATED AS PART OF THE IMPLEMENTATION PLAN. DITCH ALIGNMENTS SHOWN ARE CONCEPTUAL AND MAY BE FIELD ADJUSTED BY CONTRACTOR BASED ON EXISTING CONDITIONS AND TOPOGRAPHY.

Prepared/Date: TDD 7-21-10
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0 25 50 100
SCALE IN FEET

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CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

MACTEC

FIGURE 6
CONCEPTUAL TAILINGS IMPOUNDMENT INTERIM STOCKPILE AND RUN-ON CONTROL

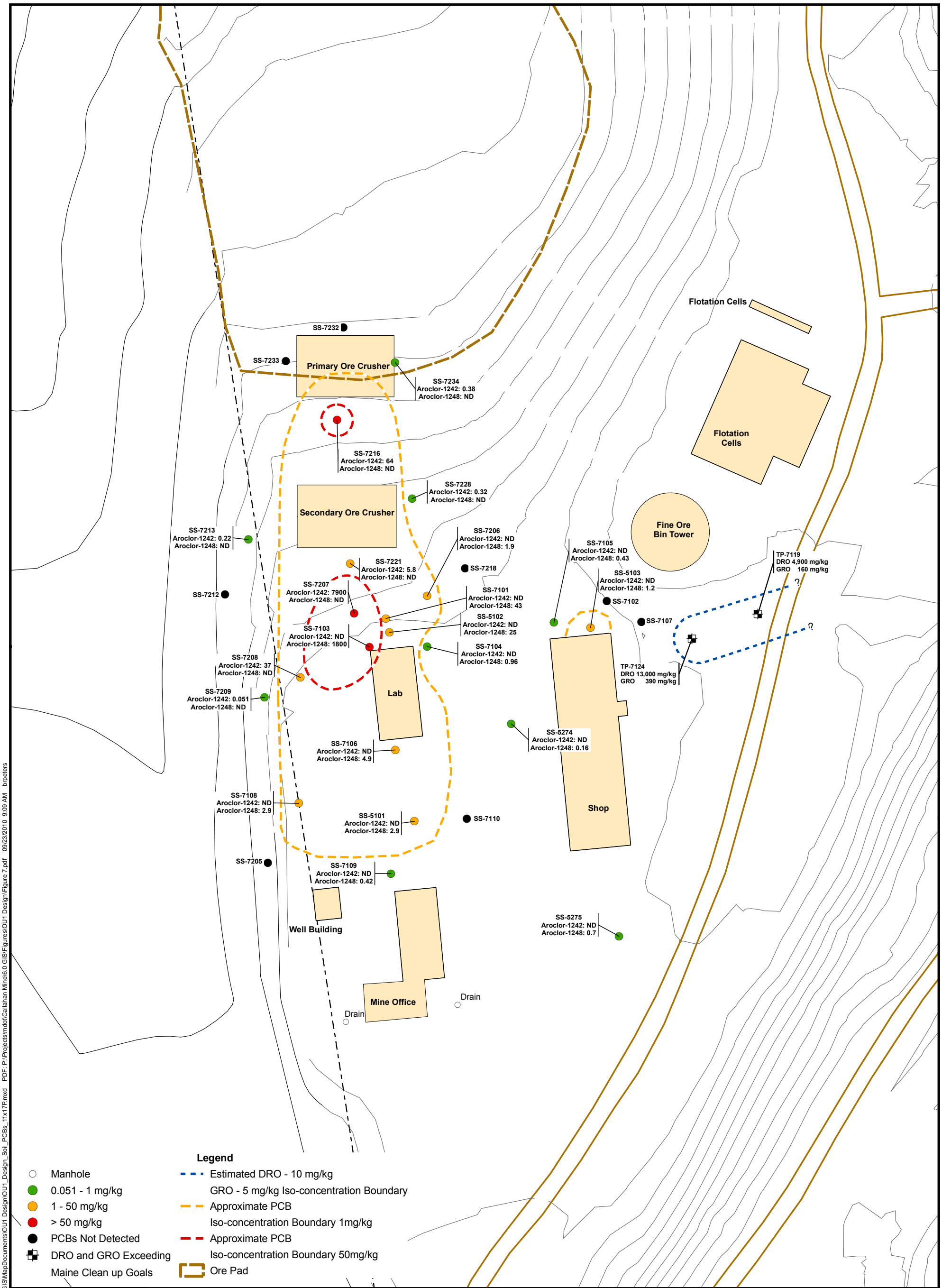

Figure 7
Areas Exceeding PCB PRGs and DRO/GRO Cleanup Goals

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Document: P:\Projects\mdot\Callahan Mine\6.0 GIS\MapDocuments\OU1 Design\OU1_Design_Soil_PCBs_11x17P.mxd PDF: P:\Projects\mdot\Callahan Mine\6.0 GIS\Figures\OU1 Design\Figure 7.pdf 09/23/2010 9:09 AM brpeters

APPENDIX A

RI DATA FOR CONTAMINANTS OF CONCERN FOR RESIDENTIAL USE AREA AND MINE OPERATIONS AREA

Table 4.1-2
Summary of Ore Pad Surface Soil Sample Results

			Aoc Name	Ore Pad		Ore Pad		Ore Pad		Ore Pad		Ore Pad	
			Exposure Area	Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A	
			Field Sample Date	12/2/2004		12/2/2004		6/15/2006		6/15/2006		6/16/2006	
			Loc Name	SS-415		SS-414		SB-615		SB-615		SB-616	
			Sample ID	D05723		D05722		SB-615001XXXXD		SB-615001XXXXX		SB-616001XXXXX	
			Qc Code	FS		FS		FD		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result	
VOCs (SW8260)													
1,2-Dichlorobenzene	MG/KG	17	20					-		-		-	
1,3-Dichlorobenzene	MG/KG	1.6	20					-		-		-	
2-Hexanone	MG/KG							-		-		-	
4-Methyl-2-pentanone	MG/KG	79						-		-		-	
Acetic acid, methyl ester	MG/KG	220						-		-		-	
Acetone	MG/KG	16	350					-		-		-	
Carbon disulfide	MG/KG	36						-		-		-	
Chlorodibromomethane	MG/KG							-		-		-	
Chloroform	MG/KG	0.36						-		-		-	
Dichlorodifluoromethane	MG/KG	9.4						0.015		0.012		-	
Methyl Tertbutyl Ether	MG/KG	62						-		-		-	
Methylene chloride	MG/KG	0.02						-		-		-	
Toluene	MG/KG	12	200					-		-		-	
Trichlorofluoromethane	MG/KG	39						0.001	J	-		-	
SVOCs (SW8270)													
Acetophenone	MG/KG		199					-		-		-	
Bis(2-Ethylhexyl)phthalate	MG/KG	35						-		-		-	
Butylbenzylphthalate	MG/KG	1,200						-		-		-	
Chrysene	MG/KG	62	18.8					-		-		-	
Di-n-butylphthalate	MG/KG	610	200					-		-		-	
Dimethylphthalate	MG/KG	100,000	200					-		-		-	
Fluoranthene	MG/KG	230	26.5					-		-		-	
Pyrene	MG/KG	230	32.3					-		-		-	
Metals (SW6010B)													
Aluminum	MG/KG	7,600	50	**40000**		**46000**							
Antimony	MG/KG	3.1	0.27	**4.1**	J	-							
Arsenic	MG/KG	0.39	18	**46**	J	**50**	J						
Barium	MG/KG	540	330	8.2	EB	6.5	EB						
Beryllium	MG/KG	15	10	0.3	J	0.12	J						
Cadmium	MG/KG	3.7	0.36	**24**	J	0.37	J						
Calcium	MG/KG			1500	J	30	J						
Chromium	MG/KG	21	0.4	11	JEB	1.5	JEB						
Cobalt	MG/KG	470	13	1.7	J	-							

Table 4.1-2
Summary of Ore Pad Surface Soil Sample Results

			Aoc Name	Ore Pad		Ore Pad		Ore Pad		Ore Pad		Ore Pad	
			Exposure Area	Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A	
			Field Sample Date	12/2/2004		12/2/2004		6/15/2006		6/15/2006		6/16/2006	
			Loc Name	SS-415		SS-414		SB-615		SB-615		SB-616	
			Sample ID	D05723		D05722		SB-615001XXXXD		SB-615001XXXXX		SB-616001XXXXX	
			Qc Code	FS		FS		FD		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result	
Copper	MG/KG	310	28	**6600**	J	**14000**	J						
Iron	MG/KG	2,300	200	**42000**		**83000**							
Lead	MG/KG	400	11	**1600**	J	350	J						
Magnesium	MG/KG			77000	J	97000	J						
Manganese	MG/KG	180	100	**960**	J	**890**	J						
Mercury	MG/KG	2.3	0.1	1.5	J	0.14	J						
Nickel	MG/KG	160	30	6.8	JEB	0.2	JEB						
Potassium	MG/KG			2400	J	2700							
Selenium	MG/KG	39	0.52	10	J	24	J						
Silver	MG/KG	39	2	7	J	12	J						
Sodium	MG/KG			62	J	21	J						
Thallium	MG/KG	0.52	1	**1.3**	J	**1.3**	J						
Vanadium	MG/KG	55	2	15	J	16	J						
Zinc	MG/KG	2,300	49	**8800**	J	110	J						
Mercury	MG/KG	2.3	0.1										

Notes:

AOC - Area of Concern

Dash "-" represents analyte analyzed for and not detected

Blank cell = not analyzed

Qualifiers = J - estimated value

R- rejected result

EB - contamination in associated equipment blank

Shaded cell = result greater than the USEPA Region IX PRGs

Prepared\Date: JKR 02/29/08

Checked\Date: SFC 03/28/08

Table source: MACTEC 2009, Callahan Mine Superfund Site, Final RI Report

Table 4.1-3
Summary of Mine Operations Surface Soil Sample Results

Parameter	Units	Human	Ecological	Aoc Name	Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area	
				Exposure Area	Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A	
				Field Sample Date	12/4/2004		12/4/2004		12/4/2004		12/4/2004		12/4/2004		12/4/2004		9/8/2005	
				Loc Name	SS-410		SS-410		SS-411		SS-412		SS-413		SS-416		SS-5102	
				Sample ID	A19C8		D05718		D05719		D05720		D05721		D05724		SS-510200001XX	
				Qc Code	FS		FS		FS		FS		FS		FS		FS	
					Result		Result		Result		Result		Result		Result		Result	
VOCs (SW8082)																		
1,2-Dichlorobenzene	MG/KG	17	20															
1,3-Dichlorobenzene	MG/KG	1.6	20															
2-Hexanone	MG/KG																	
4-Methyl-2-pentanone	MG/KG	79																
Acetic acid, methyl ester	MG/KG	220																
Acetone	MG/KG	16	350															
Carbon disulfide	MG/KG	36																
Chlorodibromomethane	MG/KG																	
Chloroform	MG/KG	0.36																
Dichlorodifluoromethane	MG/KG	9.4																
Methyl Tertbutyl Ether	MG/KG	62																
Methylene chloride	MG/KG	0.02																
Toluene	MG/KG	12	200															
Trichlorofluoromethane	MG/KG	39																
SVOCs (SW8270)																		
Acetophenone	MG/KG		199															
Bis(2-Ethylhexyl)phthalate	MG/KG	35																
Butylbenzylphthalate	MG/KG	1,200																
Chrysene	MG/KG	62	18.8															
Di-n-butylphthalate	MG/KG	610	200															
Dimethylphthalate	MG/KG	100,000	200															
Fluoranthene	MG/KG	230	26.5															
Pyrene	MG/KG	230	32.3															
PCBs (SW8082)																		
Aroclor, Total	MG/KG																36.4	
Aroclor-1242	MG/KG																-	
Aroclor-1248	MG/KG																**25**	
Metals (SW6010B)																		
Aluminum	MG/KG	7,600	50				**17000**		**16000**		**29000**		**22000**		**21000**			
Antimony	MG/KG	3.1	0.27				0.77	J	0.85	J	0.74	J	0.96	J	0.61	J		
Arsenic	MG/KG	0.39	18				**26**	J	**31**	J	**220**	J	**34**	J	**57**	J		
Barium	MG/KG	540	330				25	EB	30	EB	26	EB	26	EB	13	EB		
Beryllium	MG/KG	15	10				0.34	J	0.46	J	0.49	J	0.53	J	0.17	J		
Cadmium	MG/KG	3.7	0.36				**27**	J	**41**	J	**170**	J	**29**	J	2.7	J		
Calcium	MG/KG						11000	J	7800	J	2800	J	3600	J	440	J		
Chromium	MG/KG	21	0.4				**33**	J	**30**	J	**27**	J	**27**	J	**27**	J		
Cobalt	MG/KG	470	13				14	J	13	J	14	J	11	J	1.7	J		
Copper	MG/KG	310	28				**2300**	J	**5700**	J	**8700**	J	**3500**	J	**1200**	J		
Iron	MG/KG	2,300	200				**24000**		**34000**		**84000**		**29000**		**36000**			
Lead	MG/KG	400	11				**510**	J	**2300**	J	**1800**	J	**700**	J	**1000**	J		
Magnesium	MG/KG						22000	J	18000		49000		26000		36000			
Manganese	MG/KG	180	100				**1300**	J	**740**	J	**1800**	J	**870**	J	**530**	J		
Mercury	MG/KG	2.3	0.1				0.33		1.1		1.2		0.58		1.7			
Nickel	MG/KG	160	30				30	JEB	30	JEB	23	JEB	28	JEB	13	JEB		
Potassium	MG/KG						970		1400		2300		1800		1300			
Selenium	MG/KG	39	0.52				2	J	4.3	J	19	J	3.2	J	7.4	J		
Silver	MG/KG	39	2				2	J	3.5	J	5.5	J	4.8	J	3.9	J		
Sodium	MG/KG						60	JEB	56	JEB	63	JEB	93	JEB	51	JEB		
Thallium	MG/KG	0.52	1				0.49	J	**0.59**	J	**6.7**	J	**0.64**	J	**0.77**	J		
Vanadium	MG/KG	55	2				23	J	24	J	21	J	22	J	19	J		
Zinc	MG/KG	2,300	49				**5800**	J	**16000**	J	**63000**	J	**10000**	J	1200	J		

Table 4.1-3
Summary of Mine Operations Surface Soil Sample Results

				Aoc Name	Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area	
				Exposure Area	Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A	
				Field Sample Date	9/8/2005		9/8/2005		11/21/2005		11/21/2005		6/6/2006		6/6/2006		7/12/2007		7/12/2007	
				Loc Name	SS-5101		SS-5101		SS-5275		SS-5274		SB-613		SB-614		SS-7135		SS-7105	
				Sample ID	SS-510100001XD		SS-510100001XX		SS-527500001X2		SS-527400001X2		SB-613001XXXXX		SB-614000XXXXX		SS-713500001XX		SS-710500001XX	
				Qc Code	FD		FS		FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**		Result		Result		Result		Result		Result		Result		Result		Result	
VOCs (SW8082)																				
1,2-Dichlorobenzene	MG/KG	17	20										-		-					
1,3-Dichlorobenzene	MG/KG	1.6	20										-		-					
2-Hexanone	MG/KG												-		-					
4-Methyl-2-pentanone	MG/KG	79											0.006	J	-					
Acetic acid, methyl ester	MG/KG	220											-		-					
Acetone	MG/KG	16	350										-		-					
Carbon disulfide	MG/KG	36											-		-					
Chlorodibromomethane	MG/KG												-		-					
Chloroform	MG/KG	0.36											-		-					
Dichlorodifluoromethane	MG/KG	9.4											-		-					
Methyl Tertbutyl Ether	MG/KG	62											-		-					
Methylene chloride	MG/KG	0.02											-		-					
Toluene	MG/KG	12	200										-		-					
Trichlorofluoromethane	MG/KG	39											-		-					
SVOCs (SW8270)																				
Acetophenone	MG/KG		199										-		-					
Bis(2-Ethylhexyl)phthalate	MG/KG	35											-		-					
Butylbenzylphthalate	MG/KG	1,200											-		-					
Chrysene	MG/KG	62	18.8										-		-					
Di-n-butylphthalate	MG/KG	610	200										-		-					
Dimethylphthalate	MG/KG	100,000	200										-		-					
Fluoranthene	MG/KG	230	26.5										-		-					
Pyrene	MG/KG	230	32.3										-		-					
PCBs (SW8082)																				
Aroclor, Total	MG/KG				2.108		3.452		0.814		0.268									
Aroclor-1242	MG/KG				-		-		-		-								-	
Aroclor-1248	MG/KG				**2**	J	**2.9**		**0.7**		**0.16**								**0.43**	
Metals (SW6010B)																				
Aluminum	MG/KG	7,600	50																	
Antimony	MG/KG	3.1	0.27																	
Arsenic	MG/KG	0.39	18																	
Barium	MG/KG	540	330																	
Beryllium	MG/KG	15	10																	
Cadmium	MG/KG	3.7	0.36																	
Calcium	MG/KG																			
Chromium	MG/KG	21	0.4																	
Cobalt	MG/KG	470	13																	
Copper	MG/KG	310	28																	
Iron	MG/KG	2,300	200																	
Lead	MG/KG	400	11																	
Magnesium	MG/KG																			
Manganese	MG/KG	180	100																	
Mercury	MG/KG	2.3	0.1																	
Nickel	MG/KG	160	30																	
Potassium	MG/KG																			
Selenium	MG/KG	39	0.52																	
Silver	MG/KG	39	2																	
Sodium	MG/KG																			
Thallium	MG/KG	0.52	1																	
Vanadium	MG/KG	55	2																	
Zinc	MG/KG	2,300	49																	

Table 4.1-3
Summary of Mine Operations Surface Soil Sample Results

Parameter	Units	Human	Ecological	Aoc Name / Exposure Area / Field Sample Date / Loc Name / Sample ID / Qc Code / Result																	
				Mine Ops Area / Exposure Area 9A / 7/12/2007 / SS-7102 / SS-710200001XX / FS / Result		Mine Ops Area / Exposure Area 9A / 7/12/2007 / SS-7107 / SS-710700001XX / FS / Result		Mine Ops Area / Exposure Area 9A / 7/12/2007 / SS-7106 / SS-710600001XX / FS / Result		Mine Ops Area / Exposure Area 9A / 7/12/2007 / SS-7108 / SS-710800001XX / FS / Result		Mine Ops Area / Exposure Area 9A / 7/12/2007 / SS-7109 / SS-710900001XX / FS / Result		Mine Ops Area / Exposure Area 9A / 7/12/2007 / SS-7110 / SS-711000001XD / FD / Result		Mine Ops Area / Exposure Area 9A / 7/12/2007 / SS-7110 / SS-711000001XX / FS / Result		Mine Ops Area / Exposure Area 9A / 7/12/2007 / SS-7103 / SS-710300001XX / FS / Result	
VOCs (SW8082)																					
1,2-Dichlorobenzene	MG/KG	17	20																		
1,3-Dichlorobenzene	MG/KG	1.6	20																		
2-Hexanone	MG/KG																				
4-Methyl-2-pentanone	MG/KG	79																			
Acetic acid, methyl ester	MG/KG	220																			
Acetone	MG/KG	16	350																		
Carbon disulfide	MG/KG	36																			
Chlorodibromomethane	MG/KG																				
Chloroform	MG/KG	0.36																			
Dichlorodifluoromethane	MG/KG	9.4																			
Methyl Tertbutyl Ether	MG/KG	62																			
Methylene chloride	MG/KG	0.02																			
Toluene	MG/KG	12	200																		
Trichlorofluoromethane	MG/KG	39																			
SVOCs (SW8270)																					
Acetophenone	MG/KG		199																		
Bis(2-Ethylhexyl)phthalate	MG/KG	35																			
Butylbenzylphthalate	MG/KG	1,200																			
Chrysene	MG/KG	62	18.8																		
Di-n-butylphthalate	MG/KG	610	200																		
Dimethylphthalate	MG/KG	100,000	200																		
Fluoranthene	MG/KG	230	26.5																		
Pyrene	MG/KG	230	32.3																		
PCBs (SW8082)																					
Aroclor, Total	MG/KG																				
Aroclor-1242	MG/KG			-		-		-		-		-		-		-		-			
Aroclor-1248	MG/KG			-		-		**4.9**		**2.9**		**0.42**		-		-		**1800**			
Metals (SW6010B)																					
Aluminum	MG/KG	7,600	50																		
Antimony	MG/KG	3.1	0.27																		
Arsenic	MG/KG	0.39	18																		
Barium	MG/KG	540	330																		
Beryllium	MG/KG	15	10																		
Cadmium	MG/KG	3.7	0.36																		
Calcium	MG/KG																				
Chromium	MG/KG	21	0.4																		
Cobalt	MG/KG	470	13																		
Copper	MG/KG	310	28																		
Iron	MG/KG	2,300	200																		
Lead	MG/KG	400	11																		
Magnesium	MG/KG																				
Manganese	MG/KG	180	100																		
Mercury	MG/KG	2.3	0.1																		
Nickel	MG/KG	160	30																		
Potassium	MG/KG																				
Selenium	MG/KG	39	0.52																		
Silver	MG/KG	39	2																		
Sodium	MG/KG																				
Thallium	MG/KG	0.52	1																		
Vanadium	MG/KG	55	2																		
Zinc	MG/KG	2,300	49																		

Table 4.1-3
Summary of Mine Operations Surface Soil Sample Results

Parameter	Units	Human	Ecological	Aoc Name	Mine Ops Area	Mine Ops Area	Mine Ops Area	Mine Ops Area	Mine Ops Area	Mine Ops Area	Mine Ops Area
				Exposure Area	Exposure Area 9A	Exposure Area 9A	Exposure Area 9A	Exposure Area 9A	Exposure Area 9A	Exposure Area 9A	Exposure Area 9A
				Field Sample Date	7/12/2007	7/12/2007	7/26/2007	7/26/2007	7/26/2007	7/26/2007	8/14/2007
				Loc Name	SS-7101	SS-7104	SS-7190	SS-7191	SS-7192	SS-7193	SS-7205
				Sample ID	SS-710100001XX	SS-710400001XX	SS-719000001XX	SS-719100001XX	SS-719200001XX	SS-719300001XX	SS-720500001XX
				Qc Code	FS	FS	FS	FS	FS	FS	FS
					Result	Result	Result	Result	Result	Result	Result
VOCs (SW8082)											
1,2-Dichlorobenzene	MG/KG	17	20								
1,3-Dichlorobenzene	MG/KG	1.6	20								
2-Hexanone	MG/KG										
4-Methyl-2-pentanone	MG/KG	79									
Acetic acid, methyl ester	MG/KG	220									
Acetone	MG/KG	16	350								
Carbon disulfide	MG/KG	36									
Chlorodibromomethane	MG/KG										
Chloroform	MG/KG	0.36									
Dichlorodifluoromethane	MG/KG	9.4									
Methyl Tertbutyl Ether	MG/KG	62									
Methylene chloride	MG/KG	0.02									
Toluene	MG/KG	12	200								
Trichlorofluoromethane	MG/KG	39									
SVOCs (SW8270)											
Acetophenone	MG/KG		199								
Bis(2-Ethylhexyl)phthalate	MG/KG	35									
Butylbenzylphthalate	MG/KG	1,200									
Chrysene	MG/KG	62	18.8								
Di-n-butylphthalate	MG/KG	610	200								
Dimethylphthalate	MG/KG	100,000	200								
Fluoranthene	MG/KG	230	26.5								
Pyrene	MG/KG	230	32.3								
PCBs (SW8082)											
Aroclor, Total	MG/KG										
Aroclor-1242	MG/KG			-		-	-	-	-	-	-
Aroclor-1248	MG/KG			**43**		**0.96**	-	-	-	-	-
Metals (SW6010B)											
Aluminum	MG/KG	7,600	50								
Antimony	MG/KG	3.1	0.27								
Arsenic	MG/KG	0.39	18								
Barium	MG/KG	540	330								
Beryllium	MG/KG	15	10								
Cadmium	MG/KG	3.7	0.36								
Calcium	MG/KG										
Chromium	MG/KG	21	0.4								
Cobalt	MG/KG	470	13								
Copper	MG/KG	310	28								
Iron	MG/KG	2,300	200								
Lead	MG/KG	400	11								
Magnesium	MG/KG										
Manganese	MG/KG	180	100								
Mercury	MG/KG	2.3	0.1								
Nickel	MG/KG	160	30								
Potassium	MG/KG										
Selenium	MG/KG	39	0.52								
Silver	MG/KG	39	2								
Sodium	MG/KG										
Thallium	MG/KG	0.52	1								
Vanadium	MG/KG	55	2								
Zinc	MG/KG	2,300	49								

Table 4.1-3
Summary of Mine Operations Surface Soil Sample Results

				Aoc Name	Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area	
				Exposure Area	Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A	
				Field Sample Date	8/14/2007		8/14/2007		8/14/2007		8/14/2007		10/2/2007		10/2/2007		10/2/2007	
				Loc Name	SS-7206		SS-7207		SS-7208		SS-7103		SS-7209		SS-7212		SS-7213	
				Sample ID	SS-720600001XX		SS-720700001XX		SS-720800001XX		SS-710301001XX		SS-720900001XX		SS-721200001XX		SS-721300001XX	
				Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**		Result		Result		Result		Result		Result		Result		Result	
VOCs (SW8082)																		
1,2-Dichlorobenzene	MG/KG	17	20															
1,3-Dichlorobenzene	MG/KG	1.6	20															
2-Hexanone	MG/KG																	
4-Methyl-2-pentanone	MG/KG	79																
Acetic acid, methyl ester	MG/KG	220																
Acetone	MG/KG	16	350															
Carbon disulfide	MG/KG	36																
Chlorodibromomethane	MG/KG																	
Chloroform	MG/KG	0.36																
Dichlorodifluoromethane	MG/KG	9.4																
Methyl Tertbutyl Ether	MG/KG	62																
Methylene chloride	MG/KG	0.02																
Toluene	MG/KG	12	200															
Trichlorofluoromethane	MG/KG	39																
SVOCs (SW8270)																		
Acetophenone	MG/KG		199															
Bis(2-Ethylhexyl)phthalate	MG/KG	35																
Butylbenzylphthalate	MG/KG	1,200																
Chrysene	MG/KG	62	18.8															
Di-n-butylphthalate	MG/KG	610	200															
Dimethylphthalate	MG/KG	100,000	200															
Fluoranthene	MG/KG	230	26.5															
Pyrene	MG/KG	230	32.3															
PCBs (SW8082)																		
Aroclor, Total	MG/KG																	
Aroclor-1242	MG/KG			-		**7900**		**37**		**300**		**0.051**	J	-		**0.22**	J	
Aroclor-1248	MG/KG			**1.9**		-		-		-		-		-		-		
Metals (SW6010B)																		
Aluminum	MG/KG	7,600	50															
Antimony	MG/KG	3.1	0.27															
Arsenic	MG/KG	0.39	18															
Barium	MG/KG	540	330															
Beryllium	MG/KG	15	10															
Cadmium	MG/KG	3.7	0.36															
Calcium	MG/KG																	
Chromium	MG/KG	21	0.4															
Cobalt	MG/KG	470	13															
Copper	MG/KG	310	28															
Iron	MG/KG	2,300	200															
Lead	MG/KG	400	11															
Magnesium	MG/KG																	
Manganese	MG/KG	180	100															
Mercury	MG/KG	2.3	0.1															
Nickel	MG/KG	160	30															
Potassium	MG/KG																	
Selenium	MG/KG	39	0.52															
Silver	MG/KG	39	2															
Sodium	MG/KG																	
Thallium	MG/KG	0.52	1															
Vanadium	MG/KG	55	2															
Zinc	MG/KG	2,300	49															

Table 4.1-3
Summary of Mine Operations Surface Soil Sample Results

				Aoc Name	Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area	
				Exposure Area	Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A	
				Field Sample Date	10/2/2007		10/2/2007		10/2/2007		10/2/2007		11/7/2007		11/7/2007		11/7/2007	
				Loc Name	SS-7216		SS-7218		SS-7221		SS-7228		SS-7232		SS-7233		SS-7234	
				Sample ID	SS-721600001XX		SS-721800001XX		SS-722100001XX		SS-722800001XX		SS-723200001XX		SS-723300001XX		SS-723400001XX	
				Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**		Result		Result		Result		Result		Result		Result		Result	
VOCs (SW8082)																		
1,2-Dichlorobenzene	MG/KG	17	20															
1,3-Dichlorobenzene	MG/KG	1.6	20															
2-Hexanone	MG/KG																	
4-Methyl-2-pentanone	MG/KG	79																
Acetic acid, methyl ester	MG/KG	220																
Acetone	MG/KG	16	350															
Carbon disulfide	MG/KG	36																
Chlorodibromomethane	MG/KG																	
Chloroform	MG/KG	0.36																
Dichlorodifluoromethane	MG/KG	9.4																
Methyl Tertbutyl Ether	MG/KG	62																
Methylene chloride	MG/KG	0.02																
Toluene	MG/KG	12	200															
Trichlorofluoromethane	MG/KG	39																
SVOCs (SW8270)																		
Acetophenone	MG/KG		199															
Bis(2-Ethylhexyl)phthalate	MG/KG	35																
Butylbenzylphthalate	MG/KG	1,200																
Chrysene	MG/KG	62	18.8															
Di-n-butylphthalate	MG/KG	610	200															
Dimethylphthalate	MG/KG	100,000	200															
Fluoranthene	MG/KG	230	26.5															
Pyrene	MG/KG	230	32.3															
PCBs (SW8082)																		
Aroclor, Total	MG/KG																	
Aroclor-1242	MG/KG				**64**	J	-		**5.8**	J	**0.32**	J	-		-		**0.38**	
Aroclor-1248	MG/KG				-		-		-		-		-		-		-	
Metals (SW6010B)																		
Aluminum	MG/KG	7,600	50															
Antimony	MG/KG	3.1	0.27															
Arsenic	MG/KG	0.39	18															
Barium	MG/KG	540	330															
Beryllium	MG/KG	15	10															
Cadmium	MG/KG	3.7	0.36															
Calcium	MG/KG																	
Chromium	MG/KG	21	0.4															
Cobalt	MG/KG	470	13															
Copper	MG/KG	310	28															
Iron	MG/KG	2,300	200															
Lead	MG/KG	400	11															
Magnesium	MG/KG																	
Manganese	MG/KG	180	100															
Mercury	MG/KG	2.3	0.1															
Nickel	MG/KG	160	30															
Potassium	MG/KG																	
Selenium	MG/KG	39	0.52															
Silver	MG/KG	39	2															
Sodium	MG/KG																	
Thallium	MG/KG	0.52	1															
Vanadium	MG/KG	55	2															
Zinc	MG/KG	2,300	49															

Notes:
AOC - Area of Concern
Dash "-" represents analyte analyzed for and not detected
Blank cell = not analyzed

Qualifiers = J - estimated value
R- rejected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the USEPA Region IX PRGs

Prepared\Date: JKR 02/29/08
Checked\Date: SFC 03/28/08

Table source: MACTEC 2009, Callahan Mine Superfund Site, Final RI Report

Table 4.2-8
Summary of Volatile and Semi-volatile Compounds (Includes Diesel Range and Gasoline Range Organics) in Soil and Waste Rock

			AOC Name	Ore Pad		Ore Pad		Ore Pad		Ore Pad		Mine Ops Area		Mine Ops Area	
			Location	SB-615		SB-615		SB-615		SB-616		SB-613		SB-613	
			Sample ID	SB-615001XXXXD		SB-615001XXXXX		SB-615006XXXXX		SB-616001XXXXX		SB-613001XXXXX		SB-613010XXXXX	
			Sample Date	6/15/2006		6/15/2006		6/15/2006		6/16/2006		6/6/2006		6/6/2006	
			Fraction	Total		Total		Total		Total		Total		Total	
			Top Depth	1		1		6		1		1		10	
			Bottom Depth	2		2		7		2		2		11	
			QC Code	FD		FS		FS		FS		FS		FS	
Parameter	**RES**	**GW**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs															
2-Hexanone	NA	NA	MG/KG	-		-		-		-		-		-	
4-Methyl-2-pentanone	790	NA	MG/KG	-		-		-		-		0.006	J	-	
Acetic acid, methyl ester	22,000	NA	MG/KG	-		-		-		-		-		-	
Acetone	1,600	NA	MG/KG	-		-		-		-		-		-	
Carbon disulfide	360	NA	MG/KG	-		-		-		-		-		-	
Chlorodibromomethane	1.1	NA	MG/KG	-		-		-		-		-		-	
Chloroform	3.6	NA	MG/KG	-		-		-		-		-		-	
Dichlorodifluoromethane	94	NA	MG/KG	0.015		0.012		0.039	J	-		-		-	
Methyl Tertbutyl Ether	62	NA	MG/KG	-		-		-		-		-		-	
Methylene chloride	9.1	28	MG/KG	-		-		-		-		-		-	
Toluene	520	12	MG/KG	-		-		-		-		-		0.005	J
Trichlorofluoromethane	390	NA	MG/KG	0.001	J	-		-		-		-		-	
SVOCs															
All Target Compounds	NA	NA	MG/KG	-		-				-		-			
DRO/GRO															
Diesel Range Organics	NA	NA	MG/KG												
Gasoline Range Organics	NA	NA	MG/KG												

Table 4.2-8
Summary of Volatile and Semi-volatile Compounds (Includes Diesel Range and Gasoline Range Organics) in Soil and Waste Rock

			AOC Name	Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		WRP-1		WRP-1	
			Location	TP-7119		TP-7124		SB-614		SB-614		SB-606		SB-606	
			Sample ID	TP-711909001XX		TP-712403001XX		SB-614000XXXXX		SB-614002XXXXX		SB-606004XXXXX		SB-606009XXXXX	
			Sample Date	7/18/2007		7/18/2007		6/6/2006		6/8/2006		6/19/2006		6/19/2006	
			Fraction	Total		Total		Total		Total		Total		Total	
			Top Depth	9		3		0		2		4		9	
			Bottom Depth	10		4		1		3		6		10	
			QC Code	FS		FS		FS		FS		FS		FS	
Parameter	**RES**	**GW**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs															
2-Hexanone	NA	NA	MG/KG					-		-		-		-	
4-Methyl-2-pentanone	790	NA	MG/KG					-		0.005	J	-		-	
Acetic acid, methyl ester	22,000	NA	MG/KG					-		-		-		-	
Acetone	1,600	NA	MG/KG					-		-		-		-	
Carbon disulfide	360	NA	MG/KG					-		-		-		0.007	
Chlorodibromomethane	1.1	NA	MG/KG					-		-		-		-	
Chloroform	3.6	NA	MG/KG					-		-		0.0008	J	-	
Dichlorodifluoromethane	94	NA	MG/KG					-		-		-		-	
Methyl Tertbutyl Ether	62	NA	MG/KG					-		-		-		-	
Methylene chloride	9.1	28	MG/KG					-		-		-		-	
Toluene	520	12	MG/KG					-		-		-		-	
Trichlorofluoromethane	390	NA	MG/KG					-		-		-		-	
SVOCs															
All Target Compounds	NA	NA	MG/KG					-						-	
DRO/GRO															
Diesel Range Organics	NA	NA	MG/KG	4900		13000									
Gasoline Range Organics	NA	NA	MG/KG	160		390									

Table 4.2-8
Summary of Volatile and Semi-volatile Compounds (Includes Diesel Range and Gasoline Range Organics) in Soil and Waste Rock

			AOC Name	WRP-1		WRP-1		WRP-1		WRP-1		WRP-1		WRP-1	
			Location	SB-606		SB-607		SB-607		SB-608		SB-609		SB-619	
			Sample ID	SB-606020XXXXX		SB-607001XXXXX		SB-607004XXXXX		SB-608006XXXXX		SB-609000XXXXX		SB-619001XXXX	
			Sample Date	6/19/2006		6/13/2006		6/13/2006		6/12/2006		6/9/2006		6/27/2006	
			Fraction	Total		Total		Total		Total		Total		Total	
			Top Depth	20		1		4		6		0		1	
			Bottom Depth	22		2		6		7		2		2	
			QC Code	FS		FS		FS		FS		FS		FS	
Parameter	**RES**	**GW**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs															
2-Hexanone	NA	NA	MG/KG	-		-		-		-		-		-	
4-Methyl-2-pentanone	790	NA	MG/KG	-		-		-		-		-		-	
Acetic acid, methyl ester	22,000	NA	MG/KG	-		-		-		-		-		-	
Acetone	1,600	NA	MG/KG	-		-		-		-		-		-	
Carbon disulfide	360	NA	MG/KG	-		-		-		-		-		0.001	J
Chlorodibromomethane	1.1	NA	MG/KG	-		-		-		-		-		-	
Chloroform	3.6	NA	MG/KG	-		-		-		-		-		-	
Dichlorodifluoromethane	94	NA	MG/KG	-		0.086	J	0.12	J	0.093	J	0.054		0.018	
Methyl Tertbutyl Ether	62	NA	MG/KG	-		-		-		-		-		-	
Methylene chloride	9.1	28	MG/KG	-		0.006	J	-		-		-		-	
Toluene	520	12	MG/KG	-		-		-		-		-		-	
Trichlorofluoromethane	390	NA	MG/KG	0.003	J	0.004	J	-		-		-		-	
SVOCs															
All Target Compounds	NA	NA	MG/KG			-				-		-		-	
DRO/GRO															
Diesel Range Organics	NA	NA	MG/KG												
Gasoline Range Organics	NA	NA	MG/KG												

Table 4.2-8
Summary of Volatile and Semi-volatile Compounds (Includes Diesel Range and Gasoline Range Organics) in Soil and Waste Rock

			AOC Name	WRP-1		WRP-1		WRP-1		WRP-2		WRP-2		WRP-3	
			Location	SB-619		SB-619		SB-620		SB-611		SB-617		SB-612	
			Sample ID	SB-619001XXXXD		SB-619007XXXX		SB-620018XXXXX		SB-611002XXXXX		SB-617002XXXXX		SB-612001XXXXX	
			Sample Date	6/27/2006		6/27/2006		6/27/2006		6/16/2006		6/16/2006		6/14/2006	
			Fraction	Total		Total		Total		Total		Total		Total	
			Top Depth	1		7		18		2		2		1	
			Bottom Depth	2		8		19		3		3		2	
			QC Code	FD		FS		FS		FS		FS		FS	
Parameter	**RES**	**GW**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs															
2-Hexanone	NA	NA	MG/KG	-		-		-		-		-		-	
4-Methyl-2-pentanone	790	NA	MG/KG	-		-		-		-		-		-	
Acetic acid, methyl ester	22,000	NA	MG/KG	-		-		-		-		-		-	
Acetone	1,600	NA	MG/KG	-		-		-		-		-		-	
Carbon disulfide	360	NA	MG/KG	0.0007	J	0.004	J	0.022		-		-		-	
Chlorodibromomethane	1.1	NA	MG/KG	-		-		-		-		-		-	
Chloroform	3.6	NA	MG/KG	-		-		-		-		-		-	
Dichlorodifluoromethane	94	NA	MG/KG	0.009		0.015		0.28	J	0.074		-		0.14	J
Methyl Tertbutyl Ether	62	NA	MG/KG	-		-		-		-		-		-	
Methylene chloride	9.1	28	MG/KG	-		-		-		-		-		-	
Toluene	520	12	MG/KG	-		-		-		-		-		-	
Trichlorofluoromethane	390	NA	MG/KG	-		-		-		-		-		-	
SVOCs															
All Target Compounds	NA	NA	MG/KG					-		-		-		-	
DRO/GRO															
Diesel Range Organics	NA	NA	MG/KG												
Gasoline Range Organics	NA	NA	MG/KG												

Table 4.2-8
Summary of Volatile and Semi-volatile Compounds (Includes Diesel Range and Gasoline Range Organics) in Soil and Waste Rock

			AOC Name	WRP-3		Tailings Pile		Tailings Pile		Tailings Pile		Tailings Pile		Tailings Pile	
			Location	SB-612		MW-604R		MW-604R		MW-604R		MW-604R		MW-604R	
			Sample ID	SB-612008XXXXX		MW-604R001XXXX		MW-604R005XXXD		MW-604R005XXXX		MW-604R025XXXX		MW-604R056XXXX	
			Sample Date	6/14/2006		6/23/2006		6/27/2006		6/23/2006		6/23/2006		6/27/2006	
			Fraction	Total		Total		Total		Total		Total		Total	
			Top Depth	8		1		5		5		25		56	
			Bottom Depth	9		2		6		6		26		57	
			QC Code	FS		FS		FD		FS		FS		FS	
Parameter	**RES**	**GW**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs															
2-Hexanone	NA	NA	MG/KG	-		-		-		-		-		-	
4-Methyl-2-pentanone	790	NA	MG/KG	-		-		-		-		-		-	
Acetic acid, methyl ester	22,000	NA	MG/KG	-		-		-		-		-		-	
Acetone	1,600	NA	MG/KG	-		-		-		-		-		-	
Carbon disulfide	360	NA	MG/KG	-		-		0.016	J	0.007	J	0.01		0.035	
Chlorodibromomethane	1.1	NA	MG/KG	-		-		-		-		-		-	
Chloroform	3.6	NA	MG/KG	-		-		-		-		-		-	
Dichlorodifluoromethane	94	NA	MG/KG	0.054	J	0.006		0.014		0.009		0.053		0.15	
Methyl Tertbutyl Ether	62	NA	MG/KG	-		-		-		-		-		-	
Methylene chloride	9.1	28	MG/KG	-		-		-		-		-		-	
Toluene	520	12	MG/KG	-		-		-		-		-		-	
Trichlorofluoromethane	390	NA	MG/KG	-		-		-		-		-		-	
SVOCs															
All Target Compounds	NA	NA	MG/KG							-				-	
DRO/GRO															
Diesel Range Organics	NA	NA	MG/KG												
Gasoline Range Organics	NA	NA	MG/KG												

Table 4.2-8
Summary of Volatile and Semi-volatile Compounds (Includes Diesel Range and Gasoline Range Organics) in Soil and Waste Rock

			AOC Name	Tailings Pile		Tailings Pile		Tailings Pile		Tailings Pile		Tailings Pile		Tailings Pile	
			Location	SB-601		SB-601		SB-601		SB-602		SB-602		SB-602	
			Sample ID	SB-601002XXXXX		SB-601004XXXXX		SB-601010XXXXX		SB-602002XXXXX		SB-602006XXXXX		SB-602038XXXXX	
			Sample Date	7/10/2006		7/10/2006		7/10/2006		7/6/2006		7/6/2006		7/7/2006	
			Fraction	Total		Total		Total		Total		Total		Total	
			Top Depth	2		4		10		2		6		38	
			Bottom Depth	4		6		12		4		8		40	
			QC Code	FS		FS		FS		FS		FS		FS	
Parameter	**RES**	**GW**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs															
2-Hexanone	NA	NA	MG/KG	-		-		-		-		-		0.031	
4-Methyl-2-pentanone	790	NA	MG/KG	0.012	J	-		-		-		-		0.058	
Acetic acid, methyl ester	22,000	NA	MG/KG	0.008		-		-		-		-		-	
Acetone	1,600	NA	MG/KG	-		-		-		-		-		0.12	J
Carbon disulfide	360	NA	MG/KG	0.026		0.014		0.01		0.01		0.018		0.015	
Chlorodibromomethane	1.1	NA	MG/KG	-		-		-		0.002	J	-		-	
Chloroform	3.6	NA	MG/KG	-		-		-		-		-		-	
Dichlorodifluoromethane	94	NA	MG/KG	0.033		0.037		0.076		0.045		0.11		0.032	
Methyl Tertbutyl Ether	62	NA	MG/KG	-		0.008		0.008		-		-		-	
Methylene chloride	9.1	28	MG/KG	-		-		-		-		-		-	
Toluene	520	12	MG/KG	-		-		-		-		-		-	
Trichlorofluoromethane	390	NA	MG/KG	-		-		0.001	J	-		0.001	J	-	
SVOCs															
All Target Compounds	NA	NA	MG/KG	-						-					
DRO/GRO															
Diesel Range Organics	NA	NA	MG/KG												
Gasoline Range Organics	NA	NA	MG/KG												

Table 4.2-8
Summary of Volatile and Semi-volatile Compounds (Includes Diesel Range and Gasoline Range Organics) in Soil and Waste Rock

			AOC Name	Tailings Pile		Tailings Pile		Tailings Pile		Tailings Pile		Tailings Pile		Tailings Pile	
			Location	SB-603		SB-603		SB-603		SB-605A		SB-605A		SB-605B	
			Sample ID	SB-603003XXXXX		SB-603008XXXXX		SB-603016XXXXX		SB-605002XXXXX		SB-605006XXXXX		SB-605B024XXXX	
			Sample Date	7/11/2006		7/11/2006		7/11/2006		7/12/2006		7/12/2006		7/12/2006	
			Fraction	Total		Total		Total		Total		Total		Total	
			Top Depth	3		8		16		2		6		24	
			Bottom Depth	4		10		18		4		8		26	
			QC Code	FS		FS		FS		FS		FS		FS	
Parameter	**RES**	**GW**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs															
2-Hexanone	NA	NA	MG/KG	-		-		-		-		-		-	
4-Methyl-2-pentanone	790	NA	MG/KG	-		-		-		-		-		-	
Acetic acid, methyl ester	22,000	NA	MG/KG	-		-		-		-		-		-	
Acetone	1,600	NA	MG/KG	-		-		-		-		-		-	
Carbon disulfide	360	NA	MG/KG	0.03		0.014		0.016		0.019		0.024		0.038	
Chlorodibromomethane	1.1	NA	MG/KG	-		-		-		-		-		-	
Chloroform	3.6	NA	MG/KG	-		-		-		-		-		-	
Dichlorodifluoromethane	94	NA	MG/KG	0.17		0.068		0.11		0.28		0.12		0.057	
Methyl Tertbutyl Ether	62	NA	MG/KG	-		-		-		-		-		-	
Methylene chloride	9.1	28	MG/KG	-		-		-		-		-		-	
Toluene	520	12	MG/KG	-		-		-		-		-		-	
Trichlorofluoromethane	390	NA	MG/KG	-		-		-		-		-		-	
SVOCs															
All Target Compounds	NA	NA	MG/KG			-						-			
DRO/GRO															
Diesel Range Organics	NA	NA	MG/KG												
Gasoline Range Organics	NA	NA	MG/KG												

Notes:
RES - Region 9 Residential Surface Soil, or MEDEP Remedial Action Guideline (RAG).
GW - MEDEP Groundwater RAGs.
Dash "-" represents analyte analyzed for and not detected
Blank cell = not analyzed
Qualifiers = J - estimated value
Shaded cell = greater than lower of RES and GW

Prepared/Date: SFC 03/29/07
Checked/Date: JKR 07/05/07

Table source: MACTEC 2009, Callahan Mine Superfund Site, Final RI Report

Table 4.1-11
Summary of Residential Area Surface Soil Sample Results

Parameter	Units	Human	Ecological	Halo Residential Soil 8/1/2007 SS-7243H SS-7243H0001XX FS Result		Halo Residential Soil 8/1/2007 SS-7244H SS-7244H0001XX FS Result	
Metals (SW6010B)							
Aluminum	MG/KG	7,600	50	**16900**	J	**23500**	J
Antimony	MG/KG	3.1	0.27	1.3	J	**3.8**	J
Arsenic	MG/KG	0.39	18	**33.7**		**47.5**	
Barium	MG/KG	540	330	19.2		23.8	
Beryllium	MG/KG	15	10	0.29	J	0.42	J
Cadmium	MG/KG	3.7	0.36	**22.3**		**23.4**	
Calcium	MG/KG			9460	J	9640	
Chromium	MG/KG	21	0.4	**35.6**		**57.5**	J
Cobalt	MG/KG	470	13	7.2		8	J
Copper	MG/KG	310	28	**936**		**1250**	
Iron	MG/KG	2,300	200	**19800**		**25400**	
Lead	MG/KG	400	11	346		**633**	
Magnesium	MG/KG			20000		35900	
Manganese	MG/KG	180	100	**522**		**685**	
Nickel	MG/KG	160	30	29		32.4	
Potassium	MG/KG			1240	J	1760	J
Selenium	MG/KG	39	0.52	1.2	J	1.7	J
Silver	MG/KG	39	2	2.1		2.9	J
Sodium	MG/KG			-		**77.7**	J
Thallium	MG/KG	0.52	1	0.42		-	
Vanadium	MG/KG	55	2	23.6		26	
Zinc	MG/KG	2,300	49	**7420**		**6550**	
Mercury	MG/KG	2.3	0.1	0.29		1	

Table 4.1-11
Summary of Residential Area Surface Soil Sample Results

Parameter	Units	Human	Ecological	Aoc Name / Exposure Area / Field Sample Date / Loc Name / Sample ID / Qc Code / Result		Halo / Residential Soil / 8/1/2007 / SS-7247H / SS-7247H0001XX / FS / Result		Halo / Residential Soil / 8/2/2007 / SS-7248H / SS-7248H0001XX / FS / Result		Halo / Residential Soil / 8/2/2007 / SS-7249H / SS-7249H0001XX / FS / Result		Halo / Residential Soil / 8/2/2007 / SS-7251H / SS-7251H0001XX / FS / Result	
Metals (SW6010B)													
Aluminum	MG/KG	7,600	50	**24400**	J	**14500**	J	**17400**	J	**19500**	J		
Antimony	MG/KG	3.1	0.27	0.51	J	0.38	J	1.1	J	-			
Arsenic	MG/KG	0.39	18	**14.1**		**12.5**		**10.2**		**11.8**			
Barium	MG/KG	540	330	100		45.4		92.7		59.8			
Beryllium	MG/KG	15	10	0.69		0.37	J	0.44	J	0.52			
Cadmium	MG/KG	3.7	0.36	0.36		**5.4**		**6.1**		1.2			
Calcium	MG/KG			1080	J	1810	J	3290		2850	J		
Chromium	MG/KG	21	0.4	**40.8**		19.1		**26.2**	J	**25**			
Cobalt	MG/KG	470	13	9.4		5.7		3.6	J	5.4			
Copper	MG/KG	310	28	42.8		**388**		124		54.7			
Iron	MG/KG	2,300	200	**29900**		**16900**		**19800**		**20600**			
Lead	MG/KG	400	11	124		208		337		90.8			
Magnesium	MG/KG			6210		6240		4060		4060			
Manganese	MG/KG	180	100	**471**		**366**		**336**		**299**			
Nickel	MG/KG	160	30	30.5		15.9		14.1		17.8			
Potassium	MG/KG			2530	J	867	J	1280	J	1350	J		
Selenium	MG/KG	39	0.52	-		-		0.48	J	-			
Silver	MG/KG	39	2	-		0.72	J	0.2	J	-			
Sodium	MG/KG			-		-		**156**	J	-			
Thallium	MG/KG	0.52	1	0.21	J	0.15	J	-		0.14	J		
Vanadium	MG/KG	55	2	41		20.8		28.5		29.1			
Zinc	MG/KG	2,300	49	200		1220		1640		301			
Mercury	MG/KG	2.3	0.1	0.06		0.26		0.2		0.11			

Notes:
AOC - Area of Concern
Dash "-" represents analyte analyzed for and not detected
Blank cell = not analyzed
Qualifiers = J - estimated value
R- rejected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the USEPA Region IX PRGs

Prepared\Date: JKR 02/29/08
Checked\Date: SFC 03/28/08

Table source: MACTEC 2009, Callahan Mine Superfund Site, Final RI Report

Table R-2.4
Summary of XRF Surface Soil Sample Results-Halo
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Halo		Halo		Halo		Halo		Halo		Halo		Halo	
			Exposure Area	Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil	
			Field Sample Date	8/1/2007		8/1/2007		8/1/2007		8/1/2007		8/1/2007		8/2/2007		8/2/2007	
			Loc Name	SS-7243H		SS-7244H		SS-7245H		SS-7246H		SS-7247H		SS-7250H		SS-7248H	
			Sample ID	SS-7243H0001XX		SS-7244H0001XX		SS-7245H0001XX		SS-7246H0001XX		SS-7247H0001XX		SS-7250H0001XX		SS-7248H0001XX	
			Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result		Result		Result	
XRF																	
Antimony	MG/KG	3.1	0.27	-		-		-		-		-		-		-	
Arsenic	MG/KG	0.39	18	**35**		**56**		**41**		**27**		**13**		**12**		**32**	
Barium	MG/KG	540	330	**770**		**1300**		-		**790**		-		-		-	
Cadmium	MG/KG	3.7	0.36	-		-		**37**	J	-		-		-		-	
Chromium	MG/KG	21	0.4	**130**		**160**		-		-		**98**		-		-	
Cobalt	MG/KG	470	13	-		-		-		-		-		-		-	
Copper	MG/KG	310	28	**860**		**1300**		**870**		110		45		69		**750**	
Lead	MG/KG	400	11	**580**		**1000**		**980**		**530**		160		90		**480**	
Manganese	MG/KG	180	100	**1200**		**1400**		**940**		**1500**		**750**		**540**		**910**	
Mercury	MG/KG	2.3	0.1	-		-		-		-		-		-		-	
Nickel	MG/KG	160	30	-		-		-		-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-		-		-		-	
Silver	MG/KG	39	2	-		-		-		-		-		-		-	
Thallium	MG/KG	0.52	1	-		-		-		-		-		-		-	
Zinc	MG/KG	2,300	49	**9700**		**11000**		**3300**		710		240		460		**2600**	

Notes:
AOC - Area of Concern
Dash "-" represents analyte analyzed for and not detected
Blank cell = not analyzed
Qualifiers = J - estimated value
R- rekected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table R-2.4
Summary of XRF Surface Soil Sample Results-Halo
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Halo		Halo		Halo		Halo		Halo		Halo	
			Exposure Area	Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil	
			Field Sample Date	8/2/2007		8/2/2007		8/2/2007		8/16/2007		8/16/2007		8/16/2007	
			Loc Name	SS-7249H		SS-7252H		SS-7251H		SS-7258H		SS-7253H		SS-7254H		SS-7255H	
			Sample ID	SS-7249H0001XX		SS-7252H0001XX		SS-7251H0001XX		SS-7258H0001XX		SS-7253H0001XX		SS-7254H0001XX		SS-7255H0001XX	
			Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result		Result		Result	
XRF																	
Antimony	MG/KG	3.1	0.27	-		-		-		-		-		-		-	
Arsenic	MG/KG	0.39	18	**30**		**14**		**21**		**39**		**42**		**30**		-	
Barium	MG/KG	540	330	**960**		-		-		**1200**		-		-		-	
Cadmium	MG/KG	3.7	0.36	**39**	J	-		-		-		-		-		-	
Chromium	MG/KG	21	0.4	-		-		-		**180**		-		-		-	
Cobalt	MG/KG	470	13	-		-		-		-		-		-		-	
Copper	MG/KG	310	28	250		41		72		**860**		**350**		100		25	
Lead	MG/KG	400	11	**660**		130		130		**540**		**720**		**480**		41	
Manganese	MG/KG	180	100	**920**		**980**		**540**		**1500**		**940**		**1000**		**650**	
Mercury	MG/KG	2.3	0.1	-		-		-		-		-		-		-	
Nickel	MG/KG	160	30	-		-		-		-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-		-		-		-	
Silver	MG/KG	39	2	-		-		-		-		-		-		-	
Thallium	MG/KG	0.52	1	-		-		-		-		-		-		-	
Zinc	MG/KG	2,300	49	**3500**		300		420		**5800**		**2400**		1300		150	

Notes:
AOC - Area of Concern
Dash "-" represents analyte analyzed for and not detected
Blank cell = not analyzed
Qualifiers = J - estimated value
R- rekected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table R-2.4
Summary of XRF Surface Soil Sample Results-Halo
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Halo		Halo		Halo		Halo		Halo		Halo	
			Exposure Area	Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil	
			Field Sample Date	8/16/2007		8/16/2007		9/12/2007		9/12/2007		9/12/2007		9/12/2007	
			Loc Name	SS-7256H		SS-7257H		SS-7259H		SS-7260H		SS-7261H		SS-7262H		SS-7263H	
			Sample ID	SS-7256H0001XX		SS-7257H0001XX		SS-7259H0001XX		SS-7260H0001XX		SS-7261H0001XX		SS-7262H0001XX		SS-7263H0001XX	
			Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result		Result		Result	
XRF																	
Antimony	MG/KG	3.1	0.27	-		-		-		-		-		-		-	
Arsenic	MG/KG	0.39	18	**19**		**19**		**13**		**17**		**11**		**10**		**86**	
Barium	MG/KG	540	330	-		-		-		-		-		-		-	
Cadmium	MG/KG	3.7	0.36	-		-		-		-		-		-		-	
Chromium	MG/KG	21	0.4	-		-		-		-		-		-		-	
Cobalt	MG/KG	470	13	-		-		-		-		-		-		-	
Copper	MG/KG	310	28	140		74		88		98		-		-		**1200**	
Lead	MG/KG	400	11	310		160		44		70		41		34		**1400**	
Manganese	MG/KG	180	100	**1000**		**640**		**350**		**360**		**450**		**740**		**1100**	
Mercury	MG/KG	2.3	0.1	-		-		-		-		-		-		-	
Nickel	MG/KG	160	30	-		-		-		-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-		-		-		-	
Silver	MG/KG	39	2	-		-		-		-		-		-		-	
Thallium	MG/KG	0.52	1	-		-		-		**21**		-		**18**		-	
Zinc	MG/KG	2,300	49	1300		590		330		350		160		200		**2600**	

Notes:
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EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table R-2.4
Summary of XRF Surface Soil Sample Results-Halo
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Halo		Halo		Halo		Halo		Halo		Halo	
			Exposure Area	Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil	
			Field Sample Date	9/12/2007		9/12/2007		9/12/2007		9/12/2007		9/12/2007		9/12/2007	
			Loc Name	SS-7265H		SS-7266H		SS-7267H		SS-7268H		SS-7269H		SS-7269H		SS-7270H	
			Sample ID	SS-7265H0001XX		SS-7266H0001XX		SS-7267H0001XX		SS-7268H0001XX		SS-7269H0001XD		SS-7269H0001XX		SS-7270H0001XX	
			Qc Code	FS		FS		FS		FS		FD		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result		Result		Result	
XRF																	
Antimony	MG/KG	3.1	0.27	-		-		-		-		-		-		-	
Arsenic	MG/KG	0.39	18	**19**		**40**		-		**30**		**30**		**56**		**49**	
Barium	MG/KG	540	330	-		-		-		-		-		-		-	
Cadmium	MG/KG	3.7	0.36	-		-		-		-		**48**		-		-	
Chromium	MG/KG	21	0.4	-		-		-		-		-		-		-	
Cobalt	MG/KG	470	13	-		260		-		280		-		210		-	
Copper	MG/KG	310	28	64		**1300**		**1400**		**450**		**1400**		**1300**		130	
Lead	MG/KG	400	11	200		**720**		**860**		**460**		**640**		**570**		**1500**	
Manganese	MG/KG	180	100	**520**		**1100**		**930**		**430**		**960**		**790**		**520**	
Mercury	MG/KG	2.3	0.1	-		-		-		-		-		-		-	
Nickel	MG/KG	160	30	-		-		-		-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-		-		-		-	
Silver	MG/KG	39	2	-		-		-		-		-		-		-	
Thallium	MG/KG	0.52	1	-		-		-		-		-		-		-	
Zinc	MG/KG	2,300	49	580		**6200**		**9200**		1100		**5500**		**5600**		2000	

Notes:
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EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table R-2.4
Summary of XRF Surface Soil Sample Results-Halo
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Halo		Halo		Halo		Halo		Halo		Halo	
			Exposure Area	Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil	
			Field Sample Date	9/12/2007		9/12/2007		9/12/2007		9/12/2007		9/12/2007		9/12/2007	
			Loc Name	SS-7271H		SS-7272H		SS-7273H		SS-7274H		SS-7275H		SS-7276H		SS-7277H	
			Sample ID	SS-7271H0001XX		SS-7272H0001XX		SS-7273H0001XX		SS-7274H0001XX		SS-7275H0001XX		SS-7276H0001XX		SS-7277H0001XX	
			Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result		Result		Result	
XRF																	
Antimony	MG/KG	3.1	0.27	-		-		-		-		-		-		-	
Arsenic	MG/KG	0.39	18	-		-		-		**14**		**14**		-		-	
Barium	MG/KG	540	330	-		-		-		-		-		-		-	
Cadmium	MG/KG	3.7	0.36	-		-		-		-		-		-		-	
Chromium	MG/KG	21	0.4	-		-		-		-		-		-		-	
Cobalt	MG/KG	470	13	-		-		-		220		-		160		-	
Copper	MG/KG	310	28	270		150		-		60		47		27		31	
Lead	MG/KG	400	11	**1100**		**800**		30		59		56		29		47	
Manganese	MG/KG	180	100	**2800**		**1200**		**330**		**330**		**380**		**240**		**270**	
Mercury	MG/KG	2.3	0.1	-		-		-		-		-		-		-	
Nickel	MG/KG	160	30	-		-		-		-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-		-		-		-	
Silver	MG/KG	39	2	-		-		-		-		-		-		-	
Thallium	MG/KG	0.52	1	-		-		-		-		-		-		-	
Zinc	MG/KG	2,300	49	**3600**		1600		74		470		250		110		140	

Notes:
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R- rekected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table R-2.4
Summary of XRF Surface Soil Sample Results-Halo
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Halo		Halo		Halo		Halo		Halo		Halo	
			Exposure Area	Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil		Residential Soil	
			Field Sample Date	9/12/2007		9/12/2007		9/12/2007		9/12/2007		9/12/2007		9/13/2007	
			Loc Name	SS-7278H		SS-7278H		SS-7279H		SS-7280H		SS-7281H		SS-7282H		SS-7283H	
			Sample ID	SS-7278H0001XD		SS-7278H0001XX		SS-7279H0001XX		SS-7280H0001XX		SS-7281H0001XX		SS-7282H0001XX		SS-7283H0001XX	
			Qc Code	FD		FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result		Result		Result	
XRF																	
Antimony	MG/KG	3.1	0.27	-		-		-		-		-		-		-	
Arsenic	MG/KG	0.39	18	-		**51**		**13**		**21**		-		**34**		**60**	
Barium	MG/KG	540	330	-		-		-		-		-		-		-	
Cadmium	MG/KG	3.7	0.36	-		-		-		-		-		-		-	
Chromium	MG/KG	21	0.4	-		-		-		-		-		-		-	
Cobalt	MG/KG	470	13	-		-		-		-		-		-		-	
Copper	MG/KG	310	28	-		140		-		-		120		200		**430**	
Lead	MG/KG	400	11	-		**1000**		22		-		280		240		**1100**	
Manganese	MG/KG	180	100	-		**190**		**340**		**320**		110		**360**		**1100**	
Mercury	MG/KG	2.3	0.1	-		-		-		-		-		-		-	
Nickel	MG/KG	160	30	-		-		-		-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-		-		-		-	
Silver	MG/KG	39	2	-		-		-		-		-		-		-	
Thallium	MG/KG	0.52	1	-		-		-		-		-		-		-	
Zinc	MG/KG	2,300	49	-		530		84		79		170		960		1300	

Notes:
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Blank cell = not analyzed
Qualifiers = J - estimated value
R- rekected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table R-2.4
Summary of XRF Surface Soil Sample Results-Halo
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Halo		Halo		Halo		Halo	
			Exposure Area	Residential Soil		Residential Soil		Residential Soil		Residential Soil	
			Field Sample Date	9/13/2007		9/13/2007		9/13/2007		9/13/2007	
			Loc Name	SS-7284H		SS-7285H		SS-7286H		SS-7287H	
			Sample ID	SS-7284H0001XX		SS-7285H0001XX		SS-7286H0001XX		SS-7287H0001XX	
			Qc Code	FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result	
XRF											
Antimony	MG/KG	3.1	0.27	-		-		-		-	
Arsenic	MG/KG	0.39	18	**57**		**17**		-		**45**	
Barium	MG/KG	540	330	-		-		-		-	
Cadmium	MG/KG	3.7	0.36	-		-		-		-	
Chromium	MG/KG	21	0.4	-		-		-		-	
Cobalt	MG/KG	470	13	180		270		200		-	
Copper	MG/KG	310	28	**810**		-		-		55	
Lead	MG/KG	400	11	**1000**		38		22		340	
Manganese	MG/KG	180	100	**960**		**300**		**350**		**760**	
Mercury	MG/KG	2.3	0.1	-		-		-		-	
Nickel	MG/KG	160	30	-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-	
Silver	MG/KG	39	2	-		-		-		-	
Thallium	MG/KG	0.52	1	-		-		-		-	
Zinc	MG/KG	2,300	49	2200		130		65		540	

Notes:
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Blank cell = not analyzed
Qualifiers = J - estimated value
R- rekected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table source: MACTEC 2009, Callahan Mine Superfund Site , Final RI Report, Appendix R
Checked by: SWR 09/16/2010

Table R-2.5
Summary of XRF Surface Soil Sample Results-Mine Ops
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area	
			Exposure Area	Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A	
			Field Sample Date	7/12/2007		7/12/2007		7/12/2007		7/12/2007		7/12/2007		7/12/2007	
			Loc Name	SS-7141		SS-7135		SS-7136		SS-7137		SS-7138		SS-7139	
			Sample ID	SS-714100001XX		SS-713500001XX		SS-713600001XX		SS-713700001XX		SS-713800001XX		SS-713900001XX	
			Qc Code	FS		FS		FS		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result		Result	
XRF															
Antimony	MG/KG	3.1	0.27	-		-		-		-		-		-	
Arsenic	MG/KG	0.39	18	**39**		**99**		**86**		**86**		**54**		**39**	
Barium	MG/KG	540	330	**1600**		**5400**		**4700**		**1800**		**1000**		**1800**	
Cadmium	MG/KG	3.7	0.36	-		**98**		**77**		**52**		**43**		**60**	
Chromium	MG/KG	21	0.4	**210**		-		**540**		**300**		**250**		-	
Cobalt	MG/KG	470	13	-		-		-		-		-		-	
Copper	MG/KG	310	28	**2300**		**16000**		**21000**		**5200**		**1900**		**4300**	
Lead	MG/KG	400	11	**960**		**2500**		**3000**		**2400**		**970**		**940**	
Manganese	MG/KG	180	100	**1600**		**2900**		**3300**		**3000**		**1400**		**1600**	
Mercury	MG/KG	2.3	0.1	-		-		-		-		-		-	
Nickel	MG/KG	160	30	-		-		-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-		-		-	
Silver	MG/KG	39	2	-		-		**120**		**110**		-		-	
Thallium	MG/KG	0.52	1	-		-		-		-		-		-	
Zinc	MG/KG	2,300	49	**12000**		**64000**		**62000**		**23000**		**12000**		**16000**	

Notes:
AOC - Area of Concern
Dash "-" represents analyte analyzed for and not detected
Blank cell = not analyzed
Qualifiers = J - estimated value
R- rekected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table R-2.5
Summary of XRF Surface Soil Sample Results-Mine Ops
Remedial Investigation Report

Callahan Mine Superfund Site
Brooksville, Maine

			Aoc Name	Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area		Mine Ops Area	
			Exposure Area	Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A		Exposure Area 9A	
			Field Sample Date	7/12/2007		7/18/2007		7/18/2007		7/18/2007		7/18/2007	
			Loc Name	SS-7140		TP-7119		TP-7119		TP-7119		TP-7121	
			Sample ID	SS-714000001XX		TP-711909001XD		TP-711909001XX		TP-711904001XX		TP-712101001XX	
			Qc Code	FS		FD		FS		FS		FS	
Parameter	**Units**	**Human**	**Ecological**	Result		Result		Result		Result		Result	
XRF													
Antimony	MG/KG	3.1	0.27	-		-		-		-		-	
Arsenic	MG/KG	0.39	18	**34**		-		**16**		**62**		-	
Barium	MG/KG	540	330	**1100**		-		-		**1500**		-	
Cadmium	MG/KG	3.7	0.36	**57**		-		-		**37**		-	
Chromium	MG/KG	21	0.4	**170**		-		-		-		-	
Cobalt	MG/KG	470	13	-		-		-		-		-	
Copper	MG/KG	310	28	**2100**		49		54		**2200**		280	
Lead	MG/KG	400	11	**520**		54		47		**980**		**430**	
Manganese	MG/KG	180	100	**1700**		**520**		**530**		**1500**		**590**	
Mercury	MG/KG	2.3	0.1	-		-		-		-		-	
Nickel	MG/KG	160	30	91		-		-		-		-	
Selenium	MG/KG	39	0.52	-		-		-		-		-	
Silver	MG/KG	39	2	-		-		-		-		-	
Thallium	MG/KG	0.52	1	-		-		-		-		-	
Zinc	MG/KG	2,300	49	**12000**		260		220		**9200**		510	

Notes:
AOC - Area of Concern
Dash "-" represents analyte analyzed for and not detected
Blank cell = not analyzed
Qualifiers = J - estimated value
R- rekected result
EB - contamination in associated equipment blank
Shaded cell = result greater than the lower of the human health or ecological screening value

Table source: MACTEC 2009, Callahan Mine Superfund Site , Final RI Report, Appendix R
Checked by: SWR 09/16/2010

APPENDIX B

VALUE ENGINEERING SCREEN

Value Engineering Screen
Callahan Mine Superfund Site
OU1 Remedial Action

Introduction

A value engineering (VE) screen is required as part of the design for Superfund Remedial Action programs (OSWER Directive 9355.5-24). A VE screen was performed for the Callahan Mine Superfund Site Operable Unit (OU) 1 Remedial Action as part of the Remedial Design.

Outcome

The VE screen for the Callahan Mine Superfund Site OU1 Remedial Action confirmed that the volume of material to be excavated, off-site disposal costs (including transportation), and interim management of materials are the critical cost elements for the OU1 Remedial Action. The Remedial Design was developed with a good understanding of these items and issues. The VE screen determined that a VE study would not be necessary for the Remedial Action because of the nature of the cleanup (excavation and disposal/stockpile) and the overall cost being below the $25 million level that would trigger a mandatory VE study. More detail regarding the VE screen is provided below.

Value Engineering Screen

Figure 4-13 of the U.S. Environmental Protection Agency (EPA) Remedial Design/Remedial Action Handbook (EPA 540/R-95/059) provides an outline of the factors to be considered in a VE screen. These factors were applied to the two major components of the Callahan Mine Superfund Site Operable Unit 1 Remedial Action. The components are:

1. Excavation of polychlorinated biphenyls (PCBs) in the former Mine Operations Area, off-site disposal of PCBs, and grading/restoration of disturbed areas; and

2. Excavation of arsenic, lead, and thallium contaminated soil in residential use properties and creation of a stockpile and management of the stockpile containing the arsenic/lead/thallium contaminated soil.

Common to all components of the Remedial Design is the response to the questions:

Was the design rushed?; and
Does it (Remedial Design) use traditional design?.

The design was completed on an accelerated schedule, but it was not rushed to the extent that quality or completeness is a concern. The Remedial Design is also fairly streamlined because of the nature of the work and follows the components of traditional design appropriate for the work. The initial submittal was the draft final Remedial Design. The initial design components (conceptual and intermediate) were addressed in technical meetings with EPA, Maine Department of Environmental Protection, and Maine Department of Transportation. This approach was a VE of the design process, given that the selected Remedial Action reduced initial cost and allowed for the project to be completed on schedule.

1. Excavation of PCBs in the Former Mine Operations Area and Off-Site disposal

This activity involves the excavation of PCBs above the Site cleanup level of 1 milligram per kilogram. The cost of this component for the Remedial Action is highly dependent upon the volume of soil/waste above the cleanup level. All other aspects, including methods and equipment, are fairly standard with flexibility in the design to accommodate the use of the most cost effective approach to excavate. A pre-excavation survey will be completed to better define the extent of contamination and allow for segregation of the material based on disposal requirements. The VE screen identified that the volume of material is the critical component relative to the cost of this component of the Remedial Action. The current volume estimate was based on the Remedial Investigation program sampling activities with a contingency adjustment for additional volume. A pre-excavation sampling program will be performed to refine the volume estimate. While the volume to be excavated is a significant cost factor, no changes to the Remedial Design would be necessary were the volume to increase as the cleanup approach is the only acceptable option for this material. The same is true for off-site disposal. The Remedial Design allows for the selection of the most cost-effective location that complies with the EPA Off-Site Rule.

The grading and restoration activities are standard construction activities that do not require special equipment. This cost will be driven by the need to ensure that the Site is very stable for the period between the implementation of OU1 and OU3 and that surface water run-on and run-

off for the area affected by the cleanup is properly addressed to avoid conditions that could increase the release of contamination to Goose Pond. Because the majority of the excavation will not be backfilled to allow for the OU3 Remedial Design to determine the final grading plan for that area, sediment basins and more extensive grading of the area leading into the Ore Pad area will be performed to prevent a release to surface water.

2. Excavation of Arsenic, Lead, and Thallium Contaminated Soil in Residential Use Properties

This activity involves the excavation of arsenic, lead, and thallium contaminated soil exceeding the Site cleanup levels of 14 mg/kg for arsenic; 375 mg/kg for lead; and 15 mg/kg for thallium. The Remedial Design allows for the material to placed at the western edge of the Tailings Impoundment. As with the first component, the cost of this component of the Remedial Action is highly dependent upon the volume of soil/waste above the cleanup levels. All other aspects, including methods and equipment, are standard construction activities with flexibility in the design to accommodate the use of the most cost effective excavation approach. A pre-excavation survey will be completed to better define the extent of contamination and allow for segregation of the material based on disposal requirements.

The VE screen identified that the volume of material is the critical component relative to the cost of this component of the Remedial Action. The current volume estimate was based on the sampling activities of the Remedial Investigation program with a contingency adjustment for additional volume. A pre-excavation sampling program will be performed to refine the volume estimate. While the volume to be excavated is a significant cost factor, no changes to the Remedial Design would be necessary were the volume to increase as the cleanup approach is the only acceptable option for this material.

The placement of the material at the back of the Tailings Impoundment was identified as an activity that would incur greater cost than simply creating a stockpile. The decision to place the material at the back of the Tailings Impoundment, however, avoids having to excavate and move the material a second time during the OU3 Remedial Action. In addition, the material will be placed in a manner and location that will contribute to the OU3 Remedial Action.

Summary

A VE screen was completed for the Callahan Mine Operable Unit 1 Remedial Design. The VE screen identified several components of the design that are critical items with respect to cost. The Remedial Design has taken these items into consideration in developing the final Remedial Design.

VE Screen Summary Table

Screening Question	**Component 1**	**Component 2**
Is the item expensive (relative to the other components of the Design)?	Yes	Yes
Is the item complex?	No	No
Is it a high-volume item? Can a simple change in one item produce large savings in the total project?	Yes	Yes
Does the item use critical materials?	No	No
Is it difficult to construct?	No	No
Does it have a high O & M cost?	No	No
Does it require specialized skills to construct or operate?	No	No
Does the design advocate proprietary technology (with royalties)?	No	No
Will it require highly trained personnel to operate?	No	No
Is the design treating everything using a single piece of equipment, when several pieces of equipment would be more cost effective and efficient?	No	No
Is the design using technology already proven in the industry in similar commercial applications?	Yes	Yes
Has the design used predesigned skids or equipment packages effectively?	N/A	N/A
Does it use obsolete materials and methods?	No	No
Was the design rushed?	See text	See text
Does it use traditional design?	See text	See text
Is the competition producing the item at a lower cost?	No	No

APPENDIX C
TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS
OPERABLE UNIT 1

Callahan Mine Superfund Site
Brooksville, Maine

DIVISION 1 – GENERAL REQUIREMENTS

DIVISION 2 – SITE WORK

These Technical Specifications have been revised and included within the Technical Specifications section of the Project Manual.

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ADDENDUM TO THE FINAL BASIS OF DESIGN REPORT

OPERABLE UNIT 1
CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

Prepared for:
Maine Department of Environmental Protection
Augusta, Maine

Prepared by:
CES, Inc.
Brewer, Maine

November 21, 2010
JN: 5992

CES INC

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Prepared for:
Maine Department of Environmental Protection
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1.0 INTRODUCTION

This Addendum to the Basis of Design Report has been prepared to summarize the changes that have occurred (or proposed) during the implementation phase of the Operable Unit (OU 1) Remedial Actions at Callahan Mine Superfund Site (Site). The *Final Basis of Design Report* (MACTEC, 2010) provides the conceptual description and design basis for the proposed remedial actions for the soil and mine waste material for OU 1. This addendum provides an overview of the additional information that is available since the *Final Basis of Design Report* (MACTEC, 2010) was published, and proposed changes to the OU 1 remedial actions.

1.1 GENERAL-PROJECT SCOPE

The changes to the general scope of the OU 1 remedial actions from the *Final Basis of Design Report* (MACTEC, 2010) include the following.

Residential Use Area

- The pre-excavation characterization of the Residential Use Area was completed in October 2010. The results of the characterization are summarized in Section 1.2.1 of this Addendum. The revised remediation boundaries are shown on the Implementation Drawings.

- The on-site wastewater treatment/disposal systems are within the contaminated areas, and therefore, replacement systems that comply with State regulations will need to be installed.

Establishing Interim Stockpile Area

- An Interim Stockpile within the Operational Area for the One Pad material will be established instead of the Tailings Impoundment.

PCB-Contaminated Soil

- The pre-excavation characterization of the PCB-contaminated Area was completed in October 2010. The results of the characterization are summarized in Section 1.2.2 of this Addendum. The revised remediation boundaries are shown on the Implementation Drawings.

Petroleum-Contaminated Soil Commingled with CERCLA Waste

- The pre-excavation characterization of this area was completed in October 2010. The results of the characterization are summarized in Section 1.2.3 of this Addendum.

- No further remediation is necessary in this area.

1.2 PROJECT WORK AREA

The following subsections provide a summary of the pre-excavation characterization that was performed in October 2010.

1.2.1 Residential Use Area

According to the remedial investigation (RI) the residential use area included Lots A, B, C, and D located along Old Mines Road. The residential use area is being expanded to include one previously uncharacterized property Lot E (Gray Property). Lot E (Gray Property) is located to the north of Goose Falls Road to the east of Goose Falls and comprises approximately 0.5 acres. The western portion of the Lot E borders Penobscot Bay and includes a permanent granite pier, two docks, and a boat ramp. The eastern portion of Lot E borders Holbrook Island Wildlife Sanctuary. The lot consists of a two story residence and storage shed. Approximately ten feet to the east of the residence is a vertical ledge that appears to be the eastern property boundary. The residence is served by a drilled well that is located approximately 12 feet to the south of the residence. The wastewater generated by the residence is treated by an overboard discharge system that discharges to the Penobscot Bay. The Overboard Discharge Treatment System includes a septic tank, sand filter and chlorination tank. The majority of Lot E consists of the paved and graveled driveway which provides access to the residence, boat ramp and southernmost dock. Evidence of waste rock was observed throughout the driveway. Two other properties were investigated as potential additions to the Residential Use Area. These properties were not shown to contain levels of contaminants that would require a response action.
The Sampling and Analysis Work Plan (Work Plan) included surface soil sampling on Lots A, B, C, and D to delineate the proposed excavation boundary for remediation. The Work Plan also included surface soil sampling on Lot E, the Hunter Property, and the Veague Property to assess whether surface soils had been affected by fugitive dust and/or contaminated fill on these previously uncharacterized properties. 179 surface soil samples were collected for on-site x-ray fluorescence (XRF) analysis for metals completed by the EPA's Mobile Laboratory. Of the 179 samples, 24 were sent for off-site metals analysis at the State of Maine Health and Environmental Testing Lab. The results for the field XRF and off site metals analyses are summarized in the table below.

Figure 1 depicts the surface soil samples that exceeded the site-specific cleanup levels (As > 14 mg/kg; Pb > 375 mg/kg; Tl >15 mg/kg), along with the proposed excavation area for remediation updated from the RI. Surface soil samples along with evidence of waste rock, observed throughout the driveway of Lot E, suggest that fugitive dust and/or contaminated fill exists on the property. As a result, Lot E is being included in the Residential Use Area portion of the Site. The proposed excavation area for remediation on Lot E is also shown on Figure 1.

Sample ID	Mobile Laboratory Results					State of Maine Laboratory Results		
	Copper (ppm)	Zinc (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)
RS 101	21	50	**20**	7	<5	-	-	-
RS 102	685	3028	**28**	320	<8	-	-	-
RS 103	302	685	**<15**	257	<8	**22**	300	<3
RS 104	13	40	<8	35	<5	-	-	-
RS 105	44	187	<11	132	<6	-	-	-
RS 106	40	233	9	76	6	-	-	-
RS 107	17	139	<11	153	<6	-	-	-
RS 108	44	135	<9	124	8	-	-	-
RS 109	12	71	7	18	5	-	-	-
RS 110	748	1716	**<29**	**1297**	<12	-	-	-
RS 110 (6" - 12")	390	947	**<15**	342	<7	3.9	**420**	<3
RS 111	16	72	<6	16	<5	-	-	-
RS 112	209	1048	**<16**	**480**	12	-	-	-
RS 112 (6" - 12")	138	1114	<13	258	9	-	-	-
RS 113	40	104	<8	60	10	-	-	-
RS 114	28	94	<6	55	12	-	-	-
RS 115	22	137	<9	79	<5	-	-	-
RS 116	14	77	<6	25	11	-	-	-
RS 117	19	101	<7	44	<5	-	-	-
RS 118	44	104	<10	134	<6	-	-	-
RS 119	<11	72	<6	20	<5	-	-	-
RS 120	68	299	<11	145	<6	-	-	-
RS 121	39	538	**<15**	334	<7	8.4	**610**	<3
RS 122	18	49	**19**	21	<5	**17**	16	<3
RS 123	67	866	**<17**	**477**	12	-	-	-
RS 124	18	55	**29**	12	<5	**22**	16	<3
RS 125	26	44	**27**	15	<5	-	-	-
RS 126	261	1427	**<21**	**598**	11	-	-	-
RS 127	316	2025	**<25**	**998**	**21**	-	-	-
RS 128	883	3968	**<29**	**1231**	13	-	-	-
RS 129	43	649	<8	91	<5	-	-	-
RS 301	318	2535	**<18**	**474**	<8	-	-	-
RS 301 (6" - 12")	519	2164	**<16**	341	<7	**15**	**860**	<3
RS 302	88	366	<10	94	<6	-	-	-
RS 303	29	373	13	36	6	-	-	-
RS 304	66	473	<12	202	<7	-	-	-
RS 305	35	301	<12	180	<6	-	-	-
RS 306	64	404	<8	100	10	-	-	-

Sample ID	Mobile Laboratory Results					State of Maine Laboratory Results		
	Copper (ppm)	Zinc (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)
RS 307	79	322	<9	100	12	-	-	-
RS 308	229	2763	**<24**	**917**	**16**	-	-	-
RS 308 (6" - 12")	69	971	<13	234	<7	-	-	-
RS 309	46	158	<7	51	<5	-	-	-
RS 310	44	128	<8	83	6	-	-	-
RS 311	50	178	<6	64	11	-	-	-
RS 312	163	116	<12	202	10	-	-	-
RS 313	99	410	<10	131	8	-	-	-
RS 314	236	378	**<16**	362	9	**16**	**660**	<3
RS 315	257	1052	**<19**	**615**	11	-	-	-
RS 316	429	3087	**<21**	**593**	<10	12	**610**	<3
RS 316 (18" - 24")	253	1713	**<17**	363	<8	-	-	-
RS 317	55	191	8	48	<5	-	-	-
RS 318	59	290	<11	110	<6	-	-	-
RS 319	31	87	10	33	10	-	-	-
RS 320	111	581	<12	187	8	-	-	-
RS 321	33	141	12	35	6	-	-	-
RS 322	222	177	<12	250	<6	-	-	-
RS 323	257	149	**<15**	305	<7	13	**510**	<3
RS 324	63	144	<7	82	7	-	-	-
RS 325	35	97	<7	61	<5	-	-	-
RS 326	166	582	<10	144	**21**	-	-	-
RS 327	84	281	<9	55	<6	-	-	-
RS 328	94	106	<10	98	<6	-	-	-
RS 329	40	118	12	48	<6	-	-	-
RS 330	38	133	10	36	<5	-	-	-
RS 331	149	491	<11	111	<6	-	-	-
RS 332	97	288	**19**	27	<5	7.8	37	<3
RS 333	33	124	**<20**	**505**	<9	-	-	-
RS 333 (12" - 18")	38	116	**21**	31	<5	-	-	-
RS 334	193	961	11	112	<6	-	-	-
RS 335	113	440	**<16**	272	<8	7.7	140	<3
RS 336	46	136	<6	64	15	-	-	-
RS 337	278	90	**17**	302	14	5.3	350	<3
RS 338	118	151	<6	48	**34**	3.9	83	<3
RS 339	336	664	<12	235	**16**	-	-	-
RS 340	14	52	<12	160	<7	-	-	-
RS 341	52	167	8	41	<6	-	-	-
RS 342	134	691	**19**	93	<6	12	200	<3

Sample ID	Mobile Laboratory Results					State of Maine Laboratory Results		
	Copper (ppm)	Zinc (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)
RS 342 (24" - 30")	429	1138	**24**	116	<6	-	-	-
RS 343	6774	15939	**<37**	**1129**	**<16**	-	-	-
RS 343 (12" - 16")	3284	10803	**<31**	**937**	<14	-	-	-
RS 344	652	2306	<14	177	<7	11	220	<3
RS 344 (6" - 12")	277	1438	**24**	125	<6	-	-	-
RS 345	434	1038	<10	79	<6	-	-	-
RS 346	346	1335	**<19**	**573**	**18**	-	-	-
RS 347	38	108	<9	87	7	-	-	-
RS 348	74	292	<11	137	9	-	-	-
RS 348 (24" - 30")	50	89	<8	50	<6	-	-	-
RS 349	54	385	<8	94	15	-	-	-
RS 350	29	91	11	26	<5	-	-	-
RS 351	50	222	<7	37	<5	-	-	-
RS 352	83	217	<11	123	<6	-	-	-
RS 353	12	50	<7	23	<5	-	-	-
RS 354	33	183	<9	72	6	-	-	-
RS 355	20	78	9	26	<5	-	-	-
RS 356	28	124	<8	48	<5	-	-	-
RS 357	33	186	<8	62	<5	-	-	-
RS 358	21	141	9	52	10	-	-	-
RS 359	24	175	11	101	8	-	-	-
RS 360	38	149	<10	97	<6	-	-	-
RS 361	12	49	8	29	<5	-	-	-
RS 362	40	836	**<15**	**380**	<7	-	-	-
RS 363	24	116	<8	65	8	-	-	-
RS 364	32	217	<10	122	7	-	-	-
RS 365	<12	77	**17**	62	6	4.3	66	<3
RS 366	<12	16	<6	17	<5	-	-	-
RS 367	<11	87	<7	36	<5	-	-	-
RS 368	19	42	9	18	<5	-	-	-
RS 369	<10	24	<6	16	<4	-	-	-
RS 370	13	74	<6	33	<5	-	-	-
RS 371	<10	35	<6	16	<4	-	-	-
RS 372	<12	33	**15**	20	<5	6.2	6.2	<3
RS 373	39	207	**23**	55	<6	**27**	84	<3
RS 374	25	137	<5	33	11	-	-	-
RS 375	14	51	<7	21	<5	-	-	-
RS 376	33	102	**19**	54	<5	8.8	76	<3
RS 377	33	140	<10	101	<6	-	-	-

Sample ID	Mobile Laboratory Results					State of Maine Laboratory Results		
	Copper (ppm)	Zinc (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)
RS 378	37	67	9	33	<5	-	-	-
RS 379	194	471	<10	92	<6	-	-	-
RS 380	60	236	<7	46	<5	-	-	-
RS 381	16	110	<8	37	<5	-	-	-
RS 382	41	118	<10	108	15	-	-	-
RS 383	35	108	<12	163	10	-	-	-
RS 384	41	125	11	116	<6	-	-	-
RS 385	34	224	**<15**	320	10	-	-	-
RS 386	<12	52	14	17	<5	-	-	-
RS 387	37	159	**15**	70	<5	8.5	170	<3
RS 388	31	136	<7	36	<5	-	-	-
RS 389	2477	2947	**53**	**966**	<13	**50**	**1000**	<3
RS 391	27	105	11	118	8	-	-	-
RS 392	12	90	<9	128	6	-	-	-
RS 393	36	130	<9	101	10	-	-	-
RS 394	41	212	<10	139	<6	-	-	-
RS 395	30	189	<7	69	10	-	-	-
RS 396	<12	49	14	14	<5	-	-	-
RS 397	<11	49	12	20	<5	-	-	-
RS 398	<8	43	<5	43	15	-	-	-
RS 399	60	135	14	61	<6	-	-	-
RS 400	68	403	<10	138	8	-	-	-
RS 401	43	519	<9	86	9	-	-	-
RS 402	<10	24	<8	92	8	-	-	-
RS 403	13	35	<9	114	9	-	-	-
RS 404	<11	57	9	15	<5	-	-	-
RS 405	<12	34	8	29	<5	-	-	-
RS 406	51	252	**<20**	**519**	<9	-	-	-
RS 407	16	43	9	13	<5	-	-	-
RS 408	26	51	**15**	26	6	14	23	<3
RS 409	13	55	<7	43	<5	-	-	-
RS 410	18	46	**21**	16	5	13	17	<3
RS 411	50	221	13	189	12	-	-	-
RS 412	14	64	12	20	7	-	-	-
RS 413	<11	29	9	16	<5	-	-	-
RS 414	34	123	12	40	11	-	-	-
RS 415	35	187	10	72	7	-	-	-
RS 416	18	109	8	49	6	-	-	-
RS 417	3972	3363	**56**	**1502**	**<16**	-	-	-

Sample ID	Mobile Laboratory Results					State of Maine Laboratory Results		
	Copper (ppm)	Zinc (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)	Arsenic (ppm)	Lead (ppm)	Thallium (ppm)
RS 418	2703	2264	**48**	**644**	<11	-	-	-
RS 419	124	393	10	81	8	-	-	-
RS 420 (24" - 30")	23	63	**17**	17	<5	-	-	-
RS 421 (6")	87	150	11	52	<5	-	-	-
RS 422 (18" - 24")	111	459	**15**	31	<5	-	-	-
RS 423 (0" - 8")	147	481	13	115	**<16**	-	-	-
RS 424	137	630	<10	90	<6	-	-	-
RS 424 (12" - 18")	514	1786	**17**	112	<6	-	-	-
RS 425 (0' - 1')	79	282	**25**	275	<8	-	-	-
RS 425 (3' - 3.5')	105	1139	**19**	34	<6	-	-	-
RS 426 (0' - 1')	677	2156	**39**	323	<9	-	-	-
RS 426 (24" - 27")	59	248	**21**	32	<6	-	-	-
RS 427 (0' - 1')	512	2401	**90**	355	<9	**61**	**470**	<3
RS 427 (2.5' - 3')	26	66	**17**	15	<5	-	-	-
RS 427 (3' - 3.5')	31	1180	13	32	<6	-	-	-
RS 428 (0" - 12")	526	3348	**20**	260	<8	-	-	-
RS 429	316	1371	14	171	7	-	-	-
RS 429 (18" - 22")	50	899	**21**	36	<6	-	-	-
RS 429 (6" - 12")	2036	5260	**33**	**502**	<10	-	-	-
RS 430 (0" - 6")	407	2156	14	143	<7	-	-	-
RS 430 (12" - 18")	743	2880	**25**	255	<8	-	-	-
RS 430 (6" - 12")	486	4635	**126**	367	<10	-	-	-
RS 431	480	2342	**17**	209	**16**	-	-	-
RS 431 (12" - 14")	860	3537	**19**	343	<9	-	-	-
RS 431 (6" - 12")	594	3730	**24**	326	<9	-	-	-
RS 470	49	116	9	53	<5	-	-	-

Bold represents samples that exceeded site-specific cleanup levels.

1.2.2 PCB-Contaminated Soil and Mine Operations Area

The Work Plan included soil sampling at the Mine Operations Area to delineate the proposed excavation boundary for the remediation of PCB's. 194 soil samples were collected for PCB analysis completed by the EPA's Mobile Laboratory. The results for the PCB analysis are shown in the table below.

Figure 2 depicts the soil samples that exceeded the site-specific cleanup levels (PCB > 1 ppm), along with the proposed excavation areas for remediation. Elevated levels of PCB's were also discovered in a previously uncharacterized area northeast of the access road in the Mine Operations Area.

Sample ID	Sample Depth (ft.)	Sample Weight (Grams)	PCBs (ppm)		
			A1242	A1248	A1254
MS 100	0 - 1	1.169	**<50**	**71**	-
MS 100	2 - 3	1.075	<0.5	<0.5	-
MS 100	3.5 - 4	1.178	<0.5	<0.5	-
MS 101	0 - 1	1.174	<0.5	0.2	-
MS 101	2 - 3	1.214	<0.5	<0.5	-
MS 102	0 - 1	1.127	<0.5	0.8	-
MS 102	2 - 3	1.388	<0.5	<0.5	-
MS 102	3 - 4	0.844	<0.5	<0.5	-
MS 103	0 - 1	0.919	<0.5	0.2	-
MS 104	0 - 1	0.941	**<2**	**2.1**	-
MS 105	0 - 1	0.942	<0.5	0.4	-
MS 106	0 - 1	1.198	<5	**8.9**	-
MS 107	0 - 1	1.363	<0.5	<0.5	-
MS 108	0 - 1	0.915	<0.5	0.2	-
MS 108	2 - 3	1.222	<0.5	<0.5	-
MS 108	3.5 - 4	1.173	<0.5	<0.5	-
MS 109	0 - 1	1.034	<0.5	<0.5	-
MS 109	2 - 3	1.130	<0.5	<0.5	-
MS 109	3.5 - 4	1.039	<0.5	<0.5	-
MS 110	0 - 1	1.109	<0.5	<0.5	-
MS 110	2 - 3	1.394	<0.5	<0.5	-
MS 110	3.5 - 4	1.160	<0.5	<0.5	-
MS 111	0 - 1	1.203	<0.5	**1.1**	-
MS 111	2 - 3	1.012	<0.5	<0.5	-
MS 111	3.5 - 4	1.095	<0.5	<0.5	-
MS 112	0 - 1	1.190	<0.5	<0.5	-
MS 112	2 - 3	1.305	<0.5	<0.5	-
MS 113	2 - 4	1.249	<0.5	<0.5	-
MS 113	0 - 1	1.128	<0.5	0.2	-
MS 114	0 - 1	1.086	<1	**1**	-
MS 114	2 - 4	0.977	<0.5	<0.5	-
MS 115	0 - 1	1.118	<0.5	0.6	-
MS 115	3.2 - 4	1.248	<0.5	<0.5	-
MS 116	0 - 1	1.125	<0.5	<0.5	0.4
MS 117	0 - 1	1.292	<0.5	<0.5	-
MS 117	3 - 3.5	1.060	<0.5	<0.5	-
MS 117	3.5 - 4	0.911	<0.5	<0.5	-
MS 118	0 - 1	1.122	<0.5	0.3	-
MS 119	0 - 1	0.979	<0.5	<0.5	-

Sample ID	Sample Depth (ft.)	Sample Weight (Grams)	PCBs (ppm)		
			A1242	A1248	A1254
MS 120	0 - 1	0.939	<0.5	<0.5	
MS 121	0 - 1	0.989	<0.5	0.3	-
MS 121	1 - 2.5	1.073	<0.5	<0.5	-
MS 121	3.5 - 4	0.988	<0.5	<0.5	-
MS 122	0.5 - 1.5	1.182	<0.5	<0.5	-
MS 122	1.5 - 2	0.949	<0.5	<0.5	-
MS 122	3.5 - 4	0.927	<0.5	<0.5	-
MS 123	0 - 0.5	0.957	-	-	-
MS 123	1 - 1.5	0.937	**<500**	**524**	-
MS 124	0 - 0.5	1.030	-	-	-
MS 124	1 - 1.5	1.000	**<4000**	**4360**	-
MS 124	1.5 - 2	1.016	**<7**	**7.5**	-
MS 124	3.8 - 4	0.902	**<2**	**2.2**	-
MS 125	0 - 1	1.041	**<90**	**96**	-
MS 125	2 - 3	1.060	<0.5	<0.5	-
MS 125	3.5 - 4	1.010	<0.5	<0.5	-
MS 126	0 - 1	1.042	<1	**1**	-
MS 126	2 - 3	1.272	<0.5	<0.5	-
MS 126	3 - 4	0.954	<0.5	<0.5	-
MS 127	0 - 1	0.996	<0.5	0.3	-
MS 127	3 - 4	0.994	<0.5	<0.5	-
MS 128	0 - 1	1.023	**<20**	**41**	-
MS 128	2 - 3	0.998	<0.5	0.4	-
MS 128	3.5 - 4	1.003	<0.5	<0.5	-
MS 129	0 - 1	0.989	-	-	-
MS 129	1 - 1.5	1.047	**<200**	**234**	-
MS 129	2.5 - 3	0.944	<0.5	0.3	-
MS 129	3.8 - 4	0.937	<0.5	<0.5	-
MS 130	0 - 1	1.009	-	-	-
MS 130	1 - 1.5	1.075	-	-	-
MS 130	0 - 0.5	1.123	**<5**	**5.9**	-
MS 131	0.5 - 1	1.188	**<5**	**4.8**	-
MS 132	0 - 0.5	0.953	**<10**	**16**	-
MS 132	0.5 - 1	1.088	**<10**	**12**	-
MS 133	0 - 0.5	1.097	**<2**	**2.3**	-
MS 133	0.5 - 1	1.162	**<2**	**1.9**	-
MS 134	0 - 0.5	1.116	<0.5	<0.5	-
MS 134	0.5 - 1	1.152	<0.5	<0.5	-
MS 135	0 - 0.5	1.291	**<2**	**2.4**	-
MS 135	0.5 - 1	1.096	<1	**1**	-

Sample ID	Sample Depth (ft.)	Sample Weight (Grams)	PCBs (ppm)		
			A1242	A1248	A1254
MS 136	0.5 - 1	1.036	**<5**	**3.7**	-
MS 136	0 - 0.5	0.933	**<300**	**266**	-
MS 137	0 - 0.5	0.990	**<1000**	**1490**	-
MS 138	0 - 0.5	0.920	**<2**	**1.9**	-
MS 138	0.5 - 1	1.052	<0.5	0.6	-
MS 139	0 - 1	1.020	<1	**1.4**	-
MS 139	2.5 - 3.5	0.975	<0.5	<0.5	-
MS 140	0 - 1	0.983	<0.5	0.8	-
MS 140	1.5 - 2	0.978	<0.5	<0.5	-
MS 140	3.5 - 4	0.990	<0.5	<0.5	-
MS 141	0 - 0.5	0.978	**<20**	**24**	-
MS 141	0.5 - 1	0.955	**<5**	**7.5**	-
MS 141	ABOVE BOTTOM	1.021	<0.5	**4.6**	-
MS 141	BOTTOM	1.064	<0.5	<0.5	-
MS 142	0 - 0.5	1.004	**<10**	**15**	-
MS 142	0.5 - 1	0.966	<0.5	0.4	-
MS 143	0 - 0.5	0.914	-	-	-
MS 143	0.5 - 1	0.959	**<500**	**385**	-
MS 144	0 - 1	1.001	<0.5	0.4	-
MS 144	1.5 - 2	1.027	<0.5	<0.5	-
MS 144	3.5 - 4	1.131	<0.5	<0.5	-
MS 145	0 - 0.5	0.941	<0.5	<0.5	-
MS 145	0.5 - 1	0.902	<0.5	<0.5	-
MS 146	0 - 0.5	0.952	<0.5	<0.5	-
MS 146	0.5 - 1	1.007	<0.5	<0.5	-
MS 147	0 - 0.5	0.934	<0.5	<0.5	-
MS 147	0.5 - 1	0.937	<0.5	<0.5	-
MS 148	0 - 0.5	0.950	<0.5	0.4	-
MS 148	0.5 - 1	0.907	<0.5	0.1	-
MS 149	0 - 1	0.943	<0.5	0.2	-
MS 149	1.5 - 2	0.936	<0.5	0.7	-
MS 149	3 - 3.5	0.975	**<5**	**3.3**	-
MS 150	0 - 1	0.936	<0.5	0.2	-
MS 150	1 - 2	0.980	<0.5	<0.5	-
MS 150	3.5 - 4	1.002	<0.5	<0.5	-
MS 151	0 - 1	1.200	<0.5	0.1	-
MS 151	1 - 1.5	0.941	<0.5	<0.5	-
MS 151	3 - 3.5	0.941	<0.5	<0.5	-
MS 152	0 - 1	1.035	**<4**	**3**	-
MS 152	1 - 2	0.934	<0.5	0.2	-

Sample ID	Sample Depth (ft.)	Sample Weight (Grams)	PCBs (ppm)		
			A1242	A1248	A1254
MS 153	0 - 1	1.092	<0.5	**1.2**	-
MS 153	3 - 3.5	0.964	<0.5	<0.5	-
MS 154	0 - 1	1.037	<0.5	<0.5	-
MS 155	0 - 0.5	1.029	<0.5	**2.3**	-
MS 155	0.5 - 1	1.125	<0.5	0.3	-
MS 156	0 - 0.5	1.174	<0.5	0.2	-
MS 156	0.5 - 1	1.020	<0.5	<0.5	-
MS 157	0 - 0.5	1.017	<0.5	0.3	-
MS 157	0.5 - 1	0.992	<0.5	0.3	-
MS 158	0 - 1	0.949	<0.5	<0.5	-
MS 158	1 - 2	0.989	<0.5	<0.5	-
MS 158	3.5 - 4	1.293	<0.5	<0.5	-
MS 159	0 - 0.5	1.299	<0.5	<0.5	-
MS 160	0 - 0.5	0.980	<0.5	0.2	-
MS 161	0.5 - 1	0.928	<0.5	<0.5	-
MS 162	0 - 0.5	1.169	<0.5	0.1	-
MS 162	0.5 - 1	1.100	<0.5	0.1	-
MS 163	0 - 0.5	1.143	<0.5	0.2	-
MS 163	0.5 - 1	1.170	<0.5	<0.5	-
MS 164	0 - 0.5	1.081	<1	**1.4**	-
MS 164	0.5 - 1	1.141	**<2**	**1.9**	-
MS 165	0 - 0.5	1.186	<1	**1**	-
MS 165	0.5 - 1	1.158	<0.5	0.6	-
MS 166	0 - 0.5	1.162	<0.5	<0.5	-
MS 166	0.5 - 1	1.058	<0.5	<0.5	-
MS 167	0 - 0.5	1.132	<0.5	<0.5	-
MS 167	0.5 - 1	1.192	<0.5	<0.5	-
MS 173	0 - 0.5	1.166	<0.5	<0.5	-
MS 173	0.5 - 1	1.131	<0.5	<0.5	-
MS 174	1 - BOTTOM	1.135	<0.5	<0.5	-
MS 174	0 - 0.5	1.166	<0.5	0.1	-
MS 174	0.5 - 1	1.212	<0.5	<0.5	-
MS 175	0 - 0.5	1.021	<0.5	<0.5	-
MS 175	0.5 - 1	1.018	<0.5	<0.5	-
MS 176	0 - 0.5	1.008	**<5**	**6**	-
MS 176	0.5 - 1	1.006	**<5**	**5.7**	-
MS 177	0 - 0.5	1.045	-	-	-
MS 177	0.5 - 1	1.076	**<70**	**77**	-
MS 178	0 - 0.5	1.092	<0.5	<0.5	-
MS 178	0.5 - 1	1.299	<1	**1.6**	-

Sample ID	Sample Depth (ft.)	Sample Weight (Grams)	PCBs (ppm)		
			A1242	A1248	A1254
MS 179	0 - 1	0.976	**<10**	**10**	-
MS 179	2 - 3	1.061	<0.5	<0.5	-
MS 179	3 - 4	1.036	<0.5	0.7	-
MS 180	0 - 0.5	1.070	**<4**	**3.9**	-
MS 180	2 - 3	1.046	<0.5	0.2	-
MS 181	0 - 0.5	1.081	<0.5	<0.5	-
MS 181	0.5 - 1	1.141	<0.5	0.4	-
MS 182	0 - 1	1.031	**<100**	**97**	-
MS 182	1 - 2	1.017	<0.5	<0.5	-
MS 182	3 - 4	0.973	<0.5	<0.5	-
MS 183	0 - 0.5	1.283	<0.5	0.3	-
MS 183	0.5 - 1	0.993	<0.5	<0.5	-
MS 184	0 - 0.5	1.147	**<20**	**17**	-
MS 185	0 - 0.5	0.990	<0.5	0.6	-
MS 186	0 - 0.5	1.168	<1	**1.4**	-
MS 186	0.5 - 1	1.030	<0.5	0.3	-
MS 187	0 - 0.5	1.122	**<5**	**7.6**	-
MS 187	0.5 - 1	1.068	**<3**	**3.1**	-
MS 188	0 - 0.5	1.049	<0.5	<0.5	-
MS 188	0.5 - 1	0.992	<0.5	<0.5	-
MS 189	0 - 0.5	1.044	<1	**1.4**	-
MS 190	0 - 0.5	1.239	**<15**	**10**	-
MS 191	0 - 0.5	1.386	<0.5	<0.5	-
MS 191	0.5 - 1	1.369	<0.5	<0.5	-
MS 192	0 - 0.5	1.038	<0.5	**19**	-
MS 192	0.5 - 1	1.063	<0.5	0.4	-
MS 193	0 - 0.5	1.030	<0.5	<0.5	-
MS 193	0.5 - 1	1.207	<0.5	<0.5	-
MS 194	0 - 0.5	1.132	<0.5	<0.5	-
MS 194	0.5 - 1	1.095	<0.5	<0.5	-
MS 195	0 - 0.5	0.994	<0.5	<0.5	-
MS 195	0.5 - 1	1.084	<0.5	0.3	-
MS 196	0 - 0.5	1.133	<0.5	0.6	-
MS 196	0.5 - 1	1.156	<0.5	0.3	-
MS 197	0 - 0.5	1.101	**<2**	**2.2**	-
MS 197	0.5 - 1	1.002	**<2**	**1.4**	-

Bold represents samples that exceeded site-specific cleanup levels.

1.2.3 Petroleum-Contaminated Soil Commingled with CERCLA Waste in Mine Operations Area

The Work Plan included soil samples from the Mine Operations Area to delineate the proposed excavation boundary for petroleum-contaminated soil. The RI reported petroleum contamination in southeastern portion of the Mine Operations Area near the tank graves of two historic underground storage tanks. Five soil samples were collected and field screened using a photoionization detector. Of the five samples, three were sent for off-site EPH/VPH analysis at the State of Maine Health and Environmental Testing Lab. The results from the off-site EPH/VPH analysis from the State of Maine Lab are shown in the table below.

Figure 2 depicts the locations of the five samples collected for EPH/VPH analysis. Results from the State of Maine Lab indicate low levels of EPH and VPH analytes that are below the Maine Remediation Action Guideline. Based on the results of the soil samples taken in the Mine Operations Area, remediation of petroleum contaminated soils is not required.

Sample ID **Depth (ft)**	**MS 169** **8**	**MS 170** **8**	**MS 172** **9**	**Maine RAG's Park User** **(mg/kg)**
Naphthalene	<0.2	<0.2	<0.2	330.00
2-Methylnaphthalene	<0.2	<0.2	<0.2	160.00
Phenanthrene	<0.2	<0.2	<0.2	1,200.00
Acenaphthene	<0.2	<0.2	<0.2	1,600.00
Unadjusted C11-C22 Aromatics	31	220	<20	NA
C11-C22 Aromatic Hydrocarbons	31	220	<20	NA
C9-C18 Aliphatic Hydrocarbons	44	310	<20	NA
C19-C36 Aliphatic Hydrocarbons	43	78	<20	NA
Acenaphthylene	<0.2	<0.2	<0.2	1,700.00
Fluorene	<0.2	<0.2	<0.2	1,400.00
Anthracene	<0.2	<0.2	<0.2	7,200.00
Fluoranthene	<0.2	<0.2	<0.2	1,700.00
Pyrene	<0.2	<0.2	2.5	1,200.00
Benzo(a) anthracene	<0.2	<0.2	<0.2	0.44
Chrysene	<0.2	<0.2	<0.2	44.00
Benzo(b) fluoranthene	<0.2	<0.2	<0.2	0.44
Benzo(k) fluoranthene	<0.2	<0.2	<0.2	4.40
Benzo(a) pyrene	<0.2	<0.2	<0.2	0.04
Indeno(a,2,3-cd)pyrene/ Dibenzo(a,h) anthracene	<0.4	<0.4	<0.4	

Sample ID Depth (ft)	MS 169 8	MS 170 8	MS 172 9	Maine RAG's Park User (mg/kg)
Benzo(g,h,i) perylene	<0.2	<0.2	<0.2	1,200.00
Methyl tert-Butyl Ether	<0.05	<0.05	<0.05	1,300.00
Benzene	<0.05	<0.05	<0.05	28.00
Toluene	<0.05	<0.05	<0.05	4,500.00
Ethylbenzene	<0.05	<0.05	<0.05	210.00
Xylene	<0.15	<0.15	<0.15	10,000.00
Naphthalene	<0.1	<0.1	<0.1	330.00
C5-C8 Aliphatic Hydrocarbons	<2.5	<2.5	<2.5	NA
C9-C12 Aliphatic Hydrocarbons	7.3	7.6	<2.5	NA
C9-C10 Aromatic Hydrocarbons	<1	<1	<1	NA
Unadjusted C5-C8 Aliphatics	<2.5	<2.5	<2.5	NA
Unadjusted C9-C12 Aliphatics	7.3	7.6	<2.5	NA

1.2.4 Surface Water Management and Ore Pad

No changes are proposed.

1.2.5 Surface Water Drainage for Mine Operations Area

Based on discussions with Maine Department of Environmental Protection (MEDEP), storm water sedimentation ponds as depicted on Figure 4 in the *Final Basis of Design Report* (MACTEC, 2010) will not be required. The Implementation Work Plans will need to address proper storm water controls as well as erosion and sedimentation control in accordance with the applicable regulations, policies, and guidance documents.

1.2.6 Stockpile Management

An Interim Stockpile Area for the One Pad material will be established within the Operational Area instead of the Tailings Impoundment. A Conceptual Plan has been included within the contract drawings.

2.0 JURISDICTIONAL AND REGULAORY REQUIREMENTS

No changes are proposed.

3.0 CLEANUP LEVELS

No changes are proposed.

4.0 ESTIMATED CLEANUP AREAS AND VOLUMES

A table summarizing the revised estimated areas and volumes of contaminated material exceeding cleanup levels is provided below.

ORIGINAL			
WORK AREA	**ESTIMATED AREA (FT2)**	**ESTIMATED AVERAGE DEPTH (FT)**	**ESTIMATED VOLUME (CY)**
Residential Use Area	41,060	2	3,040
PCB-Contaminated Soil > 1ppm < 50 ppm	26,708	2	1,980
PCB-Contaminated Soil > 50 ppm	2,958	2	220
Petroleum -Contaminated Soil	26,158	3	600
Ore Pad	90,161	5	16,000
REVISED			
WORK AREA	**ESTIMATED AREA (FT2)**	**ESTIMATED AVERAGE DEPTH (FT)**	**ESTIMATED VOLUME (CY)**
Residential Use Area	75,300	0.75	2,092
PCB-Contaminated Soil > 1ppm < 50 ppm	34,600	3.00	3,844
PCB-Contaminated Soil > 50 ppm	4,000	3.00	444
Petroleum -Contaminated Soil	0	0	0
Ore Pad	90,161	5	16,700

5.0 INTERIM STOCKPILE AREA

An Interim Stockpile Area for the One Pad material will be established within the Operational Area instead of the Tailings Impoundment. A Conceptual Plan has been included within the contract drawings.

6.0 VALUE ENGINEERING SCREEN

No changes are proposed.

LIST OF FIGURES

Figure 1 - Residential Use Area Remediation - Proposed Metal Excavation Areas
Figure 2 – Mine Operations Area – Proposed PCB Excavation Areas

RS 430

DEPTH: 0"-6"
As: 14 mg/kg
Pb: 143 mg/kg
Tl: <7 mg/kg

DEPTH:6" - 12"
As: 126 mg/kg
Pb: 367 mg/kg
Tl: <10 mg/kg

DEPTH: 12" - 18
As: 25 mg/kg
Pb: 255 mg/kg
Tl: <8 mg/kg

RS 344

DEPTH: 0"-6"
As: 11 mg/kg
Pb: 220 mg/kg
Tl: <3 mg/kg

DEPTH:6" - 12"
As: 24 mg/kg
Pb: 125 mg/kg
Tl: <6 mg/kg

RS 420

DEPTH: 24"- 30"
As: 17 mg/kg
Pb: 17 mg/kg
Tl: <5 mg/kg

RS 346

DEPTH: 0"-6"
As: <19 mg/kg
Pb: 573 mg/kg
Tl: 18 mg/kg

RS 423

DEPTH: 0"-8"
As: 13 mg/kg
Pb: 115 mg/kg
Tl: <16 mg/kg

RS 417

DEPTH: 0"-6"
As: 56 mg/kg
Pb: 1502 mg/kg
Tl: <16 mg/kg

RS 422

DEPTH:18" - 24
As: 15 mg/kg
Pb: 31 mg/kg
Tl: <5 mg/kg

RS 431

DEPTH: 0"-6"
As: 17 mg/kg
Pb: 209 mg/kg
Tl: 16 mg/kg

DEPTH:6" - 12"
As: 24 mg/kg
Pb: 326 mg/kg
Tl: <9 mg/kg

DEPTH: 12" - 14
As: 19 mg/kg
Pb: 343 mg/kg
Tl: <9 mg/kg

RS 418

DEPTH: 0"-6"
As: 48 mg/kg
Pb: 644 mg/kg
Tl: <11 mg/kg

RS 424

DEPTH: 0"-6"
As: <10 mg/kg
Pb: 90 mg/kg
Tl: <6 mg/kg

DEPTH:12" - 18
As: 17 mg/kg
Pb: 112 mg/kg
Tl: <6 mg/kg

RS 425

DEPTH: 0' -1'
As: 25 mg/kg
Pb: 275 mg/kg
Tl: <8 mg/kg

DEPTH:3' - 3.5
As: 19 mg/kg
Pb: 34 mg/kg
Tl: <6 mg/kg

RS 389

DEPTH: 0" - 12"
As: 50 mg/kg
Pb: 1000 mg/kg
Tl: <3 mg/kg

RS 342

DEPTH: 0"-6"
As: 12 mg/kg
Pb: 200 mg/kg
Tl: <3 mg/kg

DEPTH:24" - 30
As: 24 mg/kg
Pb: 116 mg/kg
Tl: <6 mg/kg

RS 428

DEPTH: 0" - 12"
As: 20 mg/kg
Pb: 260 mg/kg
Tl: <8 mg/kg

RS 406

DEPTH: 0"-6"
As: <20 mg/kg
Pb: 519 mg/kg
Tl: <9 mg/kg

RS 343

DEPTH: 0"-6"
As: <37 mg/kg
Pb: 1129 mg/kg
Tl: <16 mg/kg

DEPTH:12" - 16
As: <31 mg/kg
Pb: 937 mg/kg
Tl: <14 mg/kg

RS 426

DEPTH: 0'- 1'
As: 39 mg/kg
Pb: 323 mg/kg
Tl: <9 mg/kg

DEPTH: 24" - 27
As: 21 mg/kg
Pb: 32 mg/kg
Tl: <6 mg/kg

RS 385

DEPTH: 0"-6"
As: <15 mg/kg
Pb: 320 mg/kg
Tl: 10 mg/kg

RS 339

DEPTH: 0"-6"
As: <12 mg/kg
Pb: 235 mg/kg
Tl: 16 mg/kg

RS 427

DEPTH: 0'- 1'
As: 61 mg/kg
Pb: 470 mg/kg
Tl: <3 mg/kg

DEPTH:2.5' - 3
As: 17 mg/kg
Pb: 15 mg/kg
Tl: <5 mg/kg

DEPTH: 3' - 3.5
As: 13 mg/kg
Pb: 32 mg/kg
Tl: <6 mg/kg

RS 323

DEPTH: 0"-6"
As: 13 mg/kg
Pb: 510 mg/kg
Tl: <3 mg/kg

RS 333

DEPTH: 0"-6"
As: <20 mg/kg
Pb: 505 mg/kg
Tl: <9 mg/kg

DEPTH:12" - 18
As: 21 mg/kg
Pb: 31 mg/kg
Tl: <5 mg/kg

RS 429

DEPTH: 0"-6"
As: 14 mg/kg
Pb: 171 mg/kg
Tl: 7 mg/kg

DEPTH:6" - 12"
As: 33 mg/kg
Pb: 502 mg/kg
Tl: <10 mg/kg

DEPTH: 18" - 22
As: 21 mg/kg
Pb: 36 mg/kg
Tl: <6 mg/kg

RS 123

DEPTH: 0"-6"
As: <17 mg/kg
Pb: 477 mg/kg
Tl: 12 mg/kg

RS 362

DEPTH: 0"-6"
As: <15 mg/kg
Pb: 380 mg/kg
Tl: <7 mg/kg

RS 125

DEPTH: 0"-6"
As: 27 mg/kg
Pb: 15 mg/kg
Tl: <5 mg/kg

RS 373

DEPTH: 0"-6"
As: 27 mg/kg
Pb: 84 mg/kg
Tl: <3 mg/kg

RS 122

DEPTH: 0"-6"
As: 17 mg/kg
Pb: 16 mg/kg
Tl: <3 mg/kg

RS 128

DEPTH: 0"-6"
As: <29 mg/kg
Pb: 1231 mg/kg
Tl: 13 mg/kg

RS 326

DEPTH: 0"-6"
As: <10 mg/kg
Pb: 144 mg/kg
Tl: 21 mg/kg

RS 314

DEPTH: 0"-6"
As: 16 mg/kg
Pb: 660 mg/kg
Tl: <3 mg/kg

RS 126

DEPTH: 0"-6"
As: <21 mg/kg
Pb: 598 mg/kg
Tl: 11 mg/kg

RS 315

DEPTH: 0"-6"
As: <19 mg/kg
Pb: 615 mg/kg
Tl: 11 mg/kg

RS 124

DEPTH: 0"-6"
As: 22 mg/kg
Pb: 16 mg/kg
Tl: <3 mg/kg

RS 127

DEPTH: 0"-6"
As: <25 mg/kg
Pb: 998 mg/kg
Tl: 21 mg/kg

RS 316

DEPTH: 0"-6"
As: 12 mg/kg
Pb: 610 mg/kg
Tl: <3 mg/kg

DEPTH:18" - 24
As: <17 mg/kg
Pb: 363 mg/kg
Tl: <8 mg/kg

RS 121

DEPTH: 0"-6"
As: 8.4 mg/kg
Pb: 610 mg/kg
Tl: <3 mg/kg

RS 308

DEPTH: 0"-6"
As: <24 mg/kg
Pb: 917 mg/kg
Tl: 16 mg/kg

DEPTH:6" - 12"
As: <13 mg/kg
Pb: 234 mg/kg
Tl: <7 mg/kg

RS 112

DEPTH: 0"-6"
As: <16 mg/kg
Pb: 480 mg/kg
Tl: 12 mg/kg

RS 301

DEPTH: 0"-6"
As: <18 mg/kg
Pb: 474 mg/kg
Tl: <8 mg/kg

DEPTH: 6"-12"
As: 15 mg/kg
Pb: 860 mg/kg
Tl: <3 mg/kg

RS 110

DEPTH: 0"-6"
As: <29 mg/kg
Pb: 1297 mg/kg
Tl: <12 mg/kg

DEPTH:6"-12"
As: <3.9 mg/kg
Pb: 420 mg/kg
Tl: 3 mg/kg

RS 103

DEPTH: 0"-6"
As: 22 mg/kg
Pb: 300 mg/kg
Tl: <3 mg/kg

RS 102

DEPTH: 0"-6"
As: 28 mg/kg
Pb: 320 mg/kg
Tl: <8 mg/kg

RS 101

DEPTH: 0"-6"
As: 20 mg/kg
Pb: 7 mg/kg
Tl: <5 mg/kg

Legend

- Sample Location
- Sample locations with one or more depths having As >14; Pb > 375; Tl >15 mg/kg
- Samples from remedial investigation: Arsenic < 14; Lead < 375; Thallium < 15 mg/kg
- Samples from remedial investigation: Arsenic > 14; Lead > 375; Thallium > 15 mg/kg
- Approximate Treeline
- Structure
- Proposed Excavation Area

SOURCE(S):
MEGIS- 2 FT ORTHOIMAGERY
MEDEP- TAX MAP PARCEL DATA, STRUCTURES
MACTEC, INC.- OU1 FEASIBILITY STUDY REPORT

FIGURE 1
RESIDENTIAL USE AREA
PROPOSED METALS EXCAVATION AREAS
CALLAHAN MINE SUPERFUND SITE

GRID N

SCALE:
0 60 120 240 360 Feet
1 inch = 120 feet

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JN: 5992

Prepared By: bberube
Printing Date: November 22, 2010
Projection Information:
Name: NAD 1983 UTM Zone 19N
Projection: Transverse Mercator

MS 124

DEPTH: 1'-1.5'
PCB-A1242: <4000 ppm
PCB-A1248: 4360 ppm

DEPTH: 1.5'-2'
PCB-A1242: <7 ppm
PCB-A1248: 7.5 ppm

DEPTH: 3.8' - 4'
PCB-A1242: <2 ppm
PCB-A1248: 2.2 ppm

MS 128

DEPTH: 0' - 1'
PCB-A1242: <20 ppm
PCB-A1248: 41 ppm

DEPTH: 2' - 3'
PCB-A1242: <0.5 ppm
PCB-A1248: 0.4 ppm

DEPTH: 3.5' - 4'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

MS 126

DEPTH: 0' - 1'
PCB-A1242: <1 ppm
PCB-A1248: 1 ppm

DEPTH: 2' - 3'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

DEPTH: 3'-4'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

MS 141

DEPTH: 0' - 0.5'
PCB-A1242: <20 ppm
PCB-A1248: 24 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <5 ppm
PCB-A1248: 7.5 ppm

DEPTH: ABOVE BOTTOM
PCB-A1242: <0.5 ppm
PCB-A1248: 4.6 ppm

DEPTH: BOTTOM
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

MS 142

DEPTH: 0' - 0.5'
PCB-A1242: <10 ppm
PCB-A1248: 15 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <0.5 ppm
PCB-A1248: 0 ppm

MS 114

DEPTH: 0' - 1'
PCB-A1242: <1 ppm
PCB-A1248: 1 ppm

DEPTH: 2' - 4'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

MS 139

DEPTH: 0' - 1'
PCB-A1242: <1 ppm
PCB-A1248: 1 ppm

DEPTH: 2.5' - 3.5'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

MS 153

DEPTH: 0' - 1'
PCB-A1242: <0.5 ppm
PCB-A1248: 1 ppm

DEPTH: 3' - 3.5'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

MS 152

DEPTH: 0' - 1'
PCB-A1242: <4 ppm
PCB-A1248: 3 ppm

DEPTH: 1' - 2'
PCB-A1242: <0.5 ppm
PCB-A1248: 0 ppm

MS 179

DEPTH: 0' - 1'
PCB-A1242: <10 ppm
PCB-A1248: 10 ppm

DEPTH: 2' - 3'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5ppm

DEPTH: 3' - 4'
PCB-A1242: <0.5 ppm
PCB-A1248: 0.7 ppm

MS 186

DEPTH: 0' - 0.5'
PCB-A1242: <1 ppm
PCB-A1248: 1.4 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <0.5 ppm
PCB-A1248: 0.3 ppm

MS 189

DEPTH: 0' - 0.5'
PCB-A1242: <1 ppm
PCB-A1248: 1 ppm

MS 180

DEPTH: 0' - 0.5'
PCB-A1242: <4 ppm
PCB-A1248: 4 ppm

DEPTH: 2' - 3'
PCB-A1242: <0.5 ppm
PCB-A1248: 0.2 ppm

MS 130

DEPTH: 0'-0.5'
PCB-A1242: <5 ppm
PCB-A1248: 6 ppm

MS 106

DEPTH: 0' - 1'
PCB-A1242: <5 ppm
PCB-A1248: 9 ppm

MS 165

DEPTH: 0' - 0.5'
PCB-A1242: <1 ppm
PCB-A1248: 1 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <0.5 ppm
PCB-A1248: 0.6 ppm

MS 133

DEPTH: 0' - 0.5'
PCB-A1242: <2 ppm
PCB-A1248: 2 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <2 ppm
PCB-A1248: 1.9 ppm

MS 178

DEPTH: 0' - 0.5'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <1 ppm
PCB-A1248: 1.6 ppm

MS 138

DEPTH: 0'- 0.5'
PCB-A1242: <2 ppm
PCB-A1248: 2 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <0.5 ppm
PCB-A1248: 1 ppm

MS 164

DEPTH: 0' - 0.5'
PCB-A1242: <1 ppm
PCB-A1248: 1 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <2 ppm
PCB-A1248: 2 ppm

MS 149

DEPTH: 0' - 1'
PCB-A1242: <0.5 ppm
PCB-A1248: 0 ppm

DEPTH: 1.5' - 2'
PCB-A1242: <0.5 ppm
PCB-A1248: 1 ppm

DEPTH: 3' - 3.5'
PCB-A1242: <5 ppm
PCB-A1248: 3 ppm

MS 155

DEPTH: 0' - 0.5'
PCB-A1242: <0.5 ppm
PCB-A1248: 2 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <0.5 ppm
PCB-A1248: 0 ppm

MS 187

DEPTH: 0' - 0.5'
PCB-A1242: <5 ppm
PCB-A1248: 8 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <3 ppm
PCB-A1248: 3.1 ppm

MS 135

DEPTH: 0' - 0.5'
PCB-A1242: <2 ppm
PCB-A1248: 2 ppm

DEPTH: 0.5'- 1'
PCB-A1242: <1 ppm
PCB-A1248: 1 ppm

MS 132

DEPTH: 0' - 0.5'
PCB-A1242: <10 ppm
PCB-A1248: 16 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <10 ppm
PCB-A1248: 12 ppm

MS 104

DEPTH: 0' - 1'
PCB-A1242: <2 ppm
PCB-A1248: 2 ppm

MS 131

DEPTH: 0.5' - 1'
PCB-A1242: <5 ppm
PCB-A1248: 5 ppm

MS 197

DEPTH: 0' - 0.5'
PCB-A1242: <2 ppm
PCB-A1248: 2.2 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <2 ppm
PCB-A1248: 1.4 ppm

MS 176

DEPTH: 0' - 0.5'
PCB-A1242: <5 ppm
PCB-A1248: 6 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <5 ppm
PCB-A1248: 6 ppm

MS 192

DEPTH: 0' - 0.5'
PCB-A1242: <0.5 ppm
PCB-A1248: 19 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <0.5 ppm
PCB-A1248: 0.4 ppm

MS 111

DEPTH: 0'-1'
PCB-A1242: <0.5 ppm
PCB-A1248: 1.1 ppm

DEPTH: 2' - 3'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

DEPTH: 3.5' - 4'
PCB-A1242: <0.5 ppm
PCB-A1248: <0.5 ppm

MS 184

DEPTH: 0' - 0.5'
PCB-A1242: <20 ppm
PCB-A1248: 17 ppm

MS 190

DEPTH: 0' - 0.5'
PCB-A1242: <15 ppm
PCB-A1248: 10 ppm

MS 136

DEPTH: 0'-0.5'
PCB-A1242: <300 ppm
PCB-A1248: 266 ppm

DEPTH: 0.5' - 1'
PCB-A1242: <5 ppm
PCB-A1248: 4 ppm

Legend

- Petroleum Sample
- Sample Location
- Sample location with one or more depths having PCB >=1 mg/Kg; PCB =< 50 mg/Kg
- Sample location with one or more depths having PCB >= 50 mg/Kg
- Sample from remedial investigation: > 1 mg/kg PCB
- Sample from remedial investigation: <1 mg/kg PCB
- Proposed Excavation Area for PCB iso-concentration >= 1 mg/kg; PCB iso-concentration <50 mg/kg
- Proposed Excavation Area for PCB iso-concentration >= 50 mg/kg
- Structures or Concrete Slab

SOURCE(S):
MEGIS- 2 FT ORTHOIMAGERY
MEDEP- TAX MAP PARCEL DATA, STRUCTURES
MACTEC, INC.- OU1 FEASIBILITY STUDY REPORT

FIGURE 2
MINE OPERATIONS AREA
PROPOSED PCB EXCAVATION AREAS
CALLAHAN MINE SUPERFUND SITE

N
GRID

SCALE:
0 60 120 240 360 Feet
1 inch = 120 feet

CES INC
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JN: 5992

Prepared By: bberube
Printing Date: November 22, 2010
Projection Information:
Name: NAD 1983 UTM Zone 19N
Projection: Transverse Mercator

CES INC

SECTION 01 1000

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

A. The scope of work for the Operable Unit (OU) 1 and Early Action OU2 at the Callahan Mine Superfund Site (Site) involves cleanup activities associated with mine waste materials, rock, and soils. The Site is located in the village of Harborside in the Town of Brooksville, Maine. The work to be completed is based on the United States Environmental Protection Agency (EPA) Record of Decision (ROD) for OU1 and a Memorandum dated September 30, 2009, regarding Early Action for OU2. The U.S. Environmental Protection Agency is the lead federal agency for the cleanup action. The Maine Department of Environmental Protection (MEDEP) is the lead State agency for the implementation of the OU1 cleanup actions on behalf of the State of Maine. References to the Owner refer to the Maine DEP. The OU1 remediation consists of two main work areas identified as the former Mine Operations Area and a Residential Use Area located at the north end of the Site. The following list provides a summary of the required work components associated with the selected remedy for the OU1 and Early Action OU2:

1. Excavation and proper off-site disposal of soil contaminated with polychlorinated biphenyls (PCBs) exceeding site-specific cleanup levels within the former Mine Operation Area;
2. Excavation of soil containing arsenic, thallium, and lead exceeding site-specific cleanup levels in the Residential Use Area of the Site;
3. Backfill of Residential Use Area excavations with clean imported material and surface restoration to match existing conditions;
4. Placement of excavated soils from the Residential Use Area at the Tailings Impoundment Area located on the former Callahan Mine property;
5. Excavated soil material placed at Interim Stockpiles shall be covered with topsoil and seeded. Onsite topsoil material, either suitable topsoil grubbed from work areas or “Stink Cove Sediment” (available from the bench located below Waste Rock Pile #1), shall be used for covering materials placed at Operational Area Interim Stockpile and Tailing Impoundment Interim Stockpile. The Operations Area Interim Stockpile shall be covered with a geosynthetic cover system as described in the Technical Specifications and shown on the Drawings.
6. As necessary to complete the work, conduct upgrades to existing haul roads and make drainage improvements to facilitate access and control surface runoff.
7. To establish stable grades surrounding the area where PCBs will be excavated and to prevent the direct release of contaminated surface water run-off to Dyer Cove as a result of drainage changes it may be necessary to remove the waste rock in the Ore Pad. The ore rock located in the Ore Pad, basically identified by an orange color, will be excavated to bedrock (±5 feet). The excavation limits will be conducted by visual observation and as directed by the Resident. The edges of the excavation limits shall be graded to minimize steep slopes and blend into surrounding grades. Excavated

materials will be placed on Operational Area Interim Stockpile. This material shall be stabilized to prevent erosion.

8. To prevent erosion and transport of sediment from the area designated to stockpile the excavated contaminated soils from the Residential Use Area and non-PCB material excavated from the PCB cleanup area (or Ore Pad), drainage controls may be necessary to prevent run-on and control run-off.

B. The following list summarizes the primary actions and anticipated construction sequence:

1. Establish staging areas and mobilize equipment and personnel to the Site.
2. Attend and support pre-construction meetings with each Residential Use Property owner and perform pre-construction documentation of the properties including conducting visual inspections and taking photograph and video documentation of the existing features at each property within the limits of the Residential Work Area.
3. Perform pre-excavation field surveys to be used to verify existing conditions and determining remediation limits and quantities.
4. Prepare Implementation Work Plans as required by the Technical Specifications. Work Plan shall be submitted to Owner for review and comment. Required revision must be accomplished before on-site remedial activities are initiated.
5. Prepare the work areas for remediation: install temporary facilities, install construction perimeter fencing and/or warning barriers, establish equipment and material staging/storage areas, and install erosion and sedimentation controls.
6. Demolish existing features (excluding permanent structures to remain) located within the remediation excavation limits and segregate, process, and properly dispose of debris offsite unless otherwise directed by the Owner. Concrete structures, including slabs, foundations, and walls within the PCB remediation area at the Mine Operations Area may be removed and may be processed, reinforcement bars cut and used as backfill in completed excavations at the Mine Operations Area, or placed in Operations Area Interim Stockpile with the Residential Use excavated soil contingent upon the Contractor sampling the concrete to verify PCB contamination does not exist. PCB contaminated concrete will be properly disposed of at a licensed facility.
7. Conduct the remediation activities at Residential Use properties and the Mine Operations Area. Excavate contaminated soil/rock materials from the limits indicated on the drawings and confirmed based on pre-excavation characterization activities. Shallow bedrock present in many areas within the remediation area of the Residential Use properties in addition to occupied buildings and completion of excavations will likely require some specialized removal techniques (hand, vacuum).
8. PCB-Contaminated material shall be properly disposed of off-site in accordance with the approved Off-Site Shipment and Disposal Plan.
9. Arsenic, lead, and thallium contaminated soils from the Residential Use Area shall be placed at Tailings Impoundment Interim Stockpile in accordance with the approved Stockpiling Plan.
10. Perform post-excavation or soil removal field surveys to document limits and validate excavation quantities.
11. Completed excavations within the Residential Use Area shall be backfilled as soon as practical. The backfill materials will be specified based on finish restoration requirements: granular common borrow and topsoil below vegetated areas; and granular common borrow and gravel in non-vegetated areas. All backfill material

shall be subjected to laboratory analyses to ensure compliance with the Residential Use Area and Mine Operations Area Construction Quality Control Plan(s).

12. Restoration will be conducted on all disturbed areas at each of the private properties within the Residential Use Area following completion of the remediation activities. Existing features will be restored to at least an equivalent condition that existed prior to the remediation and/or in accordance with the Restoration Plan for each property.
13. Restoration at the Mine Operations Area by completely backfilling excavations is not required, but shall be conducted by grading of existing material to blend excavation limits smoothly into surrounding grades, eliminating steep slopes, and providing proper drainage.
14. The ore rock located in the Ore Pad, basically identified by an orange color, will be excavated to bedrock (±5 feet). The excavation limits will be conducted by visual observation and as directed by the Resident. The edges of the excavation limits shall be graded to minimize steep slopes and blend into surrounding grades. Excavated materials will be placed in Operations Area Interim Stockpile. This material shall be stabilized to prevent erosion.
15. To prevent erosion and transport of sediment from the area designated to stockpile the excavated contaminated soils from the Residential Use Area and non-PCB material excavated from the PCB cleanup area (or Ore Pad), drainage controls may be necessary to prevent run-on and control run-off.
16. Remove temporary facilities, temporary erosion and sedimentation controls (if Site is adequately stabilized), and clean Site.
17. Provide post-construction Site photographs and topographic survey and as-built drawings including accurate remediation limits.
18. Several final inspections shall be performed: a construction completion inspection (which may generate a punch list); a follow-up inspection to verify that punch list items have been satisfactorily addressed (this inspection shall also occur after submittal of draft Remedial Action Report); and an inspection to occur not longer than one year after final completion to verify that all work remains operational and functional.

1.02 USE OF PROPERTIES

A. The Mine Operation Area, Mine Tailings Impoundment, Ore Pad, and Waste Rock Piles outside of the Residential properties are under direct control of the Owner and use of the property shall be coordinated with the Owner.

B. Draft Property Restoration Plans (Lots A-D) shall be finalized by the Contractor for the individual Residential Properties. One additional lot (Lot E) will need to be included and no draft restoration plan has been prepared for this lot. The Contractor, in coordination with the Resident, shall attend and support pre-construction meetings with each property owner. The pre-construction meetings will be conducted to review the construction and restoration activities and schedule as well as to address concerns or questions property owners may have.

C. Contractor shall take special precautions when working in close proximity to these occupied areas or adjacent to structures or features which are to remain. Safe access to these occupied facilities must be maintained throughout the Work.

D. Any damage to the property, including but not limited to, foundations, driveways, or structures, etc. shall be repaired or replaced as described and as part of the cleanup action. Septic systems will be replaced as required and in accordance with Contract Documents.

1.03 OTHER GENERAL REQUIREMENTS

A. Obtain all necessary construction permits prior to the commencement of work. The Contractor will be responsible for obtaining all required permits. Section 121 (e) 1 of the Superfund law states that "No Federal, State, or Local permit shall be required for the portion of any removal or remedial action conducted entirely on-site, where such Remedial Action is selected and carried out in compliance with section 121" of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended. For the Callahan Mine, all areas within the former Callahan Mine portion of the property and the entire Residential Use area are within the definition of on-site for the purpose of the permit exclusion.

B. Contractor shall comply with all Federal, State, and local requirements.

C. Make arrangements for temporary storage of materials and supplies and for timely delivery to the job site.

D. Maintain up-to-date records.

E. Maintain the Project Site in a neat and safe condition.

1.04 DEFINITIONS

A. "Resident" or "Owner's Representative" as used in these specifications shall mean the Owner's Representative in the field.

B. "Owner" as used in these specifications shall mean the Owner of the Project, which is the Maine DEP.

C. "Contractor or Implementation Contactor" is the firm selected to conduct the remedial construction activities and shall be under contract to the Owner.

D. US EPA is the lead federal agency and will provide oversight of the Remedial Action.

E. Maine DEP is the lead state agency and will be responsible for implementation of OU1.

END OF SECTION

SECTION 01 2210

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SCOPE

A. Payment for various items shown on the Bid Schedule, as further specified herein shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, materials and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the work all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of compliance with the regulations of public agencies having jurisdiction. No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs, therefore, shall be included in the prices named in the Bid Schedules for the various appurtenant items of work.

1.02 METHOD OF MEASUREMENT AND PAYMENT

A. Measurement and payment for items shown on the Bid Schedule will be made in the manner presented below for each bid item.

1. Mobilization

a. Mobilization costs are costs of initiating and executing the contract, general contract administration costs, insurance and bonds, and the providing of facilities and controls not part of the project but necessary to administer and construct the project (refer to Section 01 3000). Costs for Mobilization shall not exceed five (5) percent of the total amount of the Bid.

b. Payment for Mobilization shall be at the lump sum price as indicated in the Bid Schedule as Item No. 1 and shall be payable when required facilities have been provided and the Contractor has substantially commenced work on site.

2. Remedial Action Work Plans

a. Remedial Action Work Plans for the Mine Operations Area to include Draft and Final Implementation Drawings, Construction Quality Control Plan for Remediation and Cover System, Off-Site Shipment and Disposal Plan, Site Management Plan, Site Health and Safety Plan, Sediment and Erosion Control Plan, and Interim Stockpile Plan. In addition, Remedial Action Work Plans for the Residential Use Area include Draft and Final Implementation Drawings, Construction Quality Control Plan for Remediation and Cover System, Sediment and Erosion Control Plan, Site Management Plan, Interim Stockpile Plan, and Property Restoration Plans.

b. Payment for Remedial Action Work Plans for Mine Operations and Residential Use Areas shall be considered a lump sum price as indicated in the Bid Schedule under Item 2, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents, and specified in the Project Manual.

3. Erosion and Sedimentation Control

a. Erosion and Sedimentation Control shall include installation of preventive measures in place prior to disturbance of surface cover, stockpiling of materials, and before precipitation occurs, and maintenance of preventive measures until final completion of work. Erosion Control measures shall control increased storm water runoff, minimize wind, water, and vehicular erosion of soil on project site, prevent erosion of soil and deposition of soils on other properties caused by water leaving the project site, prevent sedimentation of waterways on the project site, prevent sedimentation of waterways off the project site, and prevent standing water that could become stagnant due to construction activities for this project.

b. Payment for Erosion and Sedimentation Control shall be considered a lump sum price as indicated in the Bid Schedule under Item 3, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted in place by the Resident, in accordance with the Contract Documents, and specified in the Project Manual.

4. Clearing and Grubbing

a. Measurement for Clearing and Grubbing shall be made at the unit measure indicated on the Bid Schedule to include removal of all existing debris and waste above ground, stumps, and roots in areas within the limits of excavation shown on the Drawings.

b. Payment for Clearing and Grubbing shall be considered a unit price as indicated in the Bid Schedule under Item 4, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents, and specified in the Project Manual.

5. Rough Grading

a. Measurement for Rough Grading shall be made at the unit measure indicated on the Bid Schedule to include grading in accordance with Contract Documents for the areas shown for contouring at Ore Pad area and PCB Area to promote drainage.

b. Payment for Rough Grading shall be considered a unit price item as indicated in the Bid Schedule under Item 5, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

6. Residential Use Area Excavation and Stockpiling

a. Measurement for Residential Use Area Excavation and Stockpile shall be made at the unit measure indicated on the Bid Schedule to include excavation of soils contaminated with arsenic, thallium, and lead exceeding site-specific cleanup levels in the Residential Use Area identified on the drawings. In addition, all on-site hauling, placement, demarcation layer, and compaction of contaminated soils referenced above is included in this item for placement at the Tailings Impoundment area.

b. Payment for Residential Use Area Excavation/Stockpile shall be considered a unit price item as indicated in the Bid Schedule under Item 6, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

7. Ore Pad Removal and Stockpiling

c. Measurement for Ore Pad Removal and Stockpiling shall be made at the unit measure indicated on the Bid Schedule to include excavation of soils at the Ore Pad identified on the drawings. In addition, all on-site hauling, placement, demarcation layer, and compaction of contaminated soils referenced above is included in this item for placement at the former Operations Area Interim Stockpile.

d. Payment for Ore Pad Removal and Stockpiling shall be considered a unit price item as indicated in the Bid Schedule under Item 7, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

8. Common Borrow

a. Measurement for Imported Common Borrow shall be made at the unit measure indicated on the Bid Schedule to include filling with imported material in accordance with Contract Documents for backfill at the Residential Use Area.

b. Payment for Common Borrow shall be considered a unit price item as indicated in the Bid Schedule under Item 8, which price shall be full compensation for all labor, equipment, material, and all other incidentals required to satisfactorily

complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

9. Interim Stockpiles Cover Soil (stink cove sediment)

    a. Measurement for Interim Stockpile Cover as cover material shall be made at the unit measure indicated on the Bid Schedule to include excavating, dewatering, hauling, and placing stink cove sediment material at the Operations Area Interim Stockpile and Tailings Impoundment Area.

    b. Payment for Interim Stockpile Cover shall be considered a unit price item as indicated in the Bid Schedule under Item 9, which price shall be full compensation for all labor, equipment, material, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

10. 16 oz Non-Woven Geotextile

    a. Measurement for Non-Woven Geotextile shall be made at the unit measure indicated on the Bid Schedule to include providing installed materials as measured by the Resident where installed, and accepted in accordance with the Contract Documents.

    b. Payment for Non-Woven Geotextile shall be considered a unit price item as indicated in the Bid Schedule under Item 10, which price shall be full compensation for all labor, equipment, material, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

11. 60 mil HDPE Geomembrane

    a. Measurement for 60 mil HDPE Geomembrane shall be made at the unit measure indicated on the Bid Schedule to include providing installed materials as measured by the Resident where installed, and accepted in accordance with the Contract Documents.

    b. Payment for 60 mil HDPE Geomembrane shall be considered a unit price item as indicated in the Bid Schedule under Item 11, which price shall be full compensation for all labor, equipment, material, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

12. Double Sided Geocomposite

a. Measurement for Double Sided Geocomposite shall be made at the unit measure indicated on the Bid Schedule to include providing installed materials as measured by the Resident where installed, and accepted in accordance with the Contract Documents.

b. Payment for Double Sided Geocomposite shall be considered a unit price item as indicated in the Bid Schedule under Item 12, which price shall be full compensation for all labor, equipment, material, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

13. Aggregate Base

a. Measurement for Aggregate Base shall be made at the unit measure indicated on the Bid Schedule to include material suitable for road construction consisting of clean screened or crushed gravel of hard durable particles meeting the requirement set forth in the project manual and shall be free of trash, ice, snow, tree stumps, roots and excessive organic and deleterious materials.

b. Payment for Aggregate Base shall be considered a unit price item as indicated in the Bid Schedule under Item 13, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

14. Aggregate Subbase

a. Measurement for Aggregate Subbase shall be made at the unit measure indicated on the Bid Schedule to include material suitable for road construction consisting of clean screened or crushed gravel of hard durable particles meeting the requirement set forth in the project manual and shall be free of trash, ice, snow, tree stumps, roots and excessive organic and deleterious materials.

b. Payment for Aggregate Subbase shall be considered a unit price item as indicated in the Bid Schedule under Item 14, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

15. Top Soil

a. Measurement for Top Soil shall be made by the unit measure indicated on the Bid Schedule to provide imported top soil in accordance with the Contract Documents for the area shown for coverage by top soil.

b. Payment for Top Soil shall be considered a unit price item as indicated in the Bid Schedule under Item 15, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

16. Restoration

a. Measurement for Restoration shall be made at the unit measure indicated on the Bid Schedule to include providing specified vegetation, including seeding, in areas shown on drawings.

b. Payment for Restoration shall be considered a unit price item as indicated in the Bid Schedule under Item 16, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

17. Boat Ramp

a. The Boat Ramp shall be measured and paid for as a unit of work which will be based on a negotiated and agreed upon price between the Owner and the Contractor which will be based on a fixed scope of work once it is thoroughly identified. An allowance has been provided for this work task.

18a. Wastewater Treatment and Disposal – Fassnacht – Tax Map 9 Lot 29

a. Measurement for Wastewater Treatment and Disposal – Fassnacht -Tax Map 9 Lot 28 shall be made at the lump sum price as indicated on the Bid Schedule under Item 18a, installed and accepted by the Resident in accordance with the Plans and Specifications

b. Payment for Wastewater Treatment and Disposal – Fassnacht-Tax Map 9 Lot 28 shall be considered a lump sum price as indicated in the Bid Schedule under Item 18a, which price shall be full compensation for all labor, equipment, materials, to successfully remove and/or abandon the existing septic tank and overboard discharge system and install a three compartment concrete tank, secondary treatment unit, building sewer, three foot diameter pump tank, pump, alarm system, electrical power, fittings, force main, distribution box, concrete chambers, crushed stone, piping, filter fabric, insulation, backfill, compaction,

loam, seed, mulch and all other incidentals required to satisfactorily complete the work.

18b. Wastewater Treatment and Disposal – Sandecki and Betts -Tax Map 9 Lot 28

a. Measurement for Wastewater Treatment and Disposal – Sandecki and Betts -Tax Map 9 Lot 29 shall be made at the lump sum price as indicated on the Bid Schedule under Item 18b, installed and accepted by the Resident in accordance with the Plans and Specifications

b. Payment for Wastewater Treatment and Disposal – Sandecki and Betts -Tax Map 9 Lot 29 shall be considered a lump sum price as indicated in the Bid Schedule under Item 18b, which price shall be full compensation for all labor, equipment, materials, to successfully remove and/or abandon the existing septic tanks, pump station, above ground force mains, gravity sewer lines, electrical power lines and install a 750 gallon settling tank, 1,000 gallon lowboy septic tank, building sewer, a three compartment concrete tank, secondary treatment unit, 3 foot diameter pump tank, pump, alarm system, electrical power, fittings, force main, distribution box, concrete chambers, crushed stone, piping, filter fabric, insulation, backfill, compaction, loam, seed, mulch and all other incidentals required to satisfactorily complete the work.

18c. Wastewater Treatment and Disposal -Peters -Tax Map 9 Lot 31

a. Measurement for Onsite Wastewater Treatment and Disposal -Peters -Tax Map 9 Lot 31 shall be made at the lump sum price as indicated on the Bid Schedule under Item 18c, installed and accepted by the Resident in accordance with the Plans and Specifications

b. Payment for Onsite Wastewater Treatment and Disposal -Peters -Tax Map 9 Lot 31 shall be considered a lump sum price as indicated in the Bid Schedule under Item 18c, which price shall be full compensation for all labor, equipment, materials, to successfully remove the existing septic tank and install a 1,000 gallon septic tank, building sewer, three foot diameter pump tank, pump, alarm system, electrical power, fittings, force main, distribution box, concrete chambers, crushed stone, piping, filter fabric, insulation, backfill, compaction, loam, seed, mulch and all other incidentals required to satisfactorily complete the work.

18d. Wastewater Treatment and Disposal System- Gray -Tax Map 9 Lot 32

a. Measurement for Wastewater Treatment and Disposal - Gray -Tax Map 9 Lot 32 shall be made at the lump sum price as indicated on the Bid Schedule under Item 18d, installed and accepted by the Resident in accordance with the Plans and Specifications

b. Payment for Wastewater Treatment and Disposal - Gray -Tax Map 9 Lot 32 shall be considered a lump sum price as indicated in the Bid Schedule under Item 18d, which price shall be full compensation for all labor, equipment, materials, to successfully remove the existing septic tanks and overboard discharge system and install a 1,000 gallon septic tank, three foot diameter pump tank, pump, alarm system, electrical power, fittings, force main, distribution box, concrete chambers, crushed stone, piping, filter fabric, insulation, backfill, compaction, loam, seed, mulch and all other incidentals required to satisfactorily complete the work.

19.PCB $\geq$ 50 ppm Excavation

a. Measurement for PCB Excavation $\geq$ 50 ppm shall be made at the unit measure indicated on the Bid Schedule under Item 19 to include excavation and vacuuming of all areas shown on the drawings in the Mine Operations Area exceeding 50 ppm.

b. Payment for PCB Excavation $\geq$ 50 ppm shall be considered a unit price item as indicated in the Bid Schedule under Item 19, which price shall be full compensation for all labor, equipment, materials, stockpiling, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

20. PCB $\geq$ 50 ppm Disposal

a. Measurement for PCB Disposal $\geq$ 50 ppm shall be made at the unit measure indicated on the Bid Schedule under Item 20 to include Transportation and disposal of all PCB contaminated material equal to or exceeding 50 ppm.

b. Payment for PCB Disposal $\geq$ 50 ppm shall be considered a unit price item as indicated in the Bid Schedule under Item 20, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

21. PCB $\leq$ 50 ppm Excavation

a. Measurement for PCB Excavation $\leq$ 50 ppm shall be made at the unit measure indicated on the Bid Schedule under Item 21 to include excavation and vacuuming of all PCB contaminated areas shown on the drawings in the Mine Operations Area exceeding or equal to 50 ppm.

b. Payment for PCB Excavation $\leq$ 50 ppm shall be considered a unit price item as indicated in the Bid Schedule under Item 21, which price shall be full compensation for all labor, equipment, materials, stockpiling, and all other incidentals required to satisfactorily complete the work, as accepted by the

Resident, in accordance with the Contract Documents and specified in the Project Manual.

22. PCB ≤ 50 ppm Disposal

a. Measurement for PCB Disposal ≤ 50 ppm shall be made at the unit measure indicated on the Bid Schedule to include Transportation and disposal of all PCB contaminated material equal to or exceeding 50 ppm.

b. Payment for PCB Disposal ≤ 50 ppm shall be considered a unit price item as indicated in the Bid Schedule under Item 22, which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

23. Demolition

a. Measurement for Demolition shall be made at the lump sum measure indicated on the Bid Schedule to include removal and disposal on-site of concrete foundations and slabs remaining in the former mine operations area, cutting of reinforcement steel, and testing of concrete for PCB contamination. Contingent upon analytical results a cost for off-site will be determined between Contractor and Resident.

b. Payment for Demolition shall be considered a lump sum price item as indicated in the Bid Schedule under Item 23, which price shall be full compensation for all labor, equipment, materials, on-site disposal, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual. Contingent upon analytical results a cost for off-site will be determined between Contractor and Resident

24. Remedial Action Report

a. Remedial Action Report for the Mine Operations Area and Residential Use Areas shall be made at the lump sum measure indicated on the Bid Schedule to include documentation of all remediation activities in accordance with the Contract Documents.

b. Payment for Remedial Action Report for Mine Operations and Residential Use Areas shall be considered a lump sum price as indicated in the Bid Schedule under Item 24 which price shall be full compensation for all labor, equipment, materials, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents, and specified in the Project Manual.

ALTERNATIVE A – OLD MINE ROAD PAVING

Measurement and payment for Alternative A items shown on the Bid Schedule will be made in the manner presented below for each Bid Item.

A1. 2"19 mm HMA

a. Measurement for 2" 19 mm HMA shall be made at the unit measure indicated on the Bid Schedule to include bituminous pavement used in accordance with Contract Documents for the areas shown on the drawings.

b. Payment for 2" 19 mm HMA shall be considered a unit price item as indicated in the Bid Schedule under item A1, which price shall be full compensation for all labor, equipment, materials, compaction, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

A2. 1½" 12.5 mm HMA

a. Measurement for 1 ½" 12.5 mm HMA shall be made at the unit measure indicated on the Bid Schedule to include bituminous pavement used in accordance with Contract Documents for the areas shown on the drawings.

b. Payment for 1 ½" 12.5 mm HMA shall be considered a unit price item as indicated in the Bid Schedule under Item A2, price shall be full compensation for all labor, equipment, materials, compaction, and all other incidentals required to satisfactorily complete the work, as accepted by the Resident, in accordance with the Contract Documents and specified in the Project Manual.

END OF SECITON

CES INC

SECTION 01 3000

SITE MANAGEMENT

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Contractor shall furnish all labor, equipment, and materials necessary to provide for the proper on-site handling and management of materials including, but not limited to, excavated contaminated soils, borrow soils, fill materials, etc. Contractor will be responsible for preparing a Site Management Plan for both OU1 work areas: the Mine Operations Area, and the Residential Use Area. These plans shall identify site access, traffic routing, and site controls as well as proposed methods of managing equipment, materials, dust, stockpiles, and site facilities. Improvements to existing on-site haul roads and drainage systems in order to conduct the Work shall be the sole responsibility of the Contractor as required to safely access the various work areas and control surface drainage. No remediation activities shall occur prior to approval of Site Management Plans.

B. PCB-contaminated soils to be excavated in the Mine Operations Area shall be direct loaded for off-site disposal or segregated and temporarily stockpiled with appropriate control measures. Stockpiling of excavated PCB-contaminated soils shall not be allowed unless Contractor prepares and submits a Stockpile Plan which adequately controls the potential for contamination of surrounding areas. The Stockpile Plan shall be approved by the Owner prior to any remedial activities.

C. Excavation of soils from the Residential Use Area shall be directly loaded and stockpiled at the tailings Impoundment. Stockpiling excavated material on residential properties shall not be performed. Contractor shall prepare and submit an Interim Stockpile Plan for placement of contaminated materials at the Operational Area Interim Stockpile. The plan shall include location of stockpile and proposed management activities to prevent surface run-on and runoff and prohibit any contamination of surrounding areas. The Interim Stockpile Plan shall be approved by the Owner prior to any remedial activities.

D. The Contractor shall provide a system to weigh loaded trucks for the tracking of material to be disposed of offsite. The scale location and method shall be submitted by the Contractor for Owner approval to document and verify disposal quantities. The system shall include a certified truck scale such as a portable truck scale or similar device approved by the Resident and/or Owner. A scale shall be certified and shall be calibrated in accordance with the manufacturer's recommendations. Calibration shall be made at least monthly.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01 1000: Summary of Work

B. Section 01 3300: Submittal Procedures

C. Section 01 3510: Health and Safety

D. Section 01 4000: Quality Requirements

E. Section 01 5000: Temporary Facilities and Controls

F. Section 01 5213: Field Offices and Sheds

G. Section 01 5713: Erosion and Sedimentation Control

H. Section 31 3000: Earthwork

I. Section 31 8085: Off-Site Shipment and Disposal

1.03 SUBMITTALS

A. Submit to the Owner for approval the following in accordance with Section 01 3300, "Submittal Procedures":
   1. Site Management Plan – A Site Management Plan shall be prepared for both the Mine Operations Area and the Residential Use Area. The plans shall include the means and methods for conducting the work and managing the site including but not limited to:
      a. Identifying the materials requiring management.
      b. Temporary site facilities to be used or provided.
      c. Equipment and personnel to be used.
      d. General sequencing of the Work.
      e. Excavation procedures.
      f. Proposed access and haul routes.
      g. Site controls for dust and security.
      h. The use of the Site for staging, stockpiling or other activities.
      i. Means/methods of coordinating/scheduling the work with approved Disposal Facility;
      j. Means/methods of coordinating and scheduling work with private property owners/tenants.
      k. Truck scale location and procedures for weighing and documenting offsite disposal quantities.
      l. The Site Management Plan will be prepared in coordination with other required plans: Implementation Drawings; Construction Quality Control Plan (includes Sampling and Analysis Plan); Off-Site Shipment and Disposal Plan;

Sediment and Erosion Control Plan' Interim Stockpile Plan' Property Restoration Plan' and Site Health and Safety Plan.

2. Interim Stockpile Plan – For all Work Areas
   a. The plan shall provide information of the proposed interim stockpile within the existing Tailings Impoundment including means and methods for material placement. The implementation plan shall also provide the proposed dimensions, elevations, and footprint of the proposed stockpile. Contractor shall provide means/methods to allow visually segregating the interim stockpile material (i.e. fabric or snow fence demarcation layer prior to placement of excavated material, etc.) from existing tailings material to allow removal if required for future remediation activities. The contractor shall also assess run-on/run-off controls and internal drainage measures to prevent unacceptable run-off from the stockpile and achieve acceptable stability criteria determined from the Resident's geotechnical evaluation. The completed Interim Stockpile shall have cover systems as described in the Technical Specifications and as shown on the Drawings.

1.04 ON-SITE MANAGEMENT AND STORAGE OF MATERIALS

A. The Contractor shall be responsible for proper on-site management of debris, excavated soil and rock, and other wastes generated as part of the Work, in compliance with all Federal, State, and Local regulations and requirements.

B. The Contractor shall be responsible for movement/direction of the containers, trucks, etc. into positions required for proper loading and management of material.

C. For PCB contaminated soil, the Contractor shall provide a suitable base liner (i.e. 10-mil polyethylene sheeting) for temporary stockpiles to prevent direct contact and cross-contamination of the underlying soil. If used, the plastic sheeting shall be properly overlapped to protect against direct soil contact.

D. The Contractor shall cover any temporary PCB contaminated soil stockpiles during non-working periods at minimum with 6-mil polyethylene sheeting to prevent erosion of the stockpiles or uncontrolled runoff. The plastic sheeting shall be properly anchored.

E. Temporary stockpiles (if required) shall be located in a designated Stockpile Area, as approved by the Resident. The base of all stockpiles shall be contained by suitable sediment barriers such as siltation fence reinforced with staked straw bales.

1.05 TEMPORARY FACILITIES

A. Contractor's facilities shall be of size and content for adequate administration of the contract, storage of materials required, and provision for personnel shelter. Refer to Section 01 5000 and 01 5213.

B. Equipment required for personal safety of workmen shall be furnished in full compliance with specific safety requirements of local, state, and Federal agencies, including OSHA.

C. Required facilities include:
   a. Sanitary facilities for crews conforming to local codes and OSHA requirements
   b. Fire protection
   c. Safety equipment
   d. Temporary Site security fence

D. Other facilities that may be necessary or provided, depending on the Contractor's approach to the work and the preference of the Contractor, include, but are not limited to:
   1. Contractor's office and storage facilities. Provide, include adequate facilities for Resident (i.e., lighting, desk, and file cabinets).
   2. Yard lighting (if necessary).
   3. Construction warning, protection, and control devices for maintenance and safety of vehicular and pedestrian traffic (if necessary).

E. Provide and maintain sanitary facilities in sufficient numbers, for the use of all persons employed on the work at suitable locations in accordance with State and local ordinances. Rigorously enforce the use of the provided sanitary facilities.

F. Provide sufficient drinking water for all employees from an approved source.

G. Completely remove all temporary equipment and materials upon completion of the work and repair all damage caused by the installation of temporary utilities.

1.06 MEETINGS AND DAILY REPORTS

A. Contractor shall schedule and/or attend regular meeting with the Owner and Resident as follows:
   1. Pre-excavation kick-off meeting to review plans and schedule;
   2. Attend and provide technical support for public and property owner meetings;
   3. Weekly progress meeting to discuss work;
   4. Completion meetings for each component of work;
   5. Completion meetings for each property; and
   6. Overall completion meetings to confirm resolution of punch list items

B. Contractor shall prepare and submit daily work reports to include the following:
   1. Work completed and equipment utilized;
   2. Any unforeseen conditions or variations in the implementation plan;
   3. Personnel on site and weather conditions; and
   4. Provided photographic documentation of work progression in accordance with Section 01 7810, "Project Record Documents.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION

CES INC

SECTION 01 3300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Required submittals are identified in each technical performance-based specification section of the Contract Documents. The Contractor shall develop a submittal schedule to track the status of all submittals required as part of the work. Submittals shall be provided to the Owner's Representative, as required, unless otherwise specified. The Contractor shall furnish all labor, equipment, and materials necessary to demonstrate that proposed products/materials and proposed means/methods of construction conform to the intent of the performance based specification. Submittals may include:
   1. Drawings;
   2. Data;
   3. Instructions;
   4. Schedules;
   5. Statements;
   6. Reports;
   7. Certificates;
   8. Samples;
   9. Records; and
   10. Operation and Maintenance Manuals.

B. The two main work areas for the OU1 remediation in the Contract Documents are identified as the former Mine Operations Area and the Residential Use Area. Contractor shall, at a minimum, prepare and submit the following Remedial Action Work Plans and Reports for approval. Upon approval, these plans will become part of the Contract:
   1. Mine Operations Area
      a. Draft and Final Implementation Drawings
      b. Construction Quality Control Plan
         i. PCB Contaminated Material Remediation
         ii. Interim Stockpile and Cover System
      c. Off-Site Shipment and Disposal Plan
      d. Site Management Plan
      e. Site Health and Safety Plan
      f. Sediment and Erosion Control Plan
      g. Interim Stockpile Plan
      h. Remedial Action Report
      i. Operations and Maintenance Plan
   2. Residential Use Area
      a. Draft and Final Implementation Drawings
      b. Construction Quality Control Plan
         i. Residential Use Area Remediation

ii. Interim Stock Pile and Cover

c. Sediment and Erosion Control Plan
d. Site Management Plan
e. Interim Stockpile Plan
f. Property Restoration Plan
g. Site Health and Safety Plan
h. Remedial Action Report
i. Operations and Maintenance Plan

1.02 GENERAL REQUIREMENTS

A. All costs necessary for compliance with requirements of this Section shall be incidental to the bid items under which labor, equipment, and material is paid.

B. All data, drawings, and correspondence from Contractors, manufacturers, or suppliers shall be routed through Contractor. Owner's Representative shall review only such data and details as are transmitted to him by Contractor. All correspondence from Contractor to Owner's Representative shall refer to appropriate specification number and paragraph and/or sheet number of the Drawings containing subject matter of inquiry.

C. Upon review and acceptance of the Submittal by the Owner's Representative, the Submittal shall become a part of the Contract, and the work executed shall be in conformity with the same. Review of Submittals, however, shall in no way release the Contractor from his responsibility for proper fulfillment, by any fabrication, of the requirements of this Contract.

D. The Contractor's attention is specifically directed to the fact that no work shall be conducted, nor equipment or materials ordered, nor any construction performed, prior to approval by Owner's Representative of Submittals applicable thereto. Construction performed in violation of this requirement will be neither approved nor certified for payment until applicable Submittals have been submitted and approved. If any equipment or materials are ordered by Contractor prior to submission and approval of Submittals, it is done at Contractor's risk.

E. The Contractor is responsible for making necessary changes to other items, which may result from deviations or changes requested by the Contractor and approved by Owner's Representative, so that all items of work satisfy the requirements and intent of Contract Documents.

F. All submittals shall be submitted to the Maine Department of Environmental Protection (MDEP), USEPA, ad Owner's Representative in an electronic format consistent with the requirements for an electronic submittal to the EPA New England Record Center, unless otherwise approved by the Owner. Hard copy of each submittal shall be submitted to MDEP (3 copies), EPA (1 copy), and Owner's Representative (1 copy).

1.03 CONTRACTOR RESPONSIBILITIES

A. Review submittals prior to submission.

B. Coordinate each submittal with requirements of work and of Contract Documents.

C. Contractor's responsibility for errors and omissions in submittals is not relieved by the Owner or Owner’s Representative's review of submittals.

D. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by the Owner or Owner’s Representative's review of submittals, unless Owner’s Representative gives written acceptance of specific deviations.

E. Notify Owner’s Representative, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.

F. Begin work which requires submittals after return of Owner or Owner’s Representative's approval.

G. After Owner or Owner’s Representative's review, maintain file copies.

H. Contractor shall create and maintain a Project Submittal Register. The register shall detail submittal type, review history, approval status, and follow up action. The register shall be provided and updated as a requirement of progress payment approval.

1.04 OWNER’S REPRESENTATIVE’S REVIEW OF SUBMITTALS

A. The Owner or Owner’s Representative's review of submittals shall not be construed as a complete check, but is only for general conformance with the specifications for the project and general compliance with the information given in the Contract Documents. Review will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor is responsible for dimensions, the development of adequate drawings and details, the fabrication processes, the construction methods, and the satisfactory construction of all work.

B. Owner’s Representative’s review action codes are listed below.
   1. Approved (Code 1): Fabrication and installation may proceed.
   2. Approved as Noted (Code 2): Contractor shall make the changes noted, and then may proceed with fabrication or installation.
   3. Resubmission Required (Code 3): Contractor shall make the changes noted, and resubmit for an additional review cycle.
   4. Disapproved (Code 4): Contractor shall make the changes noted, which may involve a complete new product submittal, and resubmit for an additional review cycle.

C. After submittals have received a review Code 1 or 2 by the Owner's Representative, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by a detailed explanation of why a substitution is necessary.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.01 GENERAL

A. The Contractor shall make submittals as required by the individual specification sections.

B. The Owner's Representative may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections.

C. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings.

D. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

E. Prior to submittal, all items shall be checked and reviewed by the Contractor and each item shall be certified, signed, and dated by the Contractor. Proposed deviations from the Contract Documents shall be clearly identified.

F. Submittals shall include items such as:
1. Manufacturer's or fabricator's drawings;
2. Descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves;
3. Test reports;
4. Samples;
5. O&M manuals (including parts list);
6. Certifications;
7. Warranties; and
8. Other pertinent data.

G. Submittals requiring Owner's Representative review shall be scheduled and made prior to the acquisition of the material or equipment covered thereby.

H. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.02 SUBMITTAL REQUIREMENTS

A. Transmittal Form:
   1. A Contractor Shop & Vendor Submittal Transmittal Form shall accompany all submittals.
   2. The Transmittal shall be completed and furnished by the Contractor. Submittals shall be provided in three hard copies as well as in an electronic format as specified in Section 1.2F above.
   3. Transmittals shall include the following information, at a minimum:
      a. Submittal number in sequence, beginning with 1 (subsequent revised submittals shall be identified with a number and letter);
      b. Date;
      c. Project title and project number;
      d. Contractor's name and address;
      e. Identification of each item submitted;
      f. Reference to the specification number and paragraph and/or sheet number of the Contract Drawings pertinent to the data submitted.
      g. Notification of any deviations from Contract Documents;
      h. Return date required by Contractor; and
      i. Other pertinent data.

B. Contractor Certification: The Contractor’s Certification that the submittal meets contract requirements shall contain the following:
   1. Contractor firm name;
   2. Point of contact name, signature, and title;
   3. Date; and
   4. Contractor’s corrections as noted on submittal data and/or attached sheets(s).
   5. The certification may be provided as part of the Transmittal, on a separate sheet attached to the form, or as a stamp on the submittal itself.

C. Procedures:
   1. The Contractor shall schedule submissions at least 10 days before dates reviewed submittals will be needed, except where a different lead time is specified.
   2. The Contractor shall deliver to Owner’s Representative three copies of all submittals and Transmittals. To expedite the review of smaller submittals, the Contractor may provide a legible fax or e-mail, if followed by the required number of hard copies.
   3. The Contractor shall maintain one copy of the submittal and Transmittal on site.
   4. At the time of each submission, the Contractor shall call to the Owner’s Representative's attention, in writing, any deviations that the submittal may have from the requirements of the Contract Documents.

D. Submittals shall include:
   1. Date and revision dates;
   2. Project title and number;
   3. The names of:
      a. Resident or Owner’s Representative;

b. Contractor;
c. Contractor's Contractor;
d. Supplier;
e. Manufacturer; and
f. Separate detailer when pertinent.

4. Identification of product or material
5. Field dimensions, clearly identified as such;
6. Specification section number and paragraph or sheet number of the Drawings; and
7. Applicable standards, such as ASTM number or Federal Specification.

E. For submittals which include proposed deviations requested by the Contractor, "variation" shall be clearly indicated on the transmittal form. The Contractor shall state the reason for any deviations and annotate such deviations on the submittal. The Owner's Representative reserves the right to rescind inadvertent acceptance of submittals containing unnoted deviations.

F. Submittals shall be of standardized sizes.
1. Approved standard sizes shall be:
a. 24 inches by 36 inches;
b. 11 inches by 17 inches; and
c. 11 inches by 8 1/2 inches.

G. Provision shall be made in preparing submittals to afford a binding margin on left hand side of sheet.

H. Submittals put forward other than as specified herein may be returned for resubmittal without being reviewed.

3.03 RESUBMITTALS

A. The Contractor shall make all corrections required by the Owner's Representative and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on a submittal to constitute a change to the Contract, a notice in accordance with the Contract shall be given promptly to the Owner and the Owner's Representative.
B. Identify as a resubmission by adding a letter suffix to the original submittal number (1A for the first resubmission of the first submittal; 1B for the second resubmission; etc.).

3.04 REVIEW OF SUBMITTALS

A. Upon completion of review of submittals, the Owner's Representative will fax or email review action and comments to the Contractor.
B. The copies of the submittal will be retained by the Owner's Representative, with review action and comments attached to each copy.
C. The Contractor will attach the Owner's Representative's review action and comments to each copy of the submittal in his possession.

3.05 DISTRIBUTION OF SUBMITTALS

A. A file of all submittals made to the Owner's Representative, reviews by the Owner's Representative, resubmittals, and final approved submittals shall be maintained by the Contractor.

B. This file or a copy of the file shall be maintained by the Contractor at the job site while work is being conducted at the site.

END OF SECTION

CES INC

SECTION 01 3510

HEALTH AND SAFETY

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section covers the health and safety requirements to be followed for remedial construction activities at a site in the Village of Harborside in the Town of Brooksville, Maine, as shown specified herein, and as shown on the drawings. This Section provides requirements for preparing and submitting a site specific Health and Safety Plan (HASP). The requirements shall apply to all work performed at the site.

B. The remediation will consist of: 1) Excavation and proper off-site disposal of soil contaminated with polychlorinated biphenyls (PCBs) exceeding site-specific cleanup levels within the former Mine Operation Area; and 2) Excavation of soil containing arsenic, thallium, and lead exceeding site-specific cleanup levels in the Residential Use Area of the Site.

C. Work at the site will include excavation and handling contaminated soil and rock materials and could potentially expose workers to the site-specific contaminants. Employees potentially exposed to the contaminated material will be required to meet the training and health monitoring requirements of OSHA 29 CFR 1910 *Occupational Safety and Health Standards*.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01 1000: Summary of Work

B. Section 01 3300: Submittal Procedures

1.03 REFERENCES

A. 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.
   1. CODE OF FEDERAL REGULATIONS (CFR)
   2. 29 CFR 1910 *Occupational Safety and Health Standards*
   3. 29 CFR 1926 *Safety and Health Regulations for Construction*.

1.04 SUBMITTALS

A. The following shall be submitted in accordance with Section 01 3300, Submittal Procedures:

B. HASP: The HASP shall detail the health and safety procedures to be followed during completion of the work and shall be developed in accordance with this specification. The Contractor shall periodically review the plan during work operations to keep it

current and technically correct. The HASP shall include, but not be limited to, the following:

1. Job Hazard Analyses (JHA) for each task scheduled to be completed as part of the work.
2. Emergency Response Plan.

1.05 REGULATORY REQUIREMENTS

A. Work performed under this contract shall comply with applicable Federal, State, and local safety and occupational health laws and regulations. This includes, but is not limited to, Occupational Safety and Health Administration (OSHA) standards, 29 CFR 1910 *Occupational Safety and Health Standards*, especially Section 120, *Hazardous Waste Site Operations and Emergency Response* and 29 CFR 1926 *Safety and Health Regulations for Construction* for specific site activities.

1.06 PRE-CONSTRUCTION CONFERENCE

A. As part of the Pre-construction Conference the Contractor, or his/her representative, the on-site construction superintendent and designated Site Safety and Health Officer (SSHO) will provide general details of the Contractor's HASP.
   1. Recommended discussion topics include:
      a. Discussion and review of the Contractor's accident prevention plan.
      b. Review of site specific health and safety requirements.
      c. Review of the Contractor's list of anticipated phases of work requiring a JHA.
      d. Review of accident investigation and reporting requirements.
   2. The discussions at the pre-construction safety conference shall become a matter of record and shall be included as amendments to the Contractor's accident prevention plan.

1.07 SAFETY AND HEALTH PROGRAM

A. OSHA Standards 29 CFR 1910.120 *Hazardous Waste Site Operations and Emergency Response* (b) and 29 CFR 1926.65 *Hazardous waste operations and emergency response* (b) require employers to develop and implement a written Safety and Health Program for employees involved in hazardous waste operations. The site-specific program requirements of the OSHA Standards shall be integrated into one site-specific document. The HASP shall interface with the Contractor's overall Safety and Health Program. Any portions of the overall Safety and Health Program that are referenced in the HASP shall be included as appendices to the HASP.

1.08 SITE HEALTH AND SAFETY PLAN

A. Preparation and Implementation. A HASP shall be prepared covering on-site work to be performed by the Contractor and all subcontractors. The Contractor shall be responsible for the development, implementation and oversight of the HASP. The HASP shall establish, in detail, the protocols necessary for the anticipation, recognition, evaluation, and control of hazards associated with each phase of the work. The HASP shall address site-specific safety and health requirements and

procedures based upon site-specific conditions. The level of detail provided in the HASP shall be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted. Therefore, the HASP shall address, in as much detail as possible, anticipated tasks, their related hazards and anticipated control measures. Additional details shall be included in the JHAs as described in Section 1.9 Hazard/Risk Analysis.

B. Acceptance and Modifications. Prior to submittal, the HASP shall be signed by the SSHO and the Site Superintendent. The HASP shall be submitted for review seven days prior to execution of work at the site. On-site work shall not begin until the plan has been accepted. A copy of the written HASP shall be maintained on site. As work proceeds, the HASP shall be adapted to new situations and new conditions. Changes and modifications to the accepted HASP shall be made with the knowledge and concurrence of the SSHO, the Contractor's Site Superintendent, and the Owner. Disregard for the provisions of this specification or the accepted HASP shall be cause for stopping of work until the matter has been resolved.

1.09 HAZARD/RISK ANALYSIS

A. The HASP shall include a safety and health Job Hazard Analysis (JHA) for site tasks and operations to be performed as part of the contract. The JHA shall provide information necessary for determining safety and health procedures, equipment, and training to protect on-site personnel, the environment, and the public. The following elements, at a minimum, shall be addressed.
   1. Site Tasks and Operations (Implementation plan). The HASP shall summarize the tasks and objectives of the site operations of this project, and the logistics and resources required to achieve those tasks and objectives safely.
   2. Hazards. The following potential hazards may be encountered during site work. They are not complete lists; therefore, they shall be expanded and/or revised as necessary during preparation of the HASP.
      a. Safety Hazards. Potential safety hazards associated with the work on the Project could be related to operation of construction equipment, safety hazards associated with working near water, and safety hazards from scattered debris.
      b. Chemical Hazards. Potential chemical hazards that may be encountered during Site work will be discussed in the HASP. The JHA of the HASP shall describe the chemical, physical, and toxicological properties of contaminants, sources and pathways of employee exposures, anticipated on-site and off-site exposure level potentials, and regulatory (including federal, state, and local) or recommended protective exposure standards. The HASP shall also address employee exposure to hazardous substances brought on site, and shall comply with the requirements of 29 CFR 1910.1200 *Hazard Communication* and 29 CFR 1926.59, *Hazard Communication.* A copy of the Owner's *Health and Safety Plan* will be provided to the Contractor to assist in determining the potential hazards/risks.
      c. Physical Agents. Potential physical hazards during work on the Site could include heat stress and cold stress; noise related hazards; physical strain from heavy lifting; and slips, trips, and falls from scattered debris on the site.

d. Biological Hazards. Potential biological hazards associated with the work on the Site could include insect and animal bites and contact with poison ivy.

3. Action Levels. Action levels shall be established in the HASP for situations anticipated or potential at the site.

1.10 JOB HAZARD ANALYSES

A. Prior to beginning work, Job Hazard Analyses (JHA) shall be prepared for each anticipated activity, by the Contractor performing that work. Analyses shall define the activities to be performed and identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. The JHA shall be continuously reviewed and when appropriate modified to address changing site conditions or operations, with the concurrence of the SSHO, and the Site Superintendent. JHAs shall be attached to, and become a part of, the HASP.

1.11 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

A. An organizational structure shall be developed that sets forth lines of authority (chain of command), responsibilities, and communication procedures concerning site safety, health, and emergency response.

1.12 TRAINING

A. Personnel shall receive training in accordance with the Contractor's written safety and health training program and 29 CFR 1910.120, 29 CFR 1926.65, and 29 CFR 1926.21.

1. All personnel working at the site will be required to receive training consistent with 40 CFR 1910.120(e). At a minimum employees will receive the 40-hour OSHA training as required by 40 CFR 120(e)(3)(i).
2. Site-specific Training. Site-specific training sessions shall be documented, scheduled in advance and attendance shall be mandatory for the appropriate personnel.
   a. Initial Session (Pre-entry Briefing). Prior to commencement of on-site field activities, all site employees shall attend a site-specific safety and health training session of appropriate duration. Training shall be conducted by the SSHO or other qualified individual to ensure that all personnel are familiar with requirements and responsibilities for maintaining a safe and healthful work environment.
   b. Periodic Sessions. Periodic on-site training shall be conducted by the SSHO as needed for new personnel assigned to work at the site or personnel assigned to new tasks during the execution of the project. The training shall address safety and health procedures, work practices, any changes in the HASP, activity hazard analyses, work tasks, or schedule; and review of safety discrepancies and accidents shall be included.
   c. Daily tail-gate or general health and safety discussions pertinent to the day’s work shall be held and documented in daily Contractor field reports.

1.13 PERSONAL PROTECTIVE EQUIPMENT

A. PPE Program. In accordance with 29 CFR 1910.120 (g)(5) and 29 CFR 1926 .65 (g)(5), a written Personal Protective Equipment (PPE) program which addresses the elements listed in that regulation, and which complies with respiratory protection program requirements of 29 CFR 1910.134, is to be included in the Contractor's Safety and Health Program. The HASP shall detail the minimum PPE ensembles (including any necessary respiratory protection) and specific materials from which the PPE components are constructed for each site-specific task and operation to be performed. On-site personnel shall be provided with appropriate personal protective equipment. Protective equipment and clothing shall be kept clean and well maintained. The PPE Section of the HASP shall include site-specific procedures to determine PPE program effectiveness and storage of PPE.

B. Levels of Protection. The SSHO shall establish appropriate levels of protection for each work activity based on review of historical site information, existing data, and an evaluation of the potential for exposure (inhalation, dermal, ingestion) during each phase of the work.

1.14 MEDICAL SURVEILLANCE

A. The Contractor's medical surveillance program shall be detailed in the HASP.

B. A medical examination statement shall be obtained for all employees conducting work at the site similar to the one provided at the end of this specification.

1.15 DUST CONTROL

A. Dust monitoring shall consist of continual visual observation of dust generation during construction activities to ensure off-site migration of dust is not occurring. At the first observation of dust being generated, dust controls shall be implemented immediately.

B. During non-working hours, the Site shall be left in a condition that will prevent dust from being generated. The Contractor shall monitor weather reports for dry and/or windy conditions and prepare the Site accordingly, including site activity procedure revisions as necessary.

1.16 HEAT AND COLD STRESS MONITORING

A. The Site SSHO shall develop a heat stress and cold stress monitoring program for on-site activities. Schedules for work and rest, and physiological monitoring requirements, shall be described in the HASP. Details regarding the monitoring program shall be included in the HASP only as changes to the program are anticipated. Personnel shall be trained to recognize the symptoms of heat and cold stress. The SSHO and an alternate person shall be designated to be responsible for the heat and cold stress monitoring program.

1.17 SAFETY PROCEDURES AND WORK PRACTICES

A. The HASP shall describe the standard operating safety procedures and safe work practices to be implemented for the work. Possible procedures may include, but shall not be limited to, the following:
   1. General Site Rules/Prohibitions;
   2. Security Procedures;
   3. Material Handling Procedures; and
   4. Spill and Discharge Control

1.18 PERSONAL HYGENE

A. Personnel, equipment, and material entering/leaving the Site shall adhere to the personal hygiene provisions identified in the HASP. A discussion of personal hygiene and potential decontamination facilities and procedures to be followed by site workers shall be submitted as part of the HASP.

1.19 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

A. The HASP shall describe the emergency and first aid equipment to be available on site, the specific locations of the equipment and identification of individuals trained in the use of such equipment who are first aid and /or CPR certified by a recognized training organization (e.g., American Red Cross).

1.20 EMERGENCY RESPONSE AND CONTINGENCY PROCEDURES

A. An Emergency Response Plan, that meets the requirements of 29 CFR 1910.120 (l) and 29 CFR 1926.65 (l), shall be developed and implemented as a Section of the HASP. This plan/section shall be formatted as a stand alone document.

B. In the event of any emergency associated with remediation activities, the Contractor shall, without delay, alert all on-site employees that there is an emergency situation; take action to remove or otherwise minimize the cause of the emergency; alert the Owner and institute measures necessary to prevent repetition of the conditions or actions leading to, or resulting in, the emergency. Employees that are required to respond to hazardous emergency situations shall be trained in how to respond to such expected emergencies.

C. The Contractor shall meet and discuss with local emergency response personnel and dispatchers of the work in progress and provide documentation of such meetings.

1.21 INSPECTIONS

A. The SSHO shall perform inspections of the jobsite and the work in progress to ensure compliance with the Safety and Health Program, and other occupational health and safety requirements of the contract. Procedures for correcting deficiencies should be included.

B. Safety inspection activity logs shall be used to document the inspections, noting safety and health deficiencies, and corrective actions taken. The SSHO's Daily Inspection Logs shall be attached to and submitted with the Daily project reporting and shall include the date, work area checked, employees present in work area, PPE and work equipment being used in each area, special safety and health issues and notes, and signature of preparer. In the event of an accident, the Owner shall be notified immediately of any reportable accident; an appropriate Accident Report shall be completed and submitted by the Contractor within 24 hours of the accident.

EMPLOYEE MEDICAL EXAMINATION STATEMENT: I have had a medical examination within the last twelve months which was paid for by my employer. The examination included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray. A physician made a determination regarding my physical capacity to perform work tasks on the project while wearing protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's industrial hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

Were no limitations to performing the required work tasks; ( )

Were identified physical limitations to performing the required work tasks. ( )

[Employee's][Visitor's] Signature _____

Date _____

Printed Name_____

Social Security Number _____

Contractor's Site Safety and Health Officer Signature _____

Date _____

Printed Name _____

Social Security Number _____

END OF SECTION

CES INC

SECTION 01 3553

SECURITY PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Security measures including entry control, personnel identification, and miscellaneous restrictions.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 – Summary.

B. Section 01 3000 – Site Management.

C. Section 01 3510 – Health and Safety

D. Section 01 5000 - Temporary Facilities and Controls.

1.03 SECURITY PROGRAM

A. Protect Work, existing premises and Remediator's operations from theft, vandalism, and unauthorized entry.

B. Initiate program at project mobilization.

C. Maintain fence until completion of Project.

D. Maintain program throughout construction period.

1.04 ENTRY CONTROL

A. Restrict entrance of unauthorized persons and vehicles into Project site and existing facilities.

B. Allow entrance only to authorized persons designated to work on site.

C. Fencing removed to allow Work must be secured at the end of the work day.

1.05 RESTRICTION

A. Do no work on Sundays.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

CES INC

SECTION 01 4000

CONSTRUCTION QUALITY CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section covers quality control and testing procedures to be completed during Work by the Contractor and/or Contractor's Subcontractors. Prior to commencement of Work, the Contractor shall prepare a Construction Quality Control (CQC) Plan detailing the procedures to be followed and testing to be completed. The CQC Plan shall include a Sampling and Analysis Plan for verification sampling and analyses of completed excavations.

B. Quality control testing shall be executed by the Contractor as required in this specification.

C. The sampling and analysis shall be conducted in accordance with USEPA and MEDEP standards and requirements for environmental sampling and analysis and cover system components manufacturing, installation, and testing.

D. The Owner will implement a separate Construction Quality Assurance (CQA) program to provide adequate confidence, the items, service, and data meet contractual requirements and desired results. A separate Quality Assurance Plan that outlines the Construction Quality Assurance (CQA) requirements will be prepared and submitted to the Contractor. The program will be implemented by the CQA Consultant retained by the Owner to ensure conformity of the project documents.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01010: Summary of Work

B. Section 01340: Submittal Procedures

C. Section 01780: Project Record Documents

1.03 SUBMITTALS

A. Mine Operations Area - Construction Quality Control Plan:
   1. Contractor shall prepare and submit a CQC Plan for Work to be completed within the former Mine Operations Area. The CQC plan shall identify personnel, procedures, instructions, records, and forms to be used in carrying out the requirements of this project.
   2. Excavated PCB-contaminated soil shall be segregated based on PCB concentrations less than 50 mg/kg and equal to or greater than 50 mg/kg and shall not be commingled.

3. The sampling plan shall describe the sampling requirements to confirm that the remaining soil in completed excavations is equal to or less than the cleanup level threshold of 1 mg/kg for PCBs.
4. Proposed Project Analytical Laboratory and certifications, personnel qualifications, equipment, analytical methods, and sample quantitation limits.
5. No work on-site shall be permitted until comments received are adequately addressed by the Contractor and the CQC Plan is approved by the Owner.

B. Residential Use Area - Construction Quality Control Plan:
   1. Contractor shall prepare and submit a CQC Plan for Work to be completed within the Residential Use Area. The CQC plan shall identify field sampling and quality control procedures for the sampling of arsenic, lead, and thallium.
   2. The plan shall include the use of field measurements using portable x-ray fluorescence (XRF) techniques at each property to confirm the extent of lead above 375 mg/kg, arsenic above 14 mg/kg, and thallium above 15 mg/kg.
   3. The sampling plan shall describe the sampling requirements to confirm that the remaining soil in completed excavations is below the site-specific cleanup levels.
   4. Proposed Project Analytical Laboratory and certifications, personnel qualifications, equipment, analytical methods, and sample quantitation limits.
   5. No work on-site shall be permitted until comments received are adequately addressed by the Contractor and the CQC Plan is approved by the Owner.

C. Sampling and Analysis Reports:
   1. Submit the following reports:
      a. Field sampling data records including copies of completed field sheets, chain-of-custodies, and field log book entries;
      b. Electronic and hard copy Laboratory Data Deliverable;
      c. Data Usability Summary Report including certification that a representative portion of the data has been validated by a person independent of the laboratory according to Region I, EPA – New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Revised December 1996. Validation shall be at a rate of 10% Tier 3 and 90% Tier 2 validation.
      d. Interim Stockpile – Construction Quality Control Plan:
         1. Contractor shall prepare and submit a CQC Plan for Work to be completed to construct the Interim Stockpiles in the Mine Operations Area and Tailings Impoundment Area. The CQC Plan shall address the CQC requirements related to site preparation, placement of contaminated material, construction of cover system components.
         2. The Plan shall describe the CQC procedures and methods required by applicable EPA and DEP regulations, guidance and policies.
         3. The Plan shall address the related technical specifications for earthwork, geotextile, geomembrane, geocomposite, and interface friction testing.

4. No work on-site shall be permitted until comments received are adequately addressed by the Contractor and the CQC Plan is approved by the Owner

PART 2 - PRODUCTS

Not Applicable

PART 3 – EXECUTION

A. Provide qualified personnel, appropriate facilities, instruments, and testing devices necessary for the performance of the quality control function.

B. Controls shall be adequate to cover all construction operations, shall be keyed to the proposed construction sequence, and shall be coordinated by the Contractor's quality control personnel.

3.02 CONSTRUCTION QUALITY CONTROL (CQC) PLAN

A. Prepare and submit Construction Quality Control Plans to the Owner for approval.

B. Comments or approval from the Owner will be submitted to the Contractor within 10 calendar days following receipt of the plan. Contractor shall adequately respond to comments to the satisfaction of the Owner within 14 calendar days following receipt of any comments from the Owner.

C. No work on-site shall be permitted until the comments received are adequately addressed by the Contractor and the CQC Plan is approved by the Owner.

D. The CQC Plan, at a minimum, shall include the following:
   1. A description of the Quality Control Organization, including charts showing lines of internal Contractor authority, and external Contractor, subcontractor, and Owner relationships. The Quality Control Organization shall include the names, qualifications, duties, and responsibilities of each person assigned to a quality control function. The Quality Control Organization chart shall identify a Contractor's Quality Control Manager whose responsibilities and qualifications are described in the Article entitled "Construction Quality Control Organization" in this Section.
   2. The method for performing, documenting and enforcing quality control operations of both Contractor and subcontract work including sampling, inspecting, and testing.
   3. Inspections as described in the article entitled, "Inspections" in this Section.
   4. A list of analytical or testing laboratories to be used by the Contractor for testing required by these technical specifications.
   5. Protocol describing corrective actions to be taken by the Contractor with specifically defined feedback systems. The Resident will then decide what further corrective action, if any, shall be taken by the Contractor. Personnel responsible

for initiating and carrying out corrective action shall be indicated in the protocol.

E. Submit Weekly CQC Reports, Test Reports, Deficiency Reports and Project Summary as required by this specification.

3.03 NOTIFICATION OF CHANGE

A. After submittal and approval of the CQC Plan, the Owner shall be notified in writing of any proposed changes to the CQC Plan.

3.04 CONSTRUCTION QUALITY CONTROL ORGANIZATION

A. CQC Manager:
   1. Identify an individual, within the Contractor's organization at the work site, who shall be responsible for overall management of the CQC Plans and have the authority to act in all CQC matters for the Contractor.
   2. The CQC Manager for this contract shall be a qualified construction manager/engineer or comparable individual with a minimum of 2 years of applicable experience, at the Project Manager, Project Engineer, Superintendent or CQC Manager level, whose responsibility is to ensure compliance with the contract specifications. The CQC Manager shall be independent of the Project Superintendent.
   3. The CQC Manager shall be on-site whenever work is in progress so that he/she may be in charge of the CQC Plan for the project.
   4. All submittals for approval shall be reviewed and modified or corrected as needed by the CQC Manager or authorized assistants prior to forwarding each submittal to the Owner.

3.05 POST-EXCAVATION SOIL SAMPLE COLLECTION

A. Post-excavation soil samples shall be collected from the exposed excavation bottom and side slopes prior to backfilling.

B. Samples shall be collected by using a hand auger, trowel, or spoon to obtain the necessary volume of soil for each sample.

C. Samples shall be collected from the side slopes of the excavation at a rate of one sample per 17 linear feet of excavation sidewall taken from the mid-height of the side wall and one sample per 289 square feet of excavation bottom.

D. The required volume, containerization methods, and sample preservation methods shall be as directed by the Project Analytical Laboratory.

E. Based on the results of the soil sampling, additional soil excavation around any failed sample location shall be conducted consisting of an additional 6 inches deep by ½ the distance from adjacent acceptable sample results.

F. The site-specific cleanup levels are listed below:
   1. PCB - 1 mg/kg (Mine Operations Area)
   2. Petroleum Target Compounds and Hydrocarbon Fractions (EPA-VPH) – As listed for Park User in Table 5 of Remediation Guidelines for Petroleum Contaminated Sites in Maine, effective date December 1, 2009 (Mine Operations Area)
   3. Arsenic - 14 mg/kg (Residential Use Area)
   4. Lead - 375 mg/kg (Residential Use Area)
   5. Thallium - 15mg/kg (Residential Use Area)

3.06 LABORATORY ANALYSIS\

A. Soil samples shall be analyzed by the Project Analytical Laboratory for metals using USEPA Method 3050B/6010B, for PCBs using USEPA Method 8082 (extraction 3500B/3540C), and for Volatile Petroleum Hydrocarbons and Extractable Petroleum Hydrocarbons using Massachusetts Department of Environmental Protection Hydrocarbon Fraction Analytical Methods as adopted by the Maine Department of Environmental Protection.

B. The Project Analytical Laboratory shall provide full Contract Laboratory Program (CLP) – like data deliverables, including QC summaries and all supporting raw data and log book records.

C. Contractor shall prepare a Sampling and Analysis Report.

3.07 CONSTRUCTION INSPECTIONS

A. The CQC Plan shall include the following inspections and tests:
   1. The Contractor shall perform preparatory inspections prior to beginning each feature of work on any on-site construction work conducted by the Contractor or a subcontractor. Preparatory inspections for the applicable feature of work shall include:
      a. review of submittal requirements and all other Contract requirements with the performance of the work;
      b. check to assure that provisions have been made to provide required field work control testing;
      c. examine the work area to ascertain that all preliminary work has been completed;
      d. verify all field dimensions and advise the Resident of any discrepancies;
      e. perform a physical examination of materials and equipment to assure that they conform to approved shop drawings or submittal data and that all required materials and/or equipment are on hand and comply with the contract requirements.
   2. Perform initial inspection as soon as work begins on a representative portion of the particular feature of work, and include examination of the quality of workmanship as well as review of control testing for compliance with project requirements.

3. Perform follow-up inspections continuously as any particular feature of work progresses to ensure compliance with Contract requirements, including control testing, until completion of that feature of work.

3.08 TESTING

A. The Contractor shall be responsible for all required testing, documentation, and corrective measures. The Contractor shall perform tests specified or required to verify that control measures are adequate to provide a product which conforms to contract requirements.

3.9 REPORTING

A. An original and two copies of all inspection and testing results shall be reported daily, weekly, and in project reports unless noted otherwise. All reports shall be prepared and signed by the CQC Manager and submitted in an electronic format consistent with the USEPA format for electronic submissions to the EPA New England Record Center. All reports shall be legible, literate, complete, and must be submitted on time.
   1. Daily Submittals: Reproduce and fully execute the attached sample "CQC Report" to show all inspections, samples collected and test results and submit to the Resident on the first work day following the date covered by the report. Submit an original and two copies of this report. Complete the attached sample "CQC Test Report List" and attach to the CQC Report for submittal to the Owner.
   2. Deficiency Report: Submit a report to the Owner of any problems which arise with analysis, instrument calibration or quality control within 48 hours of the occurrence. Include proposed remedial action to be taken to correct the deficiency. A list of ongoing deficiencies to be corrected will be attached to the CQC Report daily. As deficiencies are corrected they are to be acknowledged in the day's CQC Report and deleted from the list.
   3. Project Summary: At the end of the construction, prepare a summary of CQC during the project. The report shall be a consolidation and summary of the CQC daily reports. Submit to the Owner.

END OF SECTION

CES INC

CQC REPORT

No. _____ Date_____

1. Contractor's name and address:

_____

_____

2. Project Title: _____

Location: _____

Contract No.: _____

3. Weather: _____

4. Description and Location of Work (include days of no work and reasons for delay):

5. Follow-up Inspections Performed. Results and Corrective Actions Taken:

SHEET 1 OF

6. Job Safety:

7. Miscellaneous Activities and Remarks (Check Appropriate Box):

   A. Preparatory or initial inspection held (see attached minutes)

   B. Testing Performed-See Attached Test Results and/or "CQC Test Report"

   C. Outstanding Deficiencies - See Attached "List"

   D. Verbal Instructions Received (or Comments)

   E. Delivery of Equipment and Materials

   F. Submittal Actions

   G. Misc/Remarks

   Use space below to describe checked items as appropriate.

8. Contractor's Verification: The above report and attachments are complete and all supplies, materials, equipment and workmanship incorporated into the work are in full compliance with the contract except as noted.

SIGNED_____ SHEET 2 OF

CES INC

CQC TEST REPORT LIST

CQC REPORT NO._____ SHEET___ OF_____
PROJECT TITLE:_____
LOCATION:_____

DATE:
CONTRACTOR:
CONTRACT NUMBER:

1. SPEC. PARA. OR DWG. REF.	2. TYPE OF TEST	3. DATE PERFORMED	4. RESULTS	5. REMARKS

Notes on Use of This Form: Contractor shall make up a list of tests by filling out Columns 1 and 2, allowing 3 lines for each entry. Contractor shall submit to Resident as part of the Quality Control Plan. As tests are performed the contractor will fill Columns 3, 4 and 5, including name of lab, and submit individual sheets as part of CQC report.

CES INC

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Waste removal facilities and services.

H. Project identification sign.

I. Field offices.

1.02 RELATED REQUIREMENTS

A. Section 01 5100 - Temporary Utilities.

B. Section 01 5213 - Field Offices and Sheds.

C. Section 01 5500 - Vehicular Access and Parking.

1.03 TEMPORARY UTILITIES - See Section 01 5100

A. Subcontractor will provide the following:
   1. Electrical power and metering, consisting of connection to temporary field office.

B. Provide and pay for all electrical power, lighting, heating and cooling, and ventilation required for construction purposes.

C. Existing facilities may not be used.

1.04 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:
   1. Telephone Land Lines: One line, minimum; one handset per line.

C. Remediator will pay for own telecommunications services.

1.05 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.06 BARRIERS

A. Maintain or provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public and to protect existing facilities and adjacent properties from damage from construction operations.

1.07 FENCING

A. Existing Commercial grade chain link fence.

B. Maintain existing fence around construction site.

1.08 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Resident's operations from unauthorized entry, vandalism, or theft.

1.09 VEHICULAR ACCESS AND PARKING - See Section 01 5500

A. Coordinate access and haul routes with governing authorities, Resident, Owner, and Residential Owners.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering public ways.

D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.10 WASTE REMOVAL

A. See Section 01 7419 - Waste Management, for additional requirements.

B. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

C. Provide containers with lids. Remove trash from site periodically.

D. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.11 FIELD OFFICES - See Section 01 5213

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture.

B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

C. Locate offices a minimum distance of 30 feet from existing structures.

1.12 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Final Application for Payment inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

CES INC

SECTION 01 5100

TEMPORARY UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Electricity, lighting, heat, ventilation, and water.

1.02 RELATED REQUIREMENTS

A. Section 01 5000 - Temporary Facilities and Controls:
   1. Temporary telecommunications services for administrative purposes.
   2. Temporary sanitary facilities required by law.

1.03 TEMPORARY ELECTRICITY

A. Cost: By Contractor.

B. Provide power service required from utility source. If available, Contractor will purchase alternative or low carbon energy.

C. Power Service Characteristics: 120 volt, 30 ampere, single phase, four wire.

D. Provide power outlets for construction operations. Provide flexible power cords as required.

E. Provide main service disconnect and over-current protection at convenient location and meter.

F. Permanent convenience receptacles may be utilized during construction.

G. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.04 TEMPORARY HEATING

A. Cost of Energy: By Remediator.

B. Provide heating devices and heat as needed to maintain specified conditions for construction operations.

1.05 TEMPORARY COOLING

A. Cost of Energy: By Remdiator.

B. Not required.

1.06 TEMPORARY WATER SERVICE

A. Cost of Water Used: By Remediator.

B. Not required.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

CES INC

SECTION 01 5213

FIELD OFFICES AND SHEDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary field offices for use of Contractor.

B. Temporary field offices for use of Resident.

C. Maintenance and removal.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 – Summary of Work.

B. Section 01 3000 Site Management.

C. Section 01 5000 - Temporary Facilities and Controls.

D. Section 01 5100 – Temporary Utilities.

E. Section 01 5500 - Vehicular Access and Parking.

1.03 USE OF EXISTING FACILITIES

A. Existing facilities shall not be used for field offices.

PART 2 PRODUCTS

2.01 CONSTRUCTION

A. Portable or mobile buildings, or buildings constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.

B. Construction: Structurally sound, secure, weather tight enclosures for office. Maintain during progress of Work; remove when no longer needed.

C. Lighting for Offices: 50 fc at desk top height, exterior lighting at entrance doors.

D. Fire Extinguishers: Appropriate type fire extinguisher at each office.

2.02 ENVIRONMENTAL CONTROL

A. Heating, Cooling, and Ventilating: Automatic equipment to maintain comfort conditions.

2.03 REMEDIATOR OFFICE AND FACILITIES

A. Size: For Resident’s and Remediator's needs, and to provide space for project meetings.

B. Telephone: As specified in Section 01 5000.

C. Furnishings in Meeting Area: Conference table and chairs to seat at least six persons; racks and files for Contract Documents, submittals, and project record documents.

D. Other Furnishings: Remediator’s option.

2.04 RESIDENT OFFICE

A. Separate space for sole use of Resident, with separate entrance door with new lock and two keys.

B. Windows: Minimum two minimum total area of 10 percent of floor area, with operable sash and insect screens. Locate to provide views of construction area.

C. Minimum four 110 volt duplex convenience outlets, one on each wall.

D. Sanitary Facilities: As specified in Section 01 5000.

E. Drinking Fountain: Convenient access by workers.

F. Furnishings:
   1. One desk 54 x 30 inch, with three drawers.
   2. One waste basket per desk and table.

PART 3 EXECUTION

3.01 PREPARATION

A. Fill and grade sites for temporary structures to provide drainage away from buildings.

3.02 INSTALLATION

A. Install office spaces ready for occupancy 15 days after date fixed in Notice to Proceed.

B. Parking: six hard surfaced parking spaces for use by Resident and meeting attendees, connected to office by walk.

C. Employee Residential Occupancy: Not allowed on property.

3.03 MAINTENANCE AND CLEANING

A. Weekly janitorial services for offices; periodic cleaning and maintenance for offices.

B. Maintain approach walks free of mud, water, and snow.

3.04 REMOVAL

A. At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

END OF SECTION

SECTION 01 5500

VEHICULAR ACCESS AND PARKING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Access roads.

B. Parking.

C. Construction parking controls.

D. Haul routes.

E. Maintenance.

F. Mud from site vehicles.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 – Summary of Work.

B. Section 01 3000 – Site Management.

C. Section 31 2200 - Grading.

PART 2 PRODUCTS

2.01 MATERIALS

A. Temporary Construction: Contractor's option.

PART 3 EXECUTION

3.01 PREPARATION

A. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.

3.02 ACCESS ROADS

A. Tracked vehicles not allowed on paved areas.

B. Location as approved by Resident.

3.03 PARKING

A. Use of designated areas of existing parking facilities by construction personnel is permitted.

B. When site space is not adequate, provide additional off-site parking.

C. Locate as approved by Resident.

3.04 CONSTRUCTION PARKING CONTROL

A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Resident's operations.

B. Prevent parking on or adjacent to access roads or in non-designated areas.

3.05 HAUL ROUTES

A. Confine construction traffic to designated haul routes.

B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.06 MAINTENANCE

A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, and ice.

B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

3.07 REMOVAL, REPAIR

A. Remove temporary roads at Substantial Completion.

B. Repair damage caused by installation.

3.08 MUD FROM SITE VEHICLES

A. Provide means of removing mud from vehicle wheels before entering streets.

END OF SECTION

CES INC

SECTION 01 5713

SEDIMENT AND EROSION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide materials, equipment, and labor necessary for the installation, inspection, and maintenance of silt and erosion control structures as specified herein or as required to protect surface waters throughout the Project.

B. At the completion of the remedial construction, provide materials, equipment, and labor necessary for the removal, transport, and disposal of silt, sediment, and erosion control structures not specified to remain. Remove, transport, and dispose of silt and sediment resulting from erosion control measures collected from disturbed areas by means consistent with the overall intent of this specification and which do not result in additional erosion.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01 1000: Summary of Work

B. Section 01 3300: Submittal Procedures

C. Section 31 0000: Earthwork

D. Section 32 9500: Restoration

1.03 SEDIMENT CONTROL GUIDELINES

A. “Maine Erosion and Sediment Control BMPs” Bureau of Land and Water Quality, Maine Department of Environmental Protection (MEDEP), March 2003.

B. Standard Specifications (SS), State of Maine Department of Transportation (MaineDOT), December 2002.

1.04 SEDIMENT AND EROSION CONTROL PLAN

A. The construction activities for this project require compliance with the “Maine Erosion and Sediment Control BMPs”, Maine Department of Environmental Protection, March 2003. Erosion and sediment control measures and procedures shall be in compliance with these standards and the requirements of the local soil conservation district (Hancock County).

B. Contractor shall provide a Sediment and Erosion Control Plan for approval by Resident.

C. Perform work in accordance with the approved Erosion Control Plan prior to commencing remediation activities in accordance with these requirements.

D. The Contractor shall notify the Owner one week prior to the pre-construction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.

1.05 REVIEW AND/OR INSPECTION OF SEDIMENTATION CONTROL MEASURES

A. Construction under this project may be subject to review and/or inspection by the appropriate local, State, and Federal agencies responsible for ensuring the adequacy of sedimentation control measures
.

B. Daily statements of erosion and sediment control inspections shall be provided in the Contractor's daily field reports.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Mulch:
1. Late cut, matured, and cured hay or straw that is free from primary noxious weed seeds and rough or woody materials meeting the requirements of MaineDOT SS Subsection 717.04.a.
2. Cellulose fiber mulch shall consist of elongated wood fibers from virgin or recycled sources and post consumer newsprint meeting the requirements of MaineDOT SS Subsection 717.04.b.
3. Bark mulch shall consist of soft wood bark fragments that have been aged for at least 6 months and meeting the requirements of MaineDOT SS Subsection 717.04.c.
4. Erosion Control Mix shall be an organic substance of source separated materials, separated at the point of waste generation, and may include: forest residues, bark, paper mill flume grit, stump grindings, and aged wood waste meeting the requirements of MaineDOT SS Subsection 717.04.d.

B. Mulch Binder: Mulch binder shall consist of commercially developed products for tacking of hay or straw. Binder shall be free of refuse, physical contaminants, materials toxic to plant growth, and asphalt and shall meet the requirements of MaineDOT SS subsection 717.05.

C. Seed for Erosion Control:
1. Temporary Control: Temporary seed mixes shall be in accordance with MEDEP guidelines based on seeding dates:
   a. April 1 to July 1 – Use Oats or Annual Rye Grass;
   b. May 15 to August 15 – Use Sudan grass;
   c. August 15 to September 15 – Use Perennial Rye Grass or Oats;
   d. August 15 to October 1 – Use Winter Rye; and
   e. October 1 to April 1 – Use Temporary mulch with dormant seeding.
2. Permanent Control: Refer to Section 32 9500, "Restoration".

D. Hay Bales: Hay bales shall consist of rectangular-shaped bales of hay or straw weighing approximately 40 pounds per bale and shall be free from primary noxious weed seeds and rough or woody materials.

E. Silt Fence:
   1. Silt fence shall consist of Envirofence, as manufactured by Mirafi Inc., (or an approved equal) having an equivalent opening size of 30 (or an approved equal).
   2. At critical locations, or as indicated or directed by the Resident, provide hog or chicken wire reinforcing with 6-inch or smaller openings or provide an approved integral silt fence and plastic mesh reinforcing, as necessary.

F. Permanent Seeding: Refer to Section 32 9500, “Restoration”.

G. Temporary Erosion Control Blankets (ECB):
   1. Temporary ECBs shall be used for the protection of newly seeded and/or disturbed soils and may be used as a substitute for temporary soil protection and for mulch for seed. Following placement of topsoil and seeding, temporary ECBs may be installed on disturbed soils where slopes are 4:1 or steeper, in constructed swales or ditches or as required to prevent erosion and allow vegetation to become established.
   2. Temporary ECBs shall be 100% biodegradable or photodegradable within two years but without substantial degradation over the period of intended usage (8 months maximum).

H. Silt Curtain:
   1. The floating silt curtain shall consist of a barrier curtain, a flotation system, and an anchorage system. It shall be installed in the locations were work is conducted at the edge of surface waters to mitigate the migration of sediment resulting from the work to downstream areas outside of the work area.
   2. The barrier curtain material shall consist of 10-mil polyethylene sheeting or a PVC or urethane coated polyester. A tension member consisting of a galvanized or stainless steel wire rope or nylon rope shall be installed in a top reinforced pocket sewn into the barrier curtain. The barrier curtain shall be a minimum of 24 inches deep and shall not extend to the bottom of the water body.
   3. The floatation system shall be comprised of two floats one attached to each side of the barrier curtain. The floats shall be located at a maximum 5-foot interval along the barrier curtain. An alternate floatation system may consist of a continuous close-cell foam tube.
   4. The anchorage system shall consist of anchor lines, anchor weights, and anchors. The system shall maintain the location of the barrier curtain under predicted flow conditions. The system shall be of the appropriate size and strength to absorb the stresses induced by the hydrodynamic forces (currents, waves, etc.) and forces due to the wind. The system should allow for easy deployment and retrieval of the barrier curtain.
      a. Anchor lines shall hold the silt curtain in its deployed location and configuration. The anchor lines shall be a minimum ¼-inch nylon or manila rope or a suitable steel cable.

b. Anchor weights of a suitable size and weight shall be set along the river bottom a minimum of 12 inches below the barrier at 10-foot intervals. Alternately, a ballast system comprised of a continuous ballast chain installed in a reinforced pocket sewn into the bottom of the barrier curtain may be used.
c. Anchors to connect the tensioning member of the turbidity curtain to the bank shall consist of steel rods or helical soil anchors with a minimum pull out and lateral load capacity as required to securely connect the turbidity curtain to the shoreline.

PART 3 – EXECUTION

3.01 PERFORMANCE

A. General:

1. The Contractor shall implement and maintain erosion and sedimentation control measures which effectively prevent accelerated erosion and sedimentation.
2. Earthmoving activities shall be conducted in such a manner as to prevent accelerated erosion and sedimentation.
3. Land disturbance shall be kept to a minimum.
4. The erosion and sediment control measures shall be constructed in accordance with the approved Drawings and Erosion Control Plan prepared by Contractor.
5. Temporary erosion and sediment control measures shall be installed as the first step in construction, shall be continuously maintained, and shall not be removed until permanent cover is completely established and stabilized.
6. Removal of temporary erosion and sediment control measures requires the approval of the Resident, at a minimum.
7. The following work areas will require erosion and sediment control measures:
   a. Perimeter of excavations or disturbed areas;
   b. Landscaped areas; and
   c. Temporary stockpile areas.
8. Furnish and place silt fence, and hay bales as temporary erosion and sedimentation control devices at locations as shown on the Drawings or as conditions warrant to control erosion.
9. Erosion control measures shall be employed to protect the site within the limit of work and any adjacent surface waters, drainage ways, or wetland.
10. Permanent erosion control measures shall be installed within 2 days of completion of finish grading activities. Areas to be completed with a vegetative cover shall be seeded and mulched.

B. Diverting Surface Water:

1. Build, maintain, and operate berms, channels, flumes, sumps, and other temporary diversion and protection works needed to divert surface water through or around the construction site and away from the construction work while construction is in progress.
2. Storm runoff from disturbed areas must discharge through temporary erosion control measures prior to discharge into a natural drainage way.

C. Erosion Control Provisions (as necessary):
1. Protect areas where existing banks are to be disturbed by constructing straw/hay bale or earth dikes at the top of slope to divert storm runoff from the disturbed area or at the toe of the slope to retain sediments, as conditions permit.
2. Contain discharge from any necessary pumping operations during dewatering operations with a dike constructed to prevent siltation of down gradient areas. Protect the discharge pipe outlet area against erosion by flowing water through a rock or timber apron.
3. Prior to removal of sediment barriers, remove retained silt or other materials at no additional cost to the contract.

D. Mulch: Hay or straw mulch shall be placed loosely approximately 3 inches deep or at the rate of 70 to 90 pounds per 1000 square feet.

E. Seed for Erosion Control:
1. Temporary Seeding: Minimum application rate shall be in accordance with MEDEP requirements for seed mix used (based on seeding dates):
   a. Winter Rye – 112 pounds/acre;
   b. Oats – 80 pounds\acre; and
   c. Ryegrass and Sudan grass – 40 pounds/acre.
2. Limestone: Apply limestone based on soil test results. When testing is not provided, apply at a minimum rate of 2 tons per acre.
3. Fertilizer: Apply fertilizer based on nutrient analysis. When testing is not provided, apply at a minimum rate of 500 pounds per acre.
4. Permanent Seeding: Refer to Section 32 9500, “Restoration”.

F. Silt Fence:
1. Install per manufacturer's requirements, and in locations shown on the Drawings or as directed by the Resident.

G. Hay bales for Erosion Control:
1. Place as shown on Drawings or as conditions change and additional controls are needed to provide for temporary control of erosion or pollution or both. Stake bales with the required stakes.

H. Other Sediment Barriers: Sediment barriers constructed from berms of erosion control mix, compost/bark, or compost-filled filter socks maybe used at locations suitable for their use and as approved by the Resident.

3.02 MAINTENANCE

A. General
1. Erosion and sediment control activities shall be conducted in accordance with the approved Erosion Control Plan prepared by the Contractor.
2. Erosion and sedimentation control measures shall be inspected by the Contractor on a daily basis, immediately prior to forecasted precipitation events, and at least twice daily during prolonged rainfall events. Inspection, repair, and/or maintenance of erosion and sedimentation control measures will

be made after significant rainfall events and documentation of site conditions and necessary repairs shall be recorded in daily reports.

3. Maintain the integrity of erosion control measures throughout construction period, including during any shut-down period.
4. All access roads shall be maintained during construction in a smooth and passable condition. Rutting, potholes, displacement of gravel and ditching for drainage shall be created and maintained in a manner acceptable to the Resident.

END OF SECTION

CES INC

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Transportation, handling, storage and protection.

B. Product option requirements.

C. Substitution limitations and procedures.

D. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

PART 2 PRODUCTS

2.01 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.03 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

B. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Will provide the same warranty for the substitution as for the specified product.
3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension that may subsequently become apparent.

C. Substitution Submittal Procedure:
1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
3. The Resident will notify Contractor in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

H. Prevent contact with material that may cause corrosion, discoloration, or staining.

I. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

J. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

CES INC

SECTION 01 7000

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Surveying for laying out the work.

C. Cleaning and protection.

D. Closeout procedures, except payment procedures.

E. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 – Summary of Work.

B. Section 01 6000 – Site Management.

C. Section 01 4000 - Quality Requirements.

D. Section 01 5100 - Temporary Utilities.

E. Section 01 5713 –Sediment and Erosion Control.

1.03 QUALIFICATIONS

A. For survey work, employ a land surveyor registered in the State in which the Project is located and acceptable to Resident. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.04 PROJECT CONDITIONS

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
   1. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.05 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or mis-fabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Resident of any discrepancies discovered.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to Resident the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Resident.

F. Utilize recognized Residenting survey practices.

G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, and ground floor elevations.

H. Periodically verify layouts by same means.

I. Maintain a complete and accurate log of control and survey work as it progresses.

3.03 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

D. Make neat transitions between different surfaces, maintaining texture and appearance.

3.04 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.05 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.06 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean debris from drainage systems.

C. Clean site; rake clean landscaped surfaces.

D. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.07 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Notify Resident when work is considered ready for Substantial Completion.

C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Resident's review.

D. Notify Resident when work is considered finally complete.

E. Complete items of work determined by Resident's final inspection.

F. Prepare and obtain Owner approval of Remedial Action Report

3.08 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

END OF SECTION

CES INC

SECTION 01 7419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Resident requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Required Recycling, Salvage, and Reuse: The following may not be disposed of on site:
   1. Land clearing debris, including brush, branches, logs, and stumps: See Section 31 1000 for use options.
   2. Metals, including, but not limited to packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.

E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.

F. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Dumping or burying on other property, public or private.
   3. Other illegal dumping or burying.

G. Regulatory Requirements: Remediator is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 – Summary or Work.

B. Section 01 6000- Site Management

C. Section 01 5000 - Temporary Facilities and Controls.

D. Section 01 6000 - Product Requirements.

E. Section 01 7000 - Execution and Closeout Requirements.

F. Section 31 1000 – Grubbing and Debris Removal.

1.03 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling,

repair and demolition operations.

C. Hazardous Waste: Waste that exhibits the characteristics of hazardous wastes, i.e., ignitibility, corrosivity, toxicity or reactivity in accordance with State and Federal Regulations.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 SUBMITTALS

A. See Section 01 3300 – Submittal Procedures for submittal procedures.

B. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
   1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
   2. Submit Report on a form acceptable to Resident.

3. Landfill Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
   c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
4. Incinerator Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project delivered to incinerators.
   c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
5. Recycled and Salvaged Materials: Include the following information for each:
   a. Identification of material, including those retrieved by installer for use on other projects.
   b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
   c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
   e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
6. Material Reused on Project: Include the following information for each:
   a. Identification of material and how it was used in the project.
   b. Amount, in tons or cubic yards.
   c. Include weight tickets as evidence of quantity.
7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 3 EXECUTION

2.01 WASTE MANAGEMENT PROCEDURES

A. See Section 01 1000 for additional information.

B. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

C. See Section 01 5000 for additional requirements related to trash/waste collection and removal facilities and services.

D. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.

E. See Section 31 1000 for disposal and handling of land clearing debris, grubbings, and waste.

2.02 WASTE MANAGEMENT IMPLEMENTATION

A. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

B. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

C. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations and Contract Documents.

D. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

E. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

F. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

SECTION 01 7800

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01 3000 – Site Management.

B. Section 01 7000 - Execution and Closeout Requirements.

C. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Resident with claim for final Application for Payment.

B. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Resident's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 3 EXECUTION

2.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.

B. Ensure entries are complete and accurate, enabling future reference by Resident.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings: Legibly mark each item to record actual construction including:
   1. Field changes of dimension and detail.
   2. Details not on original Contract drawings.

2.02 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Resident's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

CES INC

SECTION 01 7810

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Keep accurate record documents for all additions, substitutions of material, variations in work, and any other revisions to the Contract Documents.

B. Provide pre-construction photographs of all work areas.

C. Provide pre-construction photographs and videos within the Residential Use Area to document existing conditions and restoration work.

D. Provide a final survey of project site and as-built drawings of the completed work.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01 3300: Submittal Procedures

1.03 PROJECT CLOSEOUT

A. The Contractor shall comply with the procedures stated in the General Conditions of the Contract for issuance of Certificate of Substantial Completion.

B. The Contractor shall submit written certification that that the Work is complete in accordance with Contract Documents and ready for the Owner's inspection/review.

C. Provide submittals as required by these Specifications.

1.04 FINAL CLEANING

A. Execute final cleaning of Site and adjacent paved haul routes prior to final project inspection.
   1. Remove all debris and provide surface restoration as required by these Specifications.
   2. Clean project site areas, including sweeping all paved areas and raking landscaped surfaces.
   3. Remove waste and surplus materials, rubbish, and construction facilities from the Site.

1.05 MAINTENANCE OF RECORD DOCUMENTS

A. Record documents shall be stored in a dry, safe place apart from construction documents, and be available for inspection by the Resident. The record documents shall not be used for construction purposes.

B. Clearly label each document "Project Record." During the execution of the work, keep record documents current.

C. Provide files and racks for storage of documents.

D. Maintain one copy of the following documents at the job site:
1. Drawings showing progress of work;
2. Specifications;
3. Addenda;
4. Reviewed submittals;
5. Change Orders;
6. Other modifications to the Contract;
7. Modified Project Plans: Design Drawings; Construction Quality Assurance Plan; Off-Site Shipment and Disposal Plan; Sediment and Erosion Control Plan; Site Management Plan; Interim Stockpile Plan; Property Restoration Plan; and Site Health and Safety Plan
8. Applicable permit documents;
9. Subcontractor's certifications;
10. Shop drawings and product data;
11. Daily reports, including:
    a. Records of all site work;
    b. Inspection records; and
    c. Reports on any emergency response actions.
12. Construction photographs;
13. Deficiency reports;
14. Offsite disposal documentation including manifests and load tickets.
15. All analytical and geotechnical laboratory testing data, field laboratory data, and construction materials testing reports;
16. Construction Quality Assurance Project Summary, compiled upon project completion;
17. Field notes, surveys, and records of quantities for progress payments;
18. All survey data required for measurement and payment;
19. As-Built Drawings: Legibly mark on Drawings to record actual construction including as-built final grade information.

E. Specifications and addenda shall be legibly marked up to record changes made by Change Order or Field Order, or other matters not originally specified.

1.06 SUBMITTALS

A. At the completion of field operations, the Contractor shall deliver two sets of project record documents to the Owner as a condition of final payment. Submit project record documents in accordance with Section 01340, "Submittal Procedures", and as specified herein.

B. Accompany the project record documents with a transmittal letter containing the following:
   1. Date;
   2. Project title and number;
   3. Contractor's name and address;
   4. Title and number of each record;
   5. Certification that each document as submitted is complete and accurate; and
   6. Signature of the Contractor or his authorized representative.

C. Submit a Remedial Action Report and Operations and Maintenance Plan for the Residential Use Area and the Operations Area. The Remedial Action Report shall be prepared in accordance with *EPA Guidelines: Close Out Procedures for NPL Sites, EPA 540-R-98-016, OSWER Directive 9320.2-09A-P, PB98-963223, January 2000.*

1.07 PROJECT PHOTOGRAPHS

A. Submit a key plan with notation of vantage points marked for location and direction of each photograph. Provide two prints of each photograph within seven days of taking photographs.
   1. Photographs shall be smooth surface matte prints (8-inch x 10-inch) on single-weight commercial grade photographic paper mounted on linen or card stock to allow for a 1-inch wide margin. Card stock to be placed in clear plastic sleeves punched for a standard 3-ring binder.
   2. On the back of each print, provide an applied label or rubber-stamped impression with the following information:
      a. Name of Project
      b. Name and address of photographer
      c. Name of Owner
      d. Name of Contractor
      e. Date photograph was taken if not date stamped by camera
      f. Description of vantage point, indicating location and direction
      g. Unique sequential identifier
   3. Submit complete set of photographic negatives in individually protected sleeves with labels matching photographic prints.
   4. Submit complete set of digital image electronic files on DVD or CD-ROM with labels matching photographic prints.
   5. Engage a professional photographer of construction projects with a minimum of three years experience.

1.08 FINAL SURVEY

A. The Contractor shall perform a topographic survey of the Site encompassing the actual limits of the Work at the completion of field operations. The survey shall be performed by a Land Surveyor registered in the State of Maine. The survey shall consist of a ground control survey and shall include the following:
   1. Base map of the project site;
   2. Topographic contours shall be provided at 0.5-foot intervals;

3. Establish appropriate horizontal and vertical control at the site (i.e., locating existing/new benchmarks) including at least two (2) permanent survey control points (x, y, z coordinates)and;
4. The map shall contain all pertinent features within the Work areas.

B. Provide electronic files of digital mapping data on CD. Data shall be compatible with AutoCAD 2008 or later computer software.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Concrete Boat Ramp Panels.

C. Concrete reinforcement.

D. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 31 2316 - Excavation.

1.03 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2005.

C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).

D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.

E. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988 (Reapproved 2002).

F. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).

G. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2008.

H. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2007.

I. ASTM C 33 - Standard Specification for Concrete Aggregates; 2007.

J. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2005.

K. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2007.

L. ASTM C 143/C 143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2008.

M. ASTM C 150 - Standard Specification for Portland Cement; 2007.

N. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete; 2007.

O. ASTM C 173/C 173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2008a.

P. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 2006.

Q. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; 2008a.

R. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2008a.

S. ASTM C 881/C 881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2002.

T. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 1999 (Reapproved 2008).

U. ASTM C 1107/C 1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2008.

V. ASTM D 994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type); 1998 (Reapproved 2003).

W. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2008).

X. ASTM E 1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2009.

1.04 SUBMITTALS

A. See Section 01300 - Administrative Requirements, for submittal procedures.

B. Samples: Submit samples of underslab vapor retarder to be used.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
   2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.
   3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 60 (420).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished.

B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C 150, Type II - Moderate Portland type.

B. Fine and Coarse Aggregates: ASTM C 33.

C. Fly Ash: ASTM C 618, Class C or F.

D. Water: Clean and not detrimental to concrete.

2.04 CHEMICAL ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C 260.

C. High Range Water Reducing and Retarding Admixture: ASTM C 494/C 494M Type G.

D. High Range Water Reducing Admixture: ASTM C 494/C 494M Type F.

E. Water Reducing and Accelerating Admixture: ASTM C 494/C 494M Type E.

F. Water Reducing and Retarding Admixture: ASTM C 494/C 494M Type D.

G. Accelerating Admixture: ASTM C 494/C 494M Type C.

H. Retarding Admixture: ASTM C 494/C 494M Type B.

I. Water Reducing Admixture: ASTM C 494/C 494M Type A.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E 1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single ply polyethylene is prohibited.
   1. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.

B. Non-Shrink Grout: ASTM C 1107/C 1107M; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Minimum Compressive Strength at 48 Hours: 2,400 psi.

C. Moisture-Retaining Cover: ASTM C 171; regular curing paper, white curing paper, clear polyethylene, white polyethylene, or white burlap-polyethylene sheet.

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-dispersible acrylic latex, complying with ASTM C 1059 Type II.

B. Epoxy Bonding System: Complying with ASTM C 881/C 881M and of Type required for specific application.

2.07 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Engineer for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

D. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 4,000 psi.
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
   3. Cement Content: Minimum 611 lb per cubic yard.
   4. Water-Cement Ratio: Maximum 45 percent by weight.
   5. Total Air Content: 5 percent, determined in accordance with ASTM C 173/C 173M.
   6. Maximum Slump: 4 inches.
   7. Maximum Aggregate Size: 3/4 inch.

2.08 MIXING

A. Transit Mixers: Comply with ASTM C 94/C 94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Verify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

3.03 INSTALLING REINFORCEMENT

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Notify Engineer not less than 24 hours prior to commencement of placement operations.

C. Ensure reinforcement, inserts, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

D. Separate slabs on grade from vertical surfaces with joint filler.

E. Install joint devices in accordance with manufacturer's instructions.

F. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

G. Do not interrupt successive placement; do not permit cold joints to occur.

L. Saw cut joints within 24 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.

3.05 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Concrete Panels: See note on construction plans for finish requirements.

3.06 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.
      a. Moisture - Retaining Cover: Seal in place with waterproof tape or adhesive.

3.07 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 50 cu yd or less of each class of concrete placed.

D. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

E. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C 143/C 143M.

3.08 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Engineer and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

END OF SECTION

SECTION 03 4100

PRECAST STRUCTURAL CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Boat Ramp Sections

1.02 PRICE AND PAYMENT PROCEDURES

A. See Section 01 2210 - Measurement and Payment, for additional unit price requirements.

B. Precast boat ramp sections and light pole bases:
   1. By the unit.
   2. Includes unit member placed and anchored.

1.03 REFERENCE STANDARDS

A. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2008.

B. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2007.

C. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2003.

D. ASTM C 150 - Standard Specification for Portland Cement; 2007.

E. PCI MNL-116 - Manual for Quality Control for Plants and Production of Structural Precast Concrete Products; Precast/Prestressed Concrete Institute; 1999, Fourth Edition.

F. PCI MNL-120 - PCI Design Handbook - Precast and Prestressed Concrete; Precast/Prestressed Concrete Institute; Sixth Edition, 2004.

G. PCI MNL-123 - Design and Typical Details of Connections for Precast and Prestressed Concrete; Precast/Prestressed Concrete Institute; 1988, Second Edition.

H. PCI MNL-135 - Tolerance Manual for Precast and Prestressed Concrete Construction; Precast/Prestressed Concrete Institute; 2000.

1.04 SUBMITTALS

A. See Section 01 3000 – Site Management and Section 01 3300 – Submittal Procedures.

B. Product Data: Indicate standard component configurations, design loads, deflections, cambers, and bearing requirements.

C. Shop Drawings: Indicate layout, unit locations, fabrication details, unit identification marks, reinforcement, connection details, support items, dimensions, openings, and relationship to adjacent materials. Indicate design loads, deflections, cambers, bearing requirements, and special conditions.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle precast members in position consistent with their shape and design. Lift and support only from support points.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Structural Precast Concrete:
   1. American Concrete Industries.
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PRECAST UNITS

A. Precast Structural Concrete Units: Comply with PCI MNL-116, PCI MNL-120, PCI MNL-123, PCI MNL-135, ACI 318 and applicable codes.
   1. Design members exposed to the weather to provide for movement of components without damage, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to seasonal or cyclic day/night temperature ranges.

2.03 MATERIALS

A. Cement: White Portland type, conforming to ASTM C 150, Type I.

B. Aggregate, Sand, Water, Admixtures: Determined by precast fabricator as appropriate to design requirements and PCI MNL-116.

2.04 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 40 (280).

2.05 ACCESSORIES

A. Connecting and Supporting Devices: Plates, angles, items cast into concrete, and inserts conforming to PCI MNL-123, and as follows:
   1. Material: Galavanized or stainless steel.

B. Bolts, Nuts and Washers: High strength stainless steel.

2.06 FABRICATION

A. Conform to fabrication procedures specified in PCI MNL-116.

B. Maintain plant records and quality control program during production of precast members. Make records available upon request.

C. Ensure reinforcing steel, anchors, inserts, plates, angles, and other cast-in items are embedded and located as indicated on shop drawings.

2.07 FINISHES

A. Ensure exposed-to-view finish surfaces of precast concrete members are uniform in color and appearance.

2.08 FABRICATION TOLERANCES

A. Conform to fabrication tolerances specified in PCI MNL-135, except as specifically amended below.
   1. Variation From Nominal Dimension: Plus or minus 1/2 inch.
   2. Maximum Misalignment of Anchors, Inserts, Openings: Plus or minus 1/8 inch.
   3. Sweep: Plus or minus 1/4 inch.

2.09 SOURCE QUALITY CONTROL

A. Section 01 4000 - Quality Requirements: Provide mix design for concrete.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that site conditions are ready to receive work and field measurements are as shown on Drawings.

3.02 ERECTION

A. Erect members without damage to structural capacity, shape, or finish. Replace or repair damaged members.

B. Align and maintain uniform horizontal and vertical joints, as erection progresses.

3.03 TOLERANCES

A. Erect members level and plumb within allowable tolerances.

B. Conform to PCI MNL-135 for erection tolerances, except as specifically amended below.
   1. Maximum Jog in Alignment of Matching Ends: Plus or minus 1/2 inch.
   2. Differential Top Elevation As Erected: Plus or minus 3/8 inch.

C. When members cannot be adjusted to conform to design or tolerance criteria, cease work and advise Resident. Execute modifications as directed.

END OF SECTION

CES INC

SECTION 31 0000

EARTHWORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Section covers excavation, filling/backfilling, compaction, and grading. The work includes:
   1. Excavation of PCB contaminated soil and off-site disposal.
   2. Excavation of soil containing arsenic, lead, and thallium exceeding site-specific cleanup levels within the Residential Use Area of the Site.
   3. Excavation of Ore Pad material and placement in Operational Area Interim Stockpile.
   4. Placement and compaction of cover soil (Stink Cove sediment) and top soil over Interim Stockpile.
   5. Placement and compaction of granular common borrow in completed excavations for restoration activities.
   6. Placement and compaction of roadway aggregate subbase and base material.
   7. Finish grading of all disturbed areas;
   8. Laboratory testing of borrow source and existing (in-place) materials;
   9. Other miscellaneous earthwork activities.

B. Control of surface water run-off during construction shall be in accordance with Section 01 5713, “Erosion and Sedimentation Control”, and the site-specific Erosion Control Plan to be prepared by Contractor and approved by Owner.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 01 3300: Submittal Procedures

B. Section 01 5713: Sediment and Erosion Control

C. Section 31 2020: Road Construction

D. Section 31 8085: Off-Site Shipment and Disposal

E. Section 32 9500: Restoration

1.3 REFERENCES The publications listed below form a part of this specification to the extent referenced. Unless otherwise noted, the latest edition of the publications shall be used. The publications are referred to within the text by the basic designation only.

A. American Society for Testing and Materials (ASTM):
   1. ASTM C 136 Sieve Analysis of Fine and Coarse Aggregates;
   2. ASTM D 422 Standard Test Method for Particle-Size Analysis of Soils;

3. ASTM D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3)
4. ASTM D 1140 Amount of Material in Soils Finer than the No. 200 (75¬micrometer) Sieve;
5. ASTM D2487 Standard Classification of Soils for Residenting Purposes (Unified Soil Classification System);
6. ASTM D 2974 Standard Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils;
7. ASTM D 3740 Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Residenting Design and Construction;
10. ASTM D 4318 Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils;
11. ASTM D 4972 Standard Test Method for pH of Soils;
12. ASTM D 5268 Specification for Topsoil Used for Landscaping Purposes;
13. ASTM D 6938 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

B. State of Maine Department of Transportation (MaineDOT):
1. MaineDOT SS Standard Specifications.

1.4 SUBMITTALS Submit to the Owner for approval the following in accordance with Section 01 3300.

A. Borrow Source(s): The Contractor shall provide the proposed source(s) for offsite borrow material prior to initiation of work. Available/previous laboratory testing data shall be provided. Provide a certification from the borrow source that the soil material is clean relative to the EPA Site specific cleanup levels and MEDEP residential standards.

B. Contractor Quality Control Testing Laboratory: The name and qualifications of an independent third-party commercial testing laboratory to be used for borrow source testing and in-place soil/construction materials testing shall be submitted as soon as possible, but no later than 7 days following notice to proceed.

C. Test Reports: Submit 4 copies of the following reports from the testing laboratory to the Resident, with copy to the Contractor:
1. All test reports for borrow source materials including grain size distribution and soil classification.
2. At least one moisture density curve for each type of borrow source material and native soil to be utilized.

1.5 JOB CONDITIONS:

A. Site Information: Data provided on subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that the Owner is not responsible for interpretations or conclusions drawn there from by Contractor. Data are made available for the

convenience and information of the Contractor. Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.

B. Existing Utilities:
1. The Contractor shall locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.
2. Do not interrupt existing utilities serving facilities occupied, except when permitted in writing by the Owner and if required, only after acceptable temporary utility services have been provided.

C. Use of Explosives:
1. Use of explosives will only be allowed for installation of waste water treatment and disposal components and boat ramp.

D. Protection of Persons and Property:
1. Barricade and mark open excavations occurring as part of this work in accordance with applicable standards.
2. Protect structures, utilities, sidewalks, pavements, and other facilities designated to remain from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations and truck traffic.

1.6 DEFINITIONS

A. Contaminated Soil/Material:
1. Contaminated soils/materials include:
    a. PCB-contaminated soils
    b. Arsenic, lead, and thallium contaminated soils
2. Contractor shall be required to develop and execute a post excavation sampling and testing plan to confirm remaining soil/waste is below the cleanup level thresholds listed below:
    a. PCB 1 mg/kg (Mine Operations Area)
    b. Arsenic 14 mg/kg (Residential Use Area)
    c. Lead 375 mg/kg (Residential Use Area)
    d. Thallium 15mg/kg (Residential Use Area)

B. Unsatisfactory Soil/Material: Unsatisfactory soils/materials include but are not limited to peat and/or highly organic soils (classified as OL, OH, or PT by ASTM D 2487), stumps/brush, trash, refuse, debris, frozen soils, soils containing materials greater than the allowable size (see below), saturated soils, fine-grained soils above their liquid limit at the time of compaction, and soils which when left in place are either too wet or too dry to compact, as determined by the Resident.

C. Satisfactory Soil/Material: Satisfactory soils/materials shall meet the requirements specified in Part 2 of this Section and shall be used to backfill excavations for restoration activities in remediated areas in the Residential Use Area or as directed by the Resident. In addition, satisfactory soils/materials shall satisfy the following conditions:

1. Satisfactory soils/materials shall be free of all Unsatisfactory Soil/Material conditions listed above;
2. Satisfactory soils from off-site borrow sources shall be free of materials greater than 6 inches in any dimension, unless otherwise specified or approved by the Resident.
3. Satisfactory soils shall not exceed 14 mg/kg arsenic, 375 mg/kg lead, thallium 15 mg/kg, 1 mg/kg PCBs, or any other constituent at a concentration, alone or in A combination that would pose an unacceptable risk to human health.

D. Cohesionless and Cohesive Soils: Cohesionless soils include gravels, sand-gravel mixtures, sands, and gravelly-sands, classified as GW, GP, SW, or SP by the Unified Soil Classification System (ASTM D 2487). Cohesive soils include clayey gravels, sand-clay mixtures, clayey sands, clays, and silts, classified as GC, SC, CL, CH, ML, or MH by the Unified Soil Classification System (ASTM D 2487). Soils classified as GM and SM will be identified as cohesionless only when the "fines" are determined to be non-plastic. Testing required for the classification of soil shall be in accordance with ASTM D 4318, ASTM C 136, ASTM D 422, and ASTM D 1140.

E. Degree of Compaction: Degree of compaction (percent compaction) required is expressed as a percentage of the maximum dry density, at the optimum moisture content. The maximum dry density and optimum moisture content shall be obtained by the test procedure presented in ASTM D 1557.

1.7 QUALITY ASSURANCE:

A. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

1.8 PLACEMENT OF EXCAVATED MATERIALS

A. PCB-Contaminated soil shall be disposed off-site in accordance with Section 31 8085, "Off-Site Shipment and Disposal."

B. Arsenic, lead, and thallium contaminated soils from the Residential Use Area shall be loaded and stockpiled at Tailings Impoundment in accordance with the approved Interim Stockpile Plan prepared by the Contractor. The contaminated soil placement at Operational Area Interim Stockpile shall occur generally within the limits indicated on the drawings. The material shall be placed over a demarcation layer (geotextile or construction fencing) to allow material removal if required during future remediation activities.

C. Satisfactory Soil/Material:
1. Satisfactory clean soils/materials obtained from on-site excavations may be reused to backfill completed excavations within the Residential Use Area as directed and approved by the Resident.
2. No Satisfactory Soil/Material shall be wasted or removed from the Site without specific written authorization from the Resident.

3. Soils/Material removed from the Mine Operation Area may not require backfill if grading can be completed to eliminate steep slopes, low points, and provide positive drainage.

PART 2 - PRODUCTS

2.1 COMMON BORROW

A. Common Borrow provided to backfill completed excavations within the Residential Use.

B. Area shall consist of a clean, reasonably well-graded granular material. It shall be of such a nature and character that it can be compacted to the specified density or greater, with reasonable effort and length of time.

C. Common Borrow shall be free of trash, ice, snow, tree stumps, roots and excessive organic and deleterious materials.

D. Common Borrow shall not contain stones greater than 6 inches in any dimension. Oversized particles may be removed after placement as approved by the Resident.

E. Common Borrow shall contain 5% to a maximum of 35% (by weight) passing the No. 200 sieve.

F. The moisture content shall be sufficient to provide the required compaction and a stable firm surface. In no case shall the moisture content exceed 4% above optimum, which shall be determined in accordance with ASTM D 1557.

2.2 AGGREGATE BASE

A. For road and residential driveway reconstruction, Aggregate Base material provided to backfill the top 12-inches or 6-inches of subgrade of completed excavations located within the road areas or driveway areas, respectively, shall consist of a clean screened or crushed gravel of hard durable particles meeting the requirements of Type A Aggregate Base material in accordance with section 703.06 of the MaineDOT SS.

B. Aggregate Base shall be free of trash, ice, snow, tree stumps, roots and excessive organic and deleterious materials.

C. The moisture content shall be sufficient to provide the required compaction and a stable firm surface. In no case shall the moisture content exceed 4% above optimum, which shall be determined in accordance with ASTM D 1557.

2.3 AGGREGATE SUBBASE

A. For road construction, Aggregate Subbase material provided to backfill the 12-inches immediately below the aggregate base of completed excavations located within the road areas and consisting of clean screened or crushed gravel of hard durable particles

meeting the requirement of Type D Aggregate Subbase material in accordance with section 703.06 of the MaineDOT SS.

B. Aggregate Subbase shall be free of trash, ice, snow, tree stumps, roots and excessive organic and deleterious materials.

C. The moisture content shall be sufficient to provide the required compaction and a stable firm surface. In no case shall the moisture content exceed 4% above optimum, which shall be determined in accordance with ASTM D 1557.

2.4 CRUSHED STONE

A. For septic systems, Crushed Stone material provided as pipe bedding and filtration media.

B. Crushed Stone shall be durable crushed rock consisting of the angular fragments obtained by breaking and crushing solid or shattered natural rock and reasonably free from thin, flat, elongated, or other objectionable pieces.

C. Crushed Stone shall be reasonably free from sand, clay, loam, chemical decay, or deleterious materials and not more than two percent of material passing a No. 200 sieve.

D. Crushed Stone shall be uniformly blended according to the grading requirements listed in the following table:

Sieve Size	Weight Passing (%)
2"	100
1½"	95-100
1"	35-70
3/4"	0-25
No. 200	0-2

2.5 FILL UNDER DISPOSAL FIELDS – COARSE LOAMY SAND FILL

A. Coarse Loamy Sand Fill shall consist of loamy sand or coarse material for use under disposal fields.

B. Coarse Loamy Sand Fill shall meet the following criteria:

Plasticity Index = 0-5
Liquid Limit = < 10

Sieve Size	Weight Passing (%)
3"	100
No. 4	30-80
No. 40	15-50
No. 200	4-8

2.6 FILL EXTENSIONS AROUND AND OVER DISPOSAL FIELDS

A. Sand loam or loam material for use on fill extensions around and over disposal fields shall meet the following criteria:

Plasticity Index NP-10
Liquid Limit < 25

Sieve Size	Weight Passing (%)
3"	100
No. 4	30-80
No. 40	15-50
No. 200	15-25

2.7 TOPSOIL - RESIDENTIAL USE AREA

A. Offsite Topsoil shall be provided as the final surficial soil in all disturbed areas to be restored by vegetation in the Residential Use Area.

B. Topsoil shall be of good quality, friable, and free of objectionable weed roots or seeds, clay lumps, sticks, trash, slag, cinders, stones larger than 1 inch in any dimension, or other extraneous material harmful to plant growth.

C. Topsoil shall be as defined in ASTM D 5268 and shall have a texture of sandy loam as defined by the USDA textural classification.

D. Topsoil shall have a minimum of 6 percent organic material content and the pH of the material is recommended to be between 6.0 and 7.6 as guidance.

E. Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs, or marshes.

2.8 BORROW SOURCE TESTING

A. Borrow source testing, including geotechnical characterization requirements, shall be conducted on all soil materials proposed for construction. Third-party geotechnical laboratory testing requirements and frequency for materials shall be as listed below.

B. Common Borrow, Aggregate Subbase, Aggregate Base, Crushed Stone (no proctor), Fill Under Disposal Fields, and Fill Extensions around and Over Disposal Fields:

Test	Methodology[1]	Frequency[2]
Particle-Size Analysis (to #200 Sieve)	ASTM D 422 1	1 test/1,000 cy
Modified Proctor	ASTM D 1557	1 test/1,000 cy

C. Topsoil:

Test	Methodology[1]	Frequency[2]
Particle-Size Analysis (to #200 Sieve)	ASTM D 422	1 test/source/material
pH	ASTM D 4972	1 test/source/material
Organic Content	ASTM D 2974	1 test/source/material

Notes:

1. Other testing methods may be considered acceptable, based on prior approval of the Resident.
2. Testing frequency shall be as listed, at any change in borrow source, or at any discernable change in material delivered to the site (as determined by the Resident).
3. Provide a certification from the borrow source that the soil material is clean relative to MEDEP residential standards.

D. All material to be used for backfill, including common borrow, aggregate base, topsoil, and compost/mulch shall be verified to not contain arsenic exceeding 14 mg/kg, lead exceeding 375 mg/kg, or thallium exceeding 15 mg/kg. Confirmation analysis shall be provided at a rate of 1 sample per 1,000 cy.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions under which excavating, filling, and grading are to be performed and notify the Resident, in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

3.2 EXCAVATION

A. General: Excavation consists of removal and offsite disposal of PCB-contaminated soil within the former Mine Operations Area, excavation of contaminated soils from the Residential Use Area and stockpiling of this material at the Tailings Impoundment Interim Stockpile, excavation of Ore Pad material within the former Mine Operations Area and stockpiling of this material at Operational Area Interim Stockpile.

B. Excavation and fill shall be performed in a manner and sequence that will provide proper drainage at all times.

C. Occupied buildings and shallow bedrock in many areas within the remediation area of the Residential Use properties will likely require some specialized soil removal techniques (hand, vacuum) to complete excavations and prevent damage to structures.

D. Excavation activities in shallow bedrock areas shall be conducted to a “clean and scraped rock surface” condition as approved by the Resident. A “clean and scraped rock surface” shall in general consist of an exposed rock surface with no significant (less than a full hand shovel) soil-filled crevices or depressions remaining.

E. Excavations shall be deemed complete based on post-excavation confirmation sampling. The Contractor shall require expedited turnaround times on sample results from the analytical laboratory to minimize open excavations within the Residential Use Area.

3.3 STABILITY OF EXCAVATIONS

A. Slope sides of excavations to comply with applicable codes and ordinances. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

B. Maintain sides and slopes of excavations in a safe condition until completion of backfilling, or longer if specified or directed by the Resident.

C. Adjacent to resident building structures, careful excavation methods shall be conducted that prevent causing damage to foundations or the supported structure. The Contractor shall locate underground structures or utilities prior to starting excavation activities.

3.4 GRADING

A. General: The Contractor shall uniformly grade areas within the limits of work. Smooth finish completed surfaces; grade and compact to uniform levels or slopes between points to match existing grades.

B. Finish surfaces to be free from irregular surface changes.

3.8 BACKFILL AND FILL

A. General: Place acceptable common borrow soil material in layers to required subgrade elevations. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

B. Backfill excavations as promptly as work permits, but not until completion of the following:
1. Acceptance by Resident of post-excavation confirmation results.
2. Inspection, approval, and recording the limits of soil removal.
3. Removal of trash and debris.

C. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content. Compact each layer to required percentage of maximum dry density (Part 3.9).

D. Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.

E. Lift thickness shall not exceed 12 inches loose lift thickness.

3.9 COMPACTION

A. General: Control soil compaction during construction providing minimum percentage of density specified for each area classification.

B. Prior to backfilling, proof-roll bottom of completed excavations with compaction equipment until a firm unyielding surface is achieved. If the bottom of the excavation is unsatisfactory material or saturated silty sand, this could be detrimental; consult the Resident as some field judgment may be necessary relative to appropriate proof-rolling effort.

C. Percentage of Maximum Density Requirements:
   a. For backfilling of excavations within the Residential Use Area, compact granular backfill material at a moisture content that shall not exceed 4 percent above optimum to not less than 88% of maximum dry density for areas to be vegetated or not less than 95% of maximum dry density for roads/driveways or traffic areas. Maximum dry density shall be determined in accordance with ASTM D 1557.
   b. Compaction of excavated material at Operational Area Interim Stockpile shall be conducted with spreading equipment to provide a firm unyielding surface for each layer placed, as observed and approved by the Resident. No in place compaction testing will be required.
   c. Placement of material at Impoundment Area shall be conducted using low ground pressure equipment (not compaction equipment).

D. Moisture Control:
   a. Where a layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface layer of soil material, in proper quantities to prevent free water appearing on surface during or subsequent to compaction operations.
   b. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
   c. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory level.

3.10 TOPSOILING

A. General: This work consists of placing Topsoil of the specified thickness on prepared subgrade in all areas disturbed by construction and not otherwise surfaced or covered by structures.

B. Material: Provide Topsoil from offsite sources (Residential Use Area) or onsite sources, as specified in Part 2 of this Section.

C. Placing and Grading: Place Topsoil at the locations and specified thickness. Grade and rake the Topsoil to remove all foreign material and rocks over 1 (1) inch. Compact Topsoil to minimum degree of compaction specified. Re-rake the Topsoil to provide a loose finished surface suitable to receive the specified seeding.

D. Maintenance: Maintain the topsoiled areas until vegetation is established, as required in Section 32 9500, “Restoration”.

3.11 FIELD QUALITY CONTROL TESTING

A. Quality Control Testing During Construction:
   1. Where required, allow testing service to examine and test backfill layers. Before further construction work is performed, compaction test results meeting the requirements of Part 3.9.C of this Section.
   2. Perform field density tests in accordance with ASTM D 6938 (nuclear method), or other Resident approved methods, as applicable.
   3. For each layer of backfill placed, conduct one compaction test for every 2000 square feet, but in no case less than 3 tests per lift.
   4. If in opinion of Resident, based on testing service reports and inspection, backfill materials which have been placed are below specified density, provide additional compaction and testing at no additional expense to the Contractor.

3.12 MAINTENANCE

A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

B. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

C. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

END OF SECTION

CES INC

SECTION 31 1000

GRUBBING AND DEBRIS REMOVAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of existing debris above ground and stumps within grubbing limits.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 – Summary of Work

B. Section 01 5000 - Temporary Facilities and Controls.

C. Section 01 5713 – Sediment and Erosion Control

D. Section 01 7000 - Execution and Closeout Requirements.

E. Section 31 2200 - Grading.

1.03 SUBMITTALS

A. See Section 01 3000 – Site Management and Section 01 3300 – Submittal Procedures.

B. Site Plan: Showing:
   1. Areas of Remediation..
   2. Grubbing limits.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 0000 – Earthwork.

PART 3 EXECUTION

3.01 SITE CLEARING

A. Comply with other requirements specified in Section 01 7000.

3.02 EXISTING UTILITIES AND BUILT ELEMENTS

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Protect existing structures and other elements that are not to be removed.

3.03 VEGETATION

A. Scope: Remove debris and waste above ground, and stumps in areas within the limits of grubbing shown on Drawings.

B. Do not remove or damage vegetation beyond the limits indicated on drawings.

C. Vegetation: Do not burn, bury, landfill, or leave on site, except as indicated.

1. All vegetation (trees, brush, etc.) above ground shall be removed from site.
2. Existing Stumps: Stumps/roots may be buried on-site in areas designated by the Resident. Remove stumps and roots to minimum depth of 18 inches within grubbing limits.
3. Chip, grind, crush, or shred stumps/roots for mulching, composting, or other purposes; for on-site uses.
4. Sod: Bury on site in area designated by the Resident.

D. Dead Wood: All dead trees (standing or down), limbs, and dry brush on site shall be removed from site.

E. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

3.04 DEBRIS

A. Remove debris, junk, and trash from areas of Work and consolidate on site as directed by the Resident and in accordance with Section 01 7419 – Construction Waste Management and Disposal.

B. Recycleable materials shall be stockpiled or containerized for off-site removal.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

CES INC

SECTION 31 2020

BITUMINOUS PAVING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide hot-mix asphalt paving and/or gravel road base according to materials, workmanship, and other applicable requirements of State of Maine, Department of Transportation, Standard Specifications, Revision of December 2002, hereafter designated as Maine DOT Specifications.

1.02 RELATED SECTIONS

A. Section 01 3300 - Submittal Procedures

B. Section 31 0000 – Earthwork.

1.03 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Unless otherwise noted, the latest edition of the publications shall be used. The publications are referred to within the text by the basic designation only.
   1. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
      a. ASHTO M248 Standard Specification for Ready-Mixed White and Yellow Traffic Paints, Single User Digital Publication
   2. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
      a. ASTM D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3)
      b. ASTM D 3549 Standard Test Method for Thickness or Height of Compacted Bituminous Mixture Specimens
   3. STATE of MAINE DEPARTMENT of TRANSPORTATION (Maine DOT)
      a. Maine DOT SS Standard Specifications.

1.04 SUBMITTALS

A. Submit to the Owner's Representative for approval the following in accordance with Section 01 3300, "Submittal Procedures":
   1. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
   2. Job-Mix Designs: Provide the Owner's Representative with a job mix formula for each course used in the work.
   3. Qualification Data: For manufacturer and testing laboratory.
   4. Material Test Reports: For each paving material.

5. Field Quality Control test results
6. Borrow source test results for Aggregate Base and Subbase soil materials – see Section 31 0000, ‘Earthwork”.

1.05 QUALITY CONTROL

A. Manufacturer Qualifications: Manufacturer shall be a paving-mix manufacturer regularly engaged in production of hot-mix, hot-laid bituminous pavement.

B. Qualifications of Testing Agency: Use only recognized commercial testing laboratories with not less than 5 years experience in conducting tests and evaluations of bituminous concrete materials and design.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.07 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:

B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 50 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.01 AGGREGATES

A. Pavement Aggregate. Conform to Section 703.07 of Maine DOT Specifications.

2.02 ASPHALT MATERIALS

A. Asphalt Binder: Conform to Section 702.01 of Maine DOT Specifications

2.03 PAVEMENT MARKING PAINT

A. Pavement-Marking Paint: Paint for final marking shall meet the requirements of Maine DOT SS Section 708.03 and AASHTO M248. Use Type F, fast dry.
   1. Colors: White and Yellow.

2.04 MIXES

A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes in accordance with Maine DOT specifications as follows:
   1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
   2. Base Course: Maine DOT Type 12.5 mm.
   3. Surface Course: Maine DOT Type 9.5 mm.

2.05 AGGREGATE BASE

A. Aggregate Base shall be provided beneath hot-mix asphalt paved streets and sidewalks as shown on the Drawings.

B. Aggregate Base shall consist of Type A aggregate for base as specified in the MaineDOT Standard Specifications, Section 703.06a.

C. Aggregate Base shall be free of trash, ice, snow, tree stumps, roots and excessive organic and deleterious materials.

D. The moisture content shall be sufficient to provide the required compaction and a stable firm surface. In no case shall the moisture content exceed 4% above optimum, which shall be determined in accordance with ASTM D 1557.

2.06 AGGREGATE SUBBASE

A. Aggregate Subbase shall be provided beneath aggregate base in hot-mix asphalt paved parking areas and accesses as shown on the Drawings.

B. Aggregate Subbase shall consist of Type D aggregate for subbase as specified in the MaineDOT Standard Specifications, Section 703.06b.

C. Aggregate Subbase shall be free of trash, ice, snow, tree stumps, roots and excessive organic and deleterious materials.

D. The moisture content shall be sufficient to provide the required compaction and a stable firm surface. In no case shall the moisture content exceed 4% above optimum, which shall be determined in accordance with ASTM D 1557.

2.07 SIGNING

A. Street signing shall conform to the Manual on Uniform Traffic Control Devices (MUTCD), 2003 edition or later and in accordance with MaineDOT SS Section 645, Type I or Type II regulatory or warning signs, consisting of Residenting grade reflective sheeting letter, numeral, symbols, and border on an Residenting grade

reflective sheeting background adhered to a sheet aluminum sign panel with steel support posts.

B. Shape, size, text, and construction of signs shall be in conformance with MUTCD standards.

PART 3 - EXECUTION

3.01 AGGREGATE SUBBASE AND BASE

A. Aggregate subbase and base shall be placed and compacted in accordance with Section 31 0000, “Earthwork”.

3.02 PAVEMENT INSTALLATION

A. Plant Mix Hot Bituminous Pavement: Produce and place in conformance with Section 401 of MaineDOT Specifications.

3.03 PATCHING

A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Patching: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.04 ASPHALT INSTALLATION TOLERANCES

A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
   1. Base Course: Plus ½ inch or minus ¼ inch.
   2. Surface Course: Plus ¼ inch, no minus.

B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
   1. Base Course: ¼ inch.
   2. Surface Course: ¼ inch.

3.05 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Owner's Representative.

B. Allow paving to age for 30 days before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.06 FIELD QUALITY CONTROL

A. Testing Agency: The Subcontractor will engage a qualified independent testing and inspecting agency to perform field tests and inspections for hot-mix asphalt placement and to prepare test reports.
   1. Testing agency will conduct and interpret tests and state in each report whether tested hot-mix asphalt complies with or deviates from specified requirements.
   2. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
   3. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
   4. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement in accordance with the Method A&B quality control requirements of MaineDOT specification 4.01.

B. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.07 DISPOSAL

A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in accordance with Section 31 8085, "Off-site Shipment and Disposal"

END OF SECTION

SECTION 31 2200

GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of topsoil within grubbing limits.

B. Rough grading the site.

C. Finish grading.

1.02 RELATED REQUIREMENTS

A. Section 01 5713 – Sediment and Erosion Control.

B. Section 31 1000 – Grubbing and Debris Removal.

C. Section 32 9219 - Seeding.

D. Section 32 9500 - Restoration

1.03 PRICE AND PAYMENT PROCEDURES

A. See Section 01 2210 - Measurement and Payment, for general requirements relating to unit prices for this work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: See Section 31 0000.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above- and below-grade utilities to remain.

D. Notify utility company to remove and relocate utilities.

E. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

3.03 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from areas to be further excavated.

D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

E. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

F. Remove debris for recycling and waste for consolidation to areas designated by Resident.

3.04 SOIL REMOVAL

A. Residential Use Area:

1. Place contaminated excavated topsoil at Tailings Impoundment Interim Stockpile.

2. Place contaminated excavated subsoil at Tailings Impoundment Interim Stockpile.

3. Temporary Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.

B. Mine Operations Area - PCB Excavation:

1. Remove all PCB contaminated soils from site in accordance with Section 31 8085 – Off Site Shipment and Disposal.

2. Temporary PCB Stockpiles: Use areas designated on site; pile depth not to exceed EIGHT feet; protect from erosion.

C. Mine Operations Area – Ore Pad:

1. Place contaminated Ore Pad material at Operations Area Interim Stockpile Area.

3.05 FINISH GRADING

A. Before Finish Grading:
1. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove contaminated soil to consolidation area designated on site.

C. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

D. Lightly compact placed topsoil.

3.06 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

3.07 CLEANING

A. Reuse stockpiled topsoil and subsoil for on-site common borrow. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 2316

EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavating of contaminated soils in the Residential Use Area.

B. Excavation of contaminated soils in the Mine Operations Area.

C. Excavation of the Ore Pad material.

1.02 RELATED REQUIREMENTS

A. Section 01 1100 – Summary of Work

B. Section 31 0000 – Earthwork

C. Section 01 5713 – Sediment and Erosion Control

D. Section 31 2200 – Grading

1.03 PRICE AND PAYMENT PROCEDURES

A. See Section 01 2210 - Measurement and Payment, for general requirements applicable to unit prices for excavation.

1.04 PROJECT CONDITIONS

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 0000 for additional requirements.

3.03 EXCAVATING

A. Excavate to limits as shown and determined by Resident as clean based on confirmation sampling.

B. Notify Resident of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

D. Do not interfere with 45 degree bearing splay of foundations.

E. Cut utility trenches wide enough to allow inspection of installed utilities.

F. Hand trim excavations. Remove loose matter.

G. Correct areas that are over-excavated and load-bearing surfaces that are disturbed.

H. Grade top perimeter of excavation to prevent surface water from draining into excavation.

I. Remove excavated material that is unsuitable for re-use from site.

J. Remove excess excavated material from site.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Provide for visual inspection of load-bearing excavated surfaces before placement of backfill.

3.05 PROTECTION

A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

END OF SECTION

CES INC

SECTION 31 2316.26

ROCK REMOVAL

PART - GENERAL

1.01 SECTION INCLUDES

A. Removal of rock uncovered during excavation.

B. Explosives to assist rock removal.

1.02 RELATED SECTIONS

A. Section 31 0000 - Earthwork.

B. Section 31 2200 - Grading.

C. Section 31 2316 - Excavation.

D. Section 33 3111 - Piping.

E. Section 33 3600 – Septic Tanks and Secondary Pretreatment Units.

1.03 REFERENCES

A. NFPA 495 - Code for Explosive Materials.

B. MDOT Standard Specifications - Highway and Bridges, current revision.

1.04 DEFINITIONS

A. Rock is defined as any stone, boulder, or pieces of concrete or masonry, two cubic yards or more in volume, and any hard natural material or rock ledge that will withstand removal by the usual mechanical excavation methods such as, power shovels or toothed bulldozer blades, and such that normally requires blasting or continuous drilling, wedging, sledging, or barring for removal. No soft or disintegrated rock which can be removed with a hand pick or power operated excavator shovel; no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere; and no rock exterior to the maximum limits of measurements allowed, which may fall into the excavation, will be measured or allowed. The Resident shall be sole judge as to whether the material encountered shall be classified as rock in accordance with the above description.

1.05 QUALIFICATIONS

A. Seismic Survey Firm: Company specializing in seismic surveys with five years documented experience.

B. Explosives Firm: Company specializing in explosives for disintegration of rock, with five years documented experience.

1.06 REGULATORY REQUIREMENTS

A. Conform to applicable code for explosive disintegration of rock and to NFPA 495 for handling explosive materials.

B. Obtain permits from authorities having jurisdiction before explosives are brought to site or drilling is started.

1.07 SCHEDULING

A. Schedule work under the provisions of Section 01 3000.

B. Schedule Work to avoid disruption to occupied buildings nearby.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Explosives: Type recommended by explosive firm following seismic survey and required by authorities having jurisdiction.

B. Delay Device: Type recommended by explosive firm.

C. Blast Mat Materials: Type recommended by explosives firm.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify site conditions and note subsurface irregularities affecting work of this section.

B. Beginning of work of this Section means acceptance of existing conditions.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Conduct survey and document conditions of buildings near locations of rock removal and prior to blasting, photograph existing conditions identifying existing irregularities.

3.03 ROCK REMOVAL - EXPLOSIVE METHOD

A. If rock is uncovered requiring the explosives method for rock disintegration, notify the Resident and execute as follows.

B. Advise owners of adjacent buildings or structures in writing, prior to executing seismographic survey. Explain planned blasting and seismic operations.

C. Obtain a seismic survey prior to rock excavation to determine maximum charges that can be used at different locations in area of excavation without damaging adjacent properties or other work.

D. Provide seismographic monitoring during progress of blasting operations.

E. Disintegrate rock and remove from excavation.

F. Remove rock at excavation bottom to form level bearing.

G. Remove shaled layers to provide a sound and unshattered base.

H. In utility trenches, excavate to 6 inches below invert elevation of pipe and 24 inches wider than pipe diameter.

I. Remove excavated material from site.

J. Correct unauthorized rock removal in accordance with backfilling and compacting requirements of Section 31 0000.

K. Perform no blasting without informing Resident, governing authorities, and other concerned parties. Conform to all local, State, and Federal regulations concerning blasting and pertinent provisions of the "*Manual of Accident Contractors of America, Inc.",* of the *Construction Safety Rules and Regulations,* as adopted by the State Board of Construction Safety, Augusta, Maine, and Maine Department of Transportation "Standard Specifications" Section 107.12, Use of Explosives.

L. Blast only with such quantities and strength of explosives and in such manner as will break the rock approximately to the intended lines and grades and yet will leave the rock not to be excavated in an unshattered condition. Avoid excessive cracking of the rock upon or against which any structure will be built and to prevent injury to existing pipes or other structures and property above or below ground. Cover rock where necessary.

M. Blast no closer than 20 feet from completed pipes, manholes, or other structure. Any damages to the work resulting from blasting shall be repaired at the Contractor's expense.

N. The Contractor shall maintain and submit (if requested) to the Resident accurate record of each blast. Show the general location of the blast, the depth and number of drill holes, the kind and quantity of explosive used, and other data required for a complete record.

3.04 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 4000.

B. Provide for visual inspection of foundation bearing surfaces and cavities formed by removed rock.

END OF SECTION

CES INC

SECTION 31 8010

NON-WOVEN GEOTEXTILES

PART 1 GENERAL

1.01 SECTION INCLUDES

A Specifications and guidelines for manufacturing and installing 16 oz non-woven geotextile.

B Contractor shall furnish all geotextile, labor, incidental materials, tools, supervision, transportation, and installation equipment necessary for the installation of geotextile, as specified herein, and in accordance with Contract Documents.

1.02 RELATED SECTIONS

A. Section 01 1000 – Summary of Work

B. Section 01 2210 – Measurement and Payment

C. Section 01 3300 - Submittal Procedures

D. Section 01 4000 - Quality Requirements

F. Section 31 0000 - Earthwork

G. Section 31 2316 – Excavation

H. Section 31 8020 – High Density Polyethylene Geomembrane

I. Section 31 8030 - Geocomposite

J. Section 31 8090 – Interface Friction Testing.

1.03 REFERENCES

A. ASTM D 5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles

B. ASTM D 4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

C. ASTM D 4533, Standard Test Method for Index Trapezoidal Tearing Strength of Geotextiles

D. ASTM D 4833, Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products

E. ASTM D 4491, Standard Test Method for Water Permeability of Geotextiles by Permittivity
F. ASTM D 4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile

G. ASTM D 4354, Standard Practice for Sampling of Geosynthetics for Testing

H. ASTM D 4759, Standard Practice for Determining the Specifications Conformance of Geosynthetics

1.04 SUBMITTALS

A. Prior to material delivery to project site, the contractor shall provide the Resident with a written certification or manufacturers quality control data which displays that the geotextile meets or exceeds minimum average roll values (MARV) specified herein.

B. The contractor shall submit, if required by the resident, manufacturer's quality control manual for the geotextile to be delivered to the site.

PART 2 PRODUCTS

2.01 GEOTEXTILE

A. The non-woven geotextile specified herein shall be made from polypropylene staple fiber.

B. The geotextile shall be manufactured from prime quality virgin polymer.

C. The geotextile shall be able to withstand direct exposure to ultraviolet radiation from Sun for up to 30 days without any noticeable effect on index or performance properties.

D. Geotextile shall meet or exceed all material properties listed in Table 1.1.

Table 1.1
Minimum Average Roll Values (MARV) Required for 16 oz Nonwoven Geotextiles

PROPERTY[1]	TEST METHOD	VALUES	MQC FREQUENCY	MQA FREQUENCY
Mass per Unit Area (oz/yd2)	ASTM D5261	16	75,000 (sf)	Verify
Grab Tensile (lbs)	ASTM D4632	370	75,000 (sf)	Verify
Grab Elongation (%)	ASTM D4632	50	75,000 (sf)	Verify
Trapezoid Tear (lbs)	ASTM D4533	145	75,000 (sf)	Verify
Puncture CBR strength (lb)	ASTM D6241	900	75,000 (sf)	Verify
Puncture CBR elongation (in.)	ASTM D6241	1.5	75,000 (sf)	Verify
U.V. Resistance[2] (%/hrs)	ASTM D4355	70	Per formulation	Verify

Notes:
1: All values are MARV except UV resistance; it is a minimum value
2: Evaluation to be on 2.0 inch strip tensile specimens after 500 hours exposure.

2.02 MANUFACTURER

A. All rolls of the geotextile shall be identified with permanent marking on the roll or packaging, with the manufacturers name, product identification, roll number and roll dimensions.

B. Acceptable Product manufacturers:
   1. Skaps
   2. GSE
   3. CETCO
   2. Resident approved equal.

2.03 TRANSPORT

A. Transportation of the geotextile shall be the responsibility of the contractor.

B. During shipment, the geotextile shall be protected from ultraviolet light exposure, precipitation, mud, dirt, dust, puncture, or other damaging or deleterious conditions.

C. Upon delivery at the job site, the contractor shall ensure that the geotextile rolls are handled and stored in accordance with the manufacturer's instructions as to prevent damage.

PART 3 EXECUTION

3.1 QUALITY ASSURANCE

A. The resident shall examine the geotextile rolls upon delivery to the site and report any deviations from project specifications to the contractor.

B. The resident may decide to arrange conformance testing of the rolls delivered to the job site. For this purpose, the resident shall take a sample three feet (along roll length) by roll width according to ASTM Practice D 4354 The sample shall be properly marked, wrapped and sent to an independent laboratory for conformance testing.

C. The pass or fail of the conformance test results shall be determined according to ASTM Practice D 4759.

3.02 INSTALLATION

A. The geotextile shall be handled in such a manner as to ensure that it is not damaged in any way. Should the contractor damage the geotextile to the extent that it is no longer usable as determined by these specifications or by the Resident, the Contractor shall replace the geotextile at his own cost.

B. The geotextile shall be installed to the lines and grades as shown on the contract drawings and as described herein.

C. The geotextile shall be unrolled down the slope in such a manner as to continuously keep the geotextile in tension by self weight. The geotextile shall be securely anchored in an anchor trench where applicable, or by other approved or specified methods.

D. In the presence of wind, all geotextiles shall be weighted by sandbags or approved equivalent. Such anchors shall be installed during placement and shall remain in place until replaced with cover material.

E. The contractor shall take necessary precautions to prevent damage to adjacent or underlying materials during placement of the geotextile. Should damage to such material occur due to the fault of the contractor, the latter shall repair the damaged materials at his own cost and to the satisfaction of the resident.

F. During placement of the geotextile, care shall be taken not to entrap soil, stones or excessive moisture that could hamper subsequent seaming of the geotextile as judged by the Resident.

G. Joining shall be accomplished by double row “J” seam with 401 two thread chain stitch.

H. The geotextile shall not be exposed to precipitation prior to being installed and shall not be exposed to direct sun light for more than 30 days.

I. The Contractor shall not use heavy equipment to traffic above the geotextile without approved protection.

J. The geotextile shall be covered as soon as possible after installation and approval. Installed geotextile shall not be left exposed for more than 30 days.

K. Material overlying the geotextile shall be carefully placed to avoid wrinkling or damage to the geotextile or underlying geosynthetics.

END OF SECTION

CES INC

SECTION 31 8020

HIGH DENSITY POLYETHYLENE GEOMEMBRANE

PART 1-GENERAL

1.01 SECTION INCLUDES

A. Specifications and guidelines for MANUFACTURING and INSTALLING 60 mil textured HDPE geomembrane.

1.02 RELATED SECTIONS

A. Section 01 1000 – Summary of Work

B. Section 01 2210 – Measurement and Payment

C. Section 01 3300 - Submittal Procedures

D. Section 01 4000 - Quality Requirements

F. Section 31 0000 - Earthwork

G. Section 31 2316 – Excavation

H. Section 31 8010 – Non Woven Geotextile

I. Section 31 8030 - Geocomposite

J. Section 31 8090 – Interface Friction Testing.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. D 1004 Test Method for Initial Tear Resistance of Plastic Film and Sheeting
   2. D 1238 Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer
   3. D 1505 Test Method for Density of Plastics by the Density-Gradient Technique
   4. D 1603 Test Method for Carbon Black in Olefin Plastics
   5. D 3895 Standard Test Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry
   6. D 4833 Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
   7. D 5199 Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes
   8. D 5397 Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test

9. D 5596 Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics
10. D 5994 Standard Test Method for Measuring Core Thickness of Textured Geomembranes
11. D 6392 Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods
12. D 6693 Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes

B. Geosynthetic Research Institute
   1. GRI GM 13 Test Properties, Testing Frequency and Recommended Warranty for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes.

1.04 DEFINITIONS

A. Lot- A quantity of resin (usually the capacity of one rail car) used in the manufacture of geomembranes. Finished roll will be identified by a roll number traceable to the resin lot used.

B. INSPECTOR - Party, independent from MANUFACTURER and INSTALLER that is responsible for observing and documenting activities related to quality assurance during the lining system construction.

C. RESIDENT - The Department's on-site representative.

D. Geomembrane Manufacturer (MANUFACTURER) - The party responsible for manufacturing the geomembrane rolls.

E. Geosynthetic Quality Assurance Laboratory (TESTING LABORATORY)- Party, independent from the OWNER, MANUFACTURER and INSTALLER, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing, usually under the direction of the OWNER.

F. INSTALLER - Party responsible for field handling, transporting, storing, deploying, seaming and testing of the geomembrane seams.

G. Panel- Unit area of a geomembrane that will be seamed in the field that is larger than 100 ft^2.

H. Patch- Unit area of a geomembrane that will be seamed in the field that is less than 100 ft^2.

I. Subgrade Surface - Soil layer surface which immediately underlies the geosynthetic material(s).

1.05 QUALIFICATIONS

A. MANUFACTURER. MANUFACTURER shall have manufactured a minimum of 10,000,000 square feet of polyethylene geomembrane during the last year. Approved Geomembrane manufacturers shall include but are not limited to the following:
   1. Solmax International.
   2. Poly-Flex, Inc.

3. GSE Lining Technology, Inc.
4. Approved Equal.

B. INSTALLER
   1. Installation shall be performed by one of the following installation companies.
      a. RTD Enterprises
      b. GSI, Inc.
      c. RESIDENT Approved Dealer/Installers.
   2. INSTALLER shall have installed a minimum of 1,000,000 square feet of HDPE geomembrane during the last 5 years.
   3. INSTALLER shall have worked in a similar capacity on at least 3 projects similar in complexity to the project described in the contract documents
   4. The Installation Supervisor shall have worked in a similar capacity on projects similar in size and complexity to the project described in the Contract Documents.
   5. The INSTALLER shall provide a minimum of one Master Seamer for work on the project.
      a. Must have completed a minimum of 1,000,000 square feet of geomembrane seaming work using the type of seaming apparatus proposed for the use on this Project.

1.06 SUBMITTALS POST-AWARD

A. Furnish the following product data, in writing, to RESIDENT prior to installation of the geomembrane material:
   1. Resin Data shall include the following
      a. Certification stating that the resin meets the specification requirements (see Section 1.09).
   2. Geomembrane Roll
      a. Statement certifying no recycled polymer and no more than 10% rework of the same type of material is added to the resin (product run may be recycled).

B. The INSTALLER shall furnish the following information to the RESIDENT and OWNER prior to installation:
   1. Installation layout drawings
      a. Must show proposed panel layout including field seams and details. Must be approved prior to installing the geomembrane
      b. Approved drawings will be for concept only and actual panel placement will be determined by site conditions.
   2. Installer's Geosynthetic Field Installation Quality Assurance Plan

C. The INSTALLER will submit the following to the RESIDENT upon completion of installation:
   1. Certificate stating the geomembrane has been installed in accordance with the Contract Documents
   2. Material and installation warranties
   3. As-built drawings showing actual geomembrane placement, seams, repairs, and installed boundary.

1.07 QUALITY ASSURANCE

A. The OWNER will engage and pay for the services of a Geosynthetic Quality Assurance INSPECTOR and Laboratory to monitor geomembrane installation.
   1. Comply with requirements of the Quality Assurance Plan and all other Project Documents prepared by the Contractor.

B. Pre-Installation Conference
   1. Prior to installation of the geomembrane, a pre-installation conference shall be held. In attendance shall be representatives from the EPA, Contractor, RESIDENT, Owner (MDEP), and Geosynthetic C.Q.A.
   2. Prior to liner installation conduct site inspection with RESIDENT.
   3. Verify:
      a. Grades
      b. Measurements
      c. Structures
      d. Surface Conditions
         1. Subgrade acceptance certificates shall be signed by the Installer and Geosynthetic CQA Inspector.

C. Submit to Owner certifications for each roll prior to delivery and including the properties provided in Table 1, for minimum values specified in Table 2.

TABLE 1
GEOMEMBRANE CERTIFICATION PARAMETERS

PROPERTY	TEST METHOD
Oxidative Induction Time	ASTM D3895 or ASTM D5885
Thickness	ASTM D5994
Carbon Black Content	ASTM D1603 or ASTM D4218
Carbon Black Dispersion	ASTM D5596 or ASTM D3015
Tensile Stress at Yield	ASTM D6693, Type IV
Tensile Stress at Break	ASTM D6693, Type IV
Elongation at Yield	ASTM D6693, Type IV
Elongation at Break	ASTM D6693, Type IV
Tear Resistance	ASTM D1004-DIE C
Puncture Resistance	ASTM D4833
Melt Index	ASTM D1238 (190/2.16)
Asperity Height(for textured geomembrane)	GM 12
Density	ASTM D1505E
Interface Friction Angle	ASTM D5321-92

1.08 MATERIAL LABELING, DELIVERY, STORAGE AND HANDLING

A. Labeling - Each roll of geomembrane delivered to the site shall be labeled by the MANUFACTURER. The label will identify:
   1. manufacturer's name;
   2. product identification;
   3. thickness;
   4. length;

5. width; and
6. roll number.

B. Delivery- Rolls of liner will be prepared to ship by appropriate means to prevent damage to the material and to facilitate off-loading.

C. Storage- The on-site storage location for geomembrane material, provided by the CONTRACTOR to protect the geomembrane from punctures, abrasions, and excessive dirt and moisture should have the following characteristics:
1. level (no wooden pallets);
2. smooth;
3. dry;
4. protected from theft and vandalism; and
5. adjacent to the area being lined.

D. Handling- Materials are to be handled so as to prevent damage.

1.09 WARRANTY

A. Material shall be warranted, on a pro-rata basis against Manufacturer's defects for a period of 5 years from the date of geomembrane installation.

B. Installation shall be warranted against defects in workmanship for a period of 1 year from the date of geomembrane completion.

PART 2 PRODUCT

2.01 GEOMEMBRANE

A. Material shall be textured high density polyethylene geomembrane as shown on the drawings.

B. Resin
1. Resin shall be new, first quality, compounded and manufactured specifically for producing geomembrane.

2. Natural resin (without carbon black) shall meet the following minimum requirements:

TABLE 2

Property	Test Method	HDPE
Density [g/cm3]	ASTM D 1505	0.932-0.940
Melt Flow Index [g/10 min.]	ASTM D 1238 (190/2.16)	≤1.0
OIT (minutes)	ASTM D 3895 (1 atm/200°C)	100

C. Geomembrane Rolls
1. Do not exceed a combined maximum total of 1 percent by weight of additives other than carbon black.
2. Geomembrane shall be free of holes, pinholes as verified by on-line electrical detection, bubbles, blisters, excessive contamination by foreign matter, and nicks and cuts on roll edges.

3. Geomembrane material is to be supplied in roll form. Each roll is to be identified with labels indicating roll number, thickness, length, width and MANUFACTURER.
4. All liner sheets produced at the factory shall be inspected prior to shipment for compliance with the physical property requirements listed in section 1.09, B, and be tested by an acceptable method of inspecting for pinholes. If pinholes are located, identified and indicated during manufacturing, these pinholes may be corrected during installation.

D. Geomembrane shall meet the following requirements:

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HIGH DENSITY POLYETHYLENE (HDPE) GEOMEMBRANE					
Properties		**Test Method**	**Test Value**	**MQC Testing Frequency (minimum)**	**MQA Testing Frequency (minimum)**
Thickness mils (min. ave.) **60 mil**		D 5994	nom. (-5%)	per roll	Verify
	•lowest individual for 8 out of 10 values		-10%		
	•lowest individual for any of the 10 values		-15%		
Asperity Height mils (min. ave.) *(1)*		GM 12	16 mil	every 2nd roll *(2)*	Verify
Density (min. ave.)		D 1505/D 792	0.940 g/cc	200,000 lb	
Tensile Properties (min. ave.) *(3)*		D 6693 Type IV		20,000 lb	
	•yield strength		126 lb/in.		Verify
	•break strength		90 lb/in.		
	•yield elongation		12%		
	•break elongation		100%		Verify
Tear Resistance (min. ave.)		D 1004	42 lb	45,000 lb	
Puncture Resistance (min. ave.)		D 4833	90 lb	45,000 lb	
Stress Crack Resistance *(4)*		D 5397 (App.)	300 hr.	per GRI GM10	Verify
Carbon Black Content (range)		D 1603 *(5)*	2.0-3.0 %	20,000 lb	
Carbon Black Dispersion		D 5596	note *(6)*	45,000 lb	
Oxidative Induction Time (OIT) (min. ave.) *(7)*				200,000 lb	Verify
	(a) Standard OIT	D 3895	100 min.		
— or —					
	(b) High Pressure OIT	D 5885	400 min.		
Oven Aging at 85°C *(7), (8)*		D 5721		per each formulation	Verify
	(a) Standard OIT (min. ave.) - % retained after 90 days	D 3895	55%		
— or —					
	(b) High Pressure OIT (min. ave.) -% retained after 90 days	D 5885	80%		
UV Resistance *(9)*		GM11	N.R. *(10)*	per each formulation	Verify
	(a) Standard OIT (min. ave.)	D 3895			
	— or —				
	(b) High Pressure OIT (min. ave.) - % retained after 1600 hrs (11)	D 5885	50%		

(1) Of 10 readings; 8 out of 10 must be ≥11 mils, and lowest individual reading must be ≥8 mils; also see Note 6.
(2) Alternate the measurement side for double sided textured sheet
(3) Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction.
Yield elongation is calculated using a gage length of 1.3 inches
Break elongation is calculated using a gage length of 2.0 inches
(4) P-NCTL test is not appropriate for testing geomembranes with textured or irregular rough surfaces. Test should be conducted on smooth edges of textured rolls or on smooth s
from the same formulation as being used for the textured sheet materials.
The yield stress used to calculate the applied load for the SP-NCTL test should be the manufacturer's mean value via MQC testing.
(5) Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.
(6) Carbon black dispersion (only near spherical agglomerates) for 10 different views:
9 in Categories 1 or 2 and 1 in Category 3
(7) The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.
(8) It is also recommended to evaluate samples at 30 and 60 days to compare with the 90 day response.
(9) The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.
(10) Not recommended since the high temperature of the Std-OIT test produces an unrealistic result for some of the antioxidants in the UV exposed samples.
(11) UV resistance is based on percent retained value regardless of the original HP-OIT value.

2.02. Extrudate Rod or Bead

A. Extrudate material shall be made from same type resin as the geomembrane.

B. Additives shall be thoroughly dispersed.

C. Materials shall be free of contamination by moisture or foreign matter.

PART 3 EXECUTION

3.01 EQUIPMENT

A. Welding equipment and accessories shall meet the following requirements:
   1. Gauges showing temperatures in apparatus (extrusion welder) or wedge (wedge welder) shall be present.
   2. An adequate number of welding apparatus shall be available to avoid delaying work.
   3. Power source must be capable of providing constant voltage under combined line load.

3.02 DEPLOYMENT

A. Assign each panel a simple and logical identifying code. The coding system shall be subject to approval and shall be determined at the job site.

B. Visually inspect the geomembrane during deployment for imperfections and mark faulty or suspect areas.

C. Deployment of geomembrane panels shall be performed in a manner that will comply with the following guidelines:
   1. Unroll geomembrane using methods that will not damage geomembrane and will protect underlying surface from damage (spreader bar, protected equipment bucket).
   2. Place ballast (commonly sandbags) on geomembrane which will not damage geomembrane to prevent wind uplift.
   3. Personnel walking on geomembrane shall not engage in activities or wear shoes that could damage it. Smoking will not be permitted on the geomembrane.
   4. Do not allow heavy vehicular traffic directly on geomembrane. Rubber-tired ATV's are acceptable if wheel contact is less than 5 psi.
   5. Protect geomembrane in areas of heavy traffic by placing protective cover over the geomembrane.

D. Sufficient material (slack) shall be provided to allow for thermal expansion and contraction of the material.

E. The leading edge of the last deployed panel shall be secured at the end of day by ballasts (commonly sandbags) or trenching.

3.03 FIELD SEAMING

A. Seams shall meet the following requirements:
   1. To the maximum extent possible, orient seams parallel to line of slope, i.e., down and not across slope.
   2. Minimize number of field seams in corners, odd-shaped geometric locations and outside corners.
   3. Slope seams (panels) shall extend a minimum of five-feet beyond the grade break into the flat area.
   4. Use a sequential seam numbering system compatible with panel numbering system that is agreeable to the INSPECTOR and INSTALLER.
   5. Align seam overlaps consistent with the requirements of the welding equipment being used. A 6-inch overlap is commonly suggested.

B. During Welding Operations
   1. Provide at least one Master Seamer who shall provide direct supervision over other welders as necessary.

C. Extrusion Welding
   1. Hot-air tack adjacent pieces together using procedures that do not damage the geomembrane.
   2. Clean geomembrane surfaces by disc grinder or equivalent.
   3. Purge welding apparatus of heat-degraded extrudate before welding.
   4. Welding must commence within 30 minutes of grinding.

D. Hot Wedge Welding
   1. Welding apparatus shall be a self-propelled device equipped with an electronic controller which displays applicable temperatures.
   2. Clean seam area of dust, mud, moisture and debris immediately ahead of hot wedge welder.
   3. Protect against moisture build-up between sheets.

E. Trial Welds
   1. Perform trial welds on geomembrane samples to verify welding equipment is operating properly.
   2. Make trial welds under the same surface and environmental conditions as the production welds, i.e., in contact with subgrade and similar ambient temperature.
   3. Trial welds shall be performed every five hours, per welding apparatus, per operator, following power failure, following significant downtime (1 hr), significant temperature changes (Δ 10^{0}F), or more frequently as determined by quality assurance personnel.
   4. Cut five, one-inch wide by six-inch long test strips from the trial weld.
   5. Quantitatively test specimens for three peel adhesion, and two shear strength.
   6. Trial weld specimens shall pass when the results shown in Table 3 are achieved in both peel and shear test.
      a. The break, when peel testing, occurs in the liner material itself, not through peel separation (FTB).
      b. The break is ductile.

   7. Repeat the trial weld, in its entirety, when any of the trial weld samples fail in either

peel or shear.

8. No welding equipment or welder shall be allowed to perform production welds until equipment and welders have successfully completed trial weld.

TABLE 3
Minimum Weld Values for HDPE Geomembranes

Geomembrane Nominal Thickness	60 mils
Hot Wedge Seams (1)	
shear strength (2), lb/in.	120
shear elongation at break (3), %	50
peel strength (2), lb/in.	91
peel separation, %	25
Extrusion Fillet Seams	
shear strength (2), lb/in.	120
shear elongation at break (3), %	50
peel strength (2), lb/in.	78
peel separation, %	25

Notes:	
1	Also for hot air and ultrasonic seaming methods.
2	Value listed for shear and peel strengths are 4 out of 5 test specimens for laboratory destructive testing; the 5th can be as low as 80% of the listed values. Field trial welds must meet the values listed for three peel, two shear.
3	Elongation measurements omitted for field testing.

F. Seaming shall not proceed when ambient air temperature or adverse weather conditions jeopardize the integrity of the liner installation. INSTALLER shall demonstrate that acceptable seaming can be performed by completing acceptable trial welds.

G. Defects and Repairs
   1. Examine all seams and non-seam areas of the geomembrane for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter.
   2. Repair and non-destructively test each suspect location in both seam and non-seam areas. Do not cover geomembrane at locations that have been repaired until test results with passing values are available.

3.04 FIELD QUALITY ASSURANCE

A. MANUFACTURER and INSTALLER shall participate in and conform to all terms and requirements of the Owner's quality assurance program. CONTRACTOR shall be responsible for assuring this participation.

B. Quality assurance requirements are as specified in this Section and in the Field Installation Quality Assurance Manual if it is included in the contract.

C. Field Testing
   1. Non-destructive testing may be carried out as the seaming progresses or at completion

of all field seaming.

a. Vacuum Testing
    1. Shall be performed in accordance with ASTM D 5641, Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber. Hold 3 psi for a 10 second dwelling with four inch overlap between tests.
b. Air Pressure Testing
    1. Shall be performed in accordance with ASTM D 5820, Standard Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembranes. The seam shall be pressurized to 30-35psi. Maintain this pressure with the air pump connected during a two minute stabilization period. The feed valve shall be closed and the pressure sustained for a period of not less than 5 minutes. The pressure shall then be released by slitting the air channel at the opposite end of the seam. If a pressure loss of greater than 2 psi is observed or if the required pressure cannot be reached then the seam shall be rejected.
c. Other approved methods.

2. Destructive Testing (performed by INSPECTOR with assistance from INSTALLER)
    a. Location and Frequency of Testing
        1. Collect destructive test samples at a frequency of one per every 1000 lineal feet of seam length.
        2. Test locations will be determined after seaming.
        3. Exercise Method of Attributes as described by GRI GM-14 (Geosynthetic Research Institute, http://www.geosynthetic-institute.org) to minimize test samples taken.
    b. Sampling Procedures are performed as follows:
        1. INSTALLER shall cut samples at locations designated by the INSPECTOR as the seaming progresses in order to obtain field laboratory test results before the geomembrane is covered.
        2. INSPECTOR will number each sample, and the location will be noted on the installation as-built.
        3. Samples shall be twelve (12) inches wide by minimal length with the seam centered lengthwise.
        4. Cut a 2-inch wide strip from each end of the sample for field-testing.
        5. Cut the remaining sample into two parts for distribution as follows:
            a. One portion for INSTALLER, 12-inches by 12 inches
            b. One portion for the Third Party laboratory, 12-inches by 18-inches
            c. Additional samples may be archived if required.
        6. Destructive testing shall be performed in accordance with ASTM D 6392, Standard Test Method for Determining the Integrity of Non-Reinforced Geomembrane Seams Produced Using Thermo-Fusion Methods.
        7. INSTALLER shall repair all holes in the geomembrane resulting from destructive sampling.
        8. Repair and test the continuity of the repair in accordance with these Specifications.

3. Failed Seam Procedures
   a. If the seam fails, INSTALLER shall follow one of two options:
      1. Reconstruct the seam between any two passed test locations.
      2. Trace the weld to intermediate location at least 10 feet minimum or where the seam ends in both directions from the location of the failed test.
      3. The next seam welded using the same welding device is required to obtain an additional sample, i.e., if one side of the seam is less than 10 feet long.
      4. If sample passes, then the seam shall be reconstructed or capped between the test sample locations.
      5. If any sample fails, the process shall be repeated to establish the zone in which the seam shall be reconstructed.

3.05 REPAIR PROCEDURES

A. Remove damaged geomembrane and replace with acceptable geomembrane materials if damage cannot be satisfactorily repaired.

B. Repair any portion of unsatisfactory geomembrane or seam area failing a destructive or non-destructive test.

C. INSTALLER shall be responsible for repair of defective areas.

D. Agreement upon the appropriate repair method shall be decided between INSPECTOR and INSTALLER by using one of the following repair methods:
   1. Patching - Used to repair large holes, tears, undispersed raw materials and contamination by foreign matter.
   2. Abrading and Re-welding is not allowed.
   3. Spot Welding- Used to repair pinholes or other minor, localized flaws or where geomembrane thickness has been reduced.
   4. Capping- Used to repair long lengths of failed seams.
   5. Flap Welding- NOT ALLOWED
   6. Remove the unacceptable seam and replace with new material.

E. The following procedures shall be observed when a repair method is used:
   1. All geomembrane surfaces shall be clean and dry at the time of repair.
   2. Surfaces of the polyethylene which are to be repaired by extrusion welds shall be lightly abraded to assure cleanliness.
   3. Extend patches or caps at least 6 inches for extrusion welds and 4 inches for wedge welds beyond the edge of the defect, and around all corners of patch material.

F. Repair Verification
   1. Number and log each patch repair (performed by INSPECTOR).
   2. Non-destructively test each repair using methods specified in this Specification.

END OF SECTION

SECTION 31 8030

DOUBLE SIDED GEOCOMPOSITE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Specifications and guidelines for MANUFACTURING and INSTALLING geocomposite.

B. Contractor to provide design calculation using the Unit Gradient Method for determining the required Transmissivity. Contractor should use the Reduction Factors provided in Part 2.01, table of properties.

1.02 RELATED SECTIONS

A. Section 01 1000 – Summary of Work

B. Section 01 2210 – Measurement and Payment

C. Section 01 3300 - Submittal Procedures

D. Section 01 4000 - Quality Requirements

F. Section 31 0000 - Earthwork

G. Section 31 2316 – Excavation

H. Section 31 8020 – High Density Polyethylene Geomembrane

I. Section 31 8010 – Non Woven Geotextiles

J. Section 31 8090 – Interface Friction Testing.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. D 1505-98 Standard Test Method for Density of Plastics by the Density-Gradient Technique
   2. D 1603-94 Standard Test Method for Carbon Black in Olefin Plastics
   3. D 4355-02 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
   4. D 4491-99 Standard Test Method for Water Permeability of Geotextiles by Permittivity

5. D 4716-00 Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
6. D 4751-99 Standard Test Method for Determining Apparent Opening Size of a Geotextile
7. D 4833-88 (1996) Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
8. D 5035-95 Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)
9. D 5199-99 Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes
10. D 5261-92 (1996) Standard Test Method for Measuring the Mass Per Unit Area of Geotextiles
11. D7005-03 Determining The Bond Strength (Ply-Adhesion) of Geocomposites

B. Relevant publications from the Environmental Protection Agency (EPA):
1. Daniel, D.E. and R.M. Koerner, (1993), *Technical Guidance Document: Quality Assurance and Quality Control for Waste Containment Facilities*, EPA/600/R-93/182.

1.04 DEFINITIONS

A. INSPECTOR - Party, independent from MANUFACTURER and INSTALLER that is an authorized representative of the RESIDENT assigned to make detailed inspections of the Work to determine compliance with the Contract.

B. RESIDENT - The Department's on-site representative.

C. Geocomposite Manufacturer (MANUFACTURER)- The party responsible for manufacturing the geocomposite rolls.

D. Geosynthetic Quality Assurance Laboratory (TESTING LABORATORY)- Party, independent from the MANUFACTURER and INSTALLER, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing, usually under the direction of the OWNER.

E. INSTALLER- Party responsible for field handling, transporting, storing and deploying the geocomposite.

F. Lot- A quantity of resin (usually the capacity of one rail car) used to manufacture polyethylene geocomposite rolls. The finished rolls will be identified by a roll number traceable to the resin lot.

1.05 SUBMITTALS

A. Submit design calculations based on the Unit Gradient Method to determine the required Transmissivity. Contractor should use site specific boundary, load, and

gradient in addition to the Reduction Factors provided in Part 2.01, table of properties to calculate the required Transmissivity.

B. Submit in accordance with Section 01 3300.

1.06 QUALIFICATIONS

A. MANUFACTURER
   1. Geocomposite shall be manufactured by the following:
      a. Skaps Industries
      b. GSE Lining Technology, Inc.
      c. approved equal
   2. MANUFACTURER shall have manufactured a minimum of 10,000,000 square feet of polyethylene geocomposite material during the last year.

B. INSTALLER
   1. Installation shall be performed by one of the following installation companies (or approved equal):
      a. RTD Enterprises
      b. GSI, Inc.
      c. RESIDENT Approved Installer
   2. INSTALLER shall have installed a minimum of 500,000 square feet of geocomposite in the last 3 years.

   3. INSTALLER shall have worked in a similar capacity on at least 3 projects similar in complexity to the project described in the contract documents, and with in at least 50,000 square feet of geonet installation on each project.

   4. The Installation Supervisor shall have worked in a similar capacity on projects similar in size and complexity to the project described in the Contract Documents.

1.07 MATERIAL LABELING, DELIVERY, STORAGE AND HANDLING

A. Labeling- Each roll delivered to the site shall be wrapped and labeled by the MANUFACTURER. The label will identify:
   1. manufacturer's name
   2. product identification
   3. length
   4. width
   5. roll number

B. Delivery- Rolls will be prepared to ship by appropriate means to prevent damage to the material and to facilitate off-loading.

C. Storage- The on-site storage location provided by the CONTRACTOR to protect the geonet from abrasions, excessive dirt and moisture shall have the following characteristics:
   1. level (no wooden pallets)

2. smooth
3. dry
4. protected from theft and vandalism
5. adjacent to the area being lined

D. Handling
1. The CONTRACTOR and INSTALLER shall handle all rolls in such a manner to ensure they are not damaged in any way.
2. The INSTALLER shall take any necessary precautions to prevent damage to underlying layers during placement of the drainage material.

1.08 WARRANTY

A. Material shall be warranted, on a pro-rata basis against defects for a period of 1-year from the date of the geocomposite installation.

B. Installation shall be warranted against defects in workmanship for a period of 1-year from the date of geocomposite completion.

PART 2: PRODUCTS

2.01 GEOCOMPOSITE PROPERTIES

A. A geocomposite shall be manufactured by extruding two crossing strands to form a bi-planar drainage net structure with a non-woven geotextile bonded to one or both sides.

B. The geocomposite specified shall have properties that meet or exceed the values listed in the following table below for the frequency shown.

PROPERTY	TEST METHODS	UNITS	QUALIFIER	VALUE	MQC FREQUENCY	MQA FREQUENCY
RESIN						
Density	ASTM D1505	g/cc	MAV	0.94	lot	Verify
Melt Flow Index	ASTM D1238	g/10 min	MAX	1	lot	Verify
GEONET CORE						
Thickness	ASTM D5199	mil	MIN	200	75,000 sf	Verify
Carbon Black	ASTM D4218	%	range	2.0-3.0	75,000 sf	Verify
Density	ASTM D1505	g/cc	g/cm3	0.94	lot	Verify
Tensile Strength	ASTM D4595	lb/ft	MAV	45	75,000 sf	Verify
GEOTEXTILE						
Weight	ASTM D5261	oz/yd2	MARV	6	75,000 sf	Verify
U.V. Resistance	ASTM D4335	%		70	Per formula	Verify
Grab Tensile	ASTM D4632	lbs	MARV	150	75,000 sf	Verify
Grab Elongation	ASTM D4632	%	MARV	50	75,000 sf	Verify
Tear Strength	ASTM D4533	lbs	MARV	60	75,000 sf	Verify
Puncture	ASTM D4833	lbs	MARV	95	100,000 sf	Verify

PROPERTY	TEST METHODS	UNITS	QUALIFIER	VALUE		MQC FREQUENCY	MQA FREQUENCY
Resistance							
AOS	ASTM D4751	US Sieve	MARV	70		500,000 sf	Verify
Permittivity	ASTM D4491	Sec -1	MARV	1.5		500,000 sf	Verify
Water Flow Rate		gpm/ft2		105			Verify
GEOCOMPOSITE							
Peel Adhesion	ASTM D7005	lb/in	MAV	0.5		100,000 sf	Verify
Transmissivity	ASTM D4716	m2/sec	MAV	i=0.333	TBD	Verify	Verify

NOTES:

- [(a)]These are MARV values that are based on the cumulative results of specimens tested. AOS in mm is a maximum average roll value.
- [(b)] Transmissivity testing performed in accordance with GRI GC8 on site specific gradients, normal load of 500 psf, water at 70°F and site specific boundary conditions. Result must equal or exceed the value listed for the gradient shown after applying reduction factors (Creep 2.0, Intrusion 1.5, Chemical Clogging 1.7, and Biological Clogging 1.6) in accordance with GRI GC8 and GSI White Paper No. 4.
- [(c)]Roll widths and lengths have a tolerance of ±1%.
- [(d)]Component properties prior to lamination.
- [(e)]Refer to geotextile product data sheet for additional specifications.

C. Resin

1. Resin shall be new first quality, compounded polyethylene resin.
2. Natural resin (without carbon black) shall meet the following additional minimum requirements:

Table 02621-3 – Sample Table

Property	Test Method [(1)]	Value
Density (g/cm3)	ASTM D 1505	>0.94
Melt Flow Index (g/10 min)	ASTM D 1238	≤ 1.0

2.02 MANUFACTURING QUALITY CONTROL

A. The geocomposite shall be manufactured in accordance with the Manufacturer's Quality Control Plan submitted to and approved by the RESIDENT.

PART 3: EXECUTION

3.01 FAMILIARIZATION

A. Inspection

1. Prior to implementing any of the work in the Section to be lined, the INSTALLER shall carefully inspect the installed work of all other Sections and verify that all work is complete to the point where the installation of the Section may properly commence without adverse impact.

2. If the INSTALLER has any concerns regarding the installed work of other Sections, he shall notify the Project RESIDENT.

3.02 MATERIAL PLACEMENT

A. The geocomposite roll should be installed in the direction of the slope and in the intended direction of flow unless otherwise specified by the RESIDENT.

B. In the presence of wind, all geocomposites shall be weighted down with sandbags or the equivalent. Sandbags shall be used during placement and remain until Primary Geomembrane Liner is deployed.

C. The geocomposite shall be properly anchored to resist sliding. Anchor trench compacting equipment shall not come into direct contact with the geocomposite.

D. For deployment activities above the geocomposite layer, no equipment can drive directly across the geocomposite in a manner that causes damage to the geocomposite.

E. Soil above geocomposite must be placed (pushed) in up hill direction.

F. Geocomposite shall not be left exposed for longer than 30 days.

3.03 SEAMS AND OVERLAPS

A. Each component of the geocomposite will be secured or seamed to the like component at overlaps.

1. Geonet Components
   a. Adjacent edges of the geonet along the length of the geocomposite roll shall be placed with the edges of each geonet butted against each other.
   b. The overlaps shall be joined by tying the geonet structure with cable ties. Ties shall be spaced every 5 feet along the roll length.
   c. Adjoining geocomposite rolls (end to end) across the roll width should be shingled down in the direction of the slope, with the geonet portion of the top overlapping the geonet portion of the bottom geocomposite a minimum of 12 inches across the roll width.
   d. The geonet portion shall be tied every 6 inches in the anchor trench.
2. Geotextile Components
   a. Seaming top geotextile shall be performed by sewing a single row Flat Seam with a 401 stitch.
   b. The stitching must not leave less than one inch of either edge of geotextile exposed.
   c. The GQAR will inspect the geotextile seams and notify the Installer of deficient seams. The Installer shall repair deficient seams

3.04 REPAIR

A. Prior to covering the deployed geocomposite, each roll shall be inspected for damage resulting from construction.

B. A non-woven geotextile patch shall be heat seamed over the repaired area, extending a minimum of 6 inches in all directions

C. Any rips, tears or damaged areas on the deployed geocomposite shall be removed and patched. The patch shall be secured to the original geonet by tying every 6 inches with the approved tying devices. If the area to be repaired is more than 50 percent of the width of the panel, the damaged area shall be cut out and the two portions of the geonet shall be cut out and the two portions of the geonet shall be joined in accordance with Subsection 3.03.

END OF SECTION

CES INC

SECTION 31 8085

OFF-SITE SHIPMENT AND DISPOSAL

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section covers the transportation and off-site disposal requirements for PCB-contaminated soils and CERCLA waste commingled with petroleum contaminated soils excavated from within the former Mine Operations Area.

B. Contaminated waste soil scheduled for off-site disposal shall be conducted by the Contractor and delivered to a facility permitted to receive such waste and approved by the Owner.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

A. Section 01 1000: Summary of Work

B. Section 01 3300: Submittal Procedures

C. Section 31 0000: Earthwork

1.03 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.

A. U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

1. 40 CFR 261 Identification and Listing of Hazardous Waste;
2. 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities;
3. 40 CFR 279 Standards for the Management of Used Oil;
4. 40 CFR 300 National Oil and Hazardous Substances Pollution Contingency Plan;
5. 40 CFR 302 Designation, Reportable Quantities, and Notification;
6. 40 CFR 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
7. 49 CFR 107 Hazardous Materials Program Procedures;
8. 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements;
9. 49 CFR 173 Shippers General Requirements for Shipments and Packaging; and
10. 49 CFR 178 Specifications for Packaging.

1.04 DEFINITIONS

A. Hazardous Material: A substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated pursuant to the Hazardous Materials Transportation Act, 49 U.S.C.

Appendix Section 1801 et seq. The term includes materials designated as hazardous materials under the provisions of 49 CFR 172, Sections .101 and .102 and materials which meet the defining criteria for hazard classes and divisions in 49 CFR 173. EPA designated hazardous wastes are also hazardous materials.

B. Hazardous Waste: A waste which meets criteria established in RCRA or specified by the EPA in 40 CFR 261 or which has been designated as hazardous by a RCRA authorized state program.

1.05 SUBMITTALS

A. An Off-Site Shipment and Disposal Plan shall be submitted for approval in accordance with Section 01 3300, "Submittal Procedures". At a minimum, the Off-Site Shipment and Disposal Plan shall include:

1. Proposed Disposal Facilities. The Contractor shall provide a list of pre-screened facilities that are acceptable for disposal of PCB-contaminated soil and petroleum–contaminated soil commingled with CERCLA waste. The Owner has the right to approve or reject the Contractors' proposed disposal facilities.
2. Identification of the shipment and disposal requirements of the PCB contaminated soil at the concentrations detected at the Site.
3. The name of the Contractor's Transportation and Disposal Coordinator and his/her qualifications.
4. Recordkeeping: Information necessary to file state annual or EPA reports for all hazardous waste transported, treated, stored, or disposed of under this contract. The Contractor shall not forward these data directly to the regulatory agency but to the Owner at the specified time. The submittal shall contain all the information necessary for filing of the formal reports in the form and format required by the governing federal or state regulatory agency. A cover letter shall accompany the data to include the contract number, Contractor name, and project location.
5. Spill Response: In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), or pollutant or contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), the Contractor shall notify the Resident immediately. If the spill exceeds a reporting threshold, the Contractor shall follow the pre-established procedures for immediate reporting to the Owner.
6. Evidence of Licensed Transporters: License information for all transporters of waste shall be submitted.
7. Qualifications: Copies of the current certificates of registration issued to the Contractor and/or subcontractors or written statements certifying exemption from these requirements shall be submitted.
8. Shipping Documents and Packaging Certification: All transportation related shipping documents shall be submitted to the Owner, including draft bill of ladings, lists of corresponding proposed labels, packages, marks, and placards to be used for shipment, and any supporting waste analysis documents, for review a minimum of five days prior to anticipated pickup. Packaging assurances shall be furnished prior to transporting hazardous material. Bill of ladings and any supporting waste analysis documents shall be furnished when shipments are originated. "Receipt copies" of waste shipment records at the designated disposal facility shall be furnished not later than 35 days after acceptance of the shipment.

9. Notification of Potential Hazardous Waste: The Contractor shall immediately notify the Resident should any wastes be generated that the Contractor believes may be a hazardous waste as defined in 40 CFR 261.

1.06 QUALIFICATIONS

A. Transportation and Disposal Coordinator: The Contractor shall designate, by position and title, one person to act as the Transportation and Disposal Coordinator (TDC) for this contract. The TDC shall serve as the single point of contact for all environmental regulatory matters and shall have overall responsibility for total environmental compliance at the site including, but not limited to, accurate identification and classification of hazardous materials; determination of proper shipping names; identification of marking, labeling, packaging and placarding requirements; completion of waste profiles, bills of lading, and all other environmental documentation. The TDC shall have, at a minimum, one year of specialized experience in the management and transportation of hazardous materials.

B. Training: The Contractor's hazardous materials employees shall be trained, tested, and certified to safely and effectively carry out their assigned duties. The Contractor's employees transporting hazardous materials or preparing hazardous materials for transportation shall be trained, tested, and certified in accordance with 49 CFR 172.

C. Certification: The Contractor and/or subcontractors transporting hazardous materials shall possess a current certificate of registration issued by the Research and Special Programs Administration (RSPA), U.S. Department of Transportation, when required by 49 CFR 107, Subpart G.

1.07 LAWS AND REGULATIONS REQUIREMENTS

A. Work shall meet or exceed the minimum requirements established by federal, State, and local laws and regulations which are applicable. These requirements are amended frequently and the Contractor shall be responsible for complying with amendments as they become effective. In the event that compliance exceeds the scope of work or conflicts with specific requirements of the contract, the Contractor shall notify the Resident immediately.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The Contractor shall provide all of the materials required for the packaging, labeling, marking, placarding, and transportation of wastes in accordance with all applicable Federal, State, and local requirements.

B. Wastes that are determined to be Hazardous Materials shall be packaged, labeled, marked, and placarded in conformance with Department of Transportation standards.

Details listed below in this specification shall not be construed as establishing the limits of the Subcontractor's responsibility.

1. Packaging: The Contractor shall provide bulk containers for packaging hazardous materials consistent with the authorizations referenced in the Hazardous Materials Table in 49 CFR 172, Section .101, Column 8. Bulk and non-bulk packaging shall meet the corresponding specifications in 49 CFR 173 referenced in the Hazardous Materials Table, 49 CFR 172, Section .101. Each packaging shall conform to the general packaging requirements of Subpart B of 49 CFR 173, to the requirements of 49 CFR 178 at the specified packing group performance level, to the requirements of special provisions of column 7 of the Hazardous Materials Table in 49 CFR 172, Section .101, and shall be compatible with the material to be packaged. The Contractor shall also provide other packaging related materials such as materials used to cushion or fill voids in over packed containers, etc. Sorbent materials shall not be capable of reacting dangerously with, being decomposed by, or being ignited by the hazardous materials being packaged. Additionally, sorbents used to treat free liquids to be disposed of in landfills shall be non-biodegradable as specified in 40 CFR 264, Section 314.
2. Markings: The Contractor shall provide markings for each hazardous material package, freight container, and transport vehicle consistent with the requirements of 49 CFR 172, Subpart D. Markings shall be capable of withstanding, without deterioration or substantial color change, a 180-day exposure to conditions reasonably expected to be encountered during container storage and transportation.
3. Labeling: The Contractor shall provide primary and subsidiary labels for hazardous materials consistent with the requirements in the Hazardous Materials Table in 49 CFR 172, Section .101, Column 6. Labels shall meet design specifications required by 49 CFR 172, Subpart E including size, shape, color, printing, and symbol requirements. Labels shall be durable and weather resistant and capable of withstanding, without deterioration or substantial color change, a 180 day exposure to conditions reasonably expected to be encountered during container storage and transportation.
4. Placards: For each off-site shipment of hazardous material, the Contractor shall provide primary and subsidiary placards consistent with the requirements of 49 CFR 172, Subpart F. Placards shall be provided for each side and each end of bulk packaging, freight containers, transport vehicles, and rail cars requiring such placarding. Placards may be plastic, metal, or other material capable of withstanding, without deterioration, a 30-day exposure to open weather conditions and shall meet design requirements specified in 49 CFR 172, Subpart F.

C. Spill Response Materials: The Contractor shall provide spill response materials including, but not limited to, containers, adsorbents, shovels, booms, and personal protective equipment. Spill response materials shall be available at all times in which hazardous materials are being handled or transported. Spill response materials shall be compatible with the type of material being handled.

2.02 EQUIPMENT AND TOOLS

A. The Contractor shall provide miscellaneous equipment and tools necessary to handle hazardous materials in a safe and environmentally sound manner.

PART 3 - EXECUTION

3.01 TREATMENT/DISPOSAL FACILITY

A. Shipments of PCB-contaminated soil, petroleum–contaminated soil commingled with CERCLA waste, and any other potential contaminated or hazardous materials shall be sent to a licensed and Owner approved facility. The Contractor shall submit the proposed facility for each waste category including the following information:
   1. Name;
   2. Location;
   3. Ownership;
   4. USEPA identification number;
   5. State identification number;
   6. Permitting/licensing information;
   7. Telephone number; and
   8. A letter from the EPA region in which the facility(s) are located stating that facility(s) are in full compliance with Resource Conservation and Recovery Act (RCRA) or other applicable federal of state requirements.

B. Disposal of PCB contaminated soil shall be in accordance with the requirements of 40 CFR 761.

3.02 SHIPPING REQUIREMENTS

A. The Contractor, in consultation with the Resident and disposal facility, shall evaluate, prior to shipment of any material off-site, whether the material is regulated as a hazardous material. This shall be done for the purpose of determining proper shipping descriptions, marking requirements, etc., as described below.
   1. Identification of Proper Shipping Names: The Contractor shall use 49 CFR 172, Section .101 to identify proper shipping names for each hazardous material to be shipped off-site. Proper shipping names shall be submitted to the Resident in the form of draft shipping documents for review and approval.
   2. Packaging, Labeling, and Marking: The Contractor shall package, label, and mark hazardous materials using the specified materials and in accordance with the referenced authorizations.
   3. Shipping Documents: The Contractor shall ensure that each shipment of waste sent off-site is accompanied by properly completed shipping documents. The Contractor shall prepare at a minimum a bill of lading for each shipment of waste. The bill of lading shall satisfy the requirements of 49 CFR 172, Subpart C, and any applicable state or local law or regulation, and shall be submitted to the Resident for review and approval. For laboratory samples or treatability study samples, the Contractor shall prepare bills of lading and other documentation as necessary to satisfy the regulations including any sample exclusions that may

apply. Bills of lading requiring shipper's certifications shall be signed by the Contractor.

B. At a minimum, bills of lading shall be prepared for all shipments even if the waste is not considered a hazardous material.

C. Transportation shall comply with all applicable requirements in the Department of Transportation referenced regulations in the 49 CFR series.

D. All bills of lading, manifests and other documentation shall be provided for all waste disposal shipments and correlated with certified weight tickets from the disposal facility employed. The Contractor shall provide all documents to the Resident with an accurate waste tracking report in spreadsheet format including disposal dates, disposal tracking numbers, certified weights, cumulative weights, waste description, and disposal facility. The disposal facility shall provide a written certification that all waste material has been disposed in accordance with specified, regulatory, and facility permit requirements.

3.03 SPILL RESPONSE

A. The Contractor shall respond to any spill of hazardous material or hazardous waste which is in the custody or care of the Contractor, pursuant to this contract. Any direction from the Resident concerning a spill or release shall not be considered a change under the contract. The Contractor shall comply with all applicable requirements of Federal, state, or local laws or regulations regarding any spill incident.

3.04 EMERGENCY CONTACTS

A. The Contractor shall be responsible for complying with the emergency contact provisions in 49 CFR 172, Section .604. Whenever the Contractor ships hazardous materials, the Subcontractor shall provide a 24-hour emergency response contact and phone number of a person knowledgeable about the hazardous materials being shipped and who has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information. The phone must be monitored on a 24-hour basis at all times when the hazardous materials are in transportation, including during storage incidental to transportation. The Contractor shall ensure that information regarding this emergency contact and phone number are placed on all hazardous material shipping documents.

END OF SECTION

CES INC

SECTION 31 8090

MATERIAL TESTING INTERFACE SHEAR STRENGTH

PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Interface friction testing requirements for Resident review and approval prior to material placement.

B. The Contractor shall be responsible for providing geosynthetic products and materials capable of meeting shear strength values provided in Part 3.

C. Products and materials tested must be representative specimens of products and materials proposed for use in the liner system.

1.02 RELATED SECTIONS

A. Section 01 1000 – Summary of Work

B. Section 01 2210 – Measurement and Payment

C. Section 01 3300 - Submittal Procedures

D. Section 01 4000 - Quality Requirements

F. Section 31 0000 - Earthwork

G. Section 31 2316 – Excavation

H. Section 31 8010 – Non Woven Geotextile

I. Section 31 8020 – High Density Polyethylene Geomembrane

J. Section 31 8030 - Geocomposite

1.03 SUBMITTALS

A. Submit test results to Resident for review and approval.

1.04 REFERENCES

A. ASTM D5321 – Test method for determining the coefficient of soil and geosynthetic friction by the direct shear method.

1.05 QUALIFICAITONS

A. The laboratory retained for testing services shall have Geosynthetic Accreditation Institute (GAI) certificate. Proof of certificate may be requested by the Resident.

B. The Resident shall select the laboratory for direct shear testing.

PART 2 - PRODUCTS

2.01 COORDINATION

A. The Contractor shall provide all soil and geosynthetic samples to the approved laboratory within 10 days of contract signing.

B. The Contractor shall be responsible for providing samples of geosynthetics for testing to the approved laboratory.

C. Protect materials during transportation and shipment to avoid physical damage.

2.02 MATERIALS

A. Stink Cove Sediment: Two representative soil samples (approximately #50 ea.) shall be collected from the proposed source by the Contractor and submitted to the approved laboratory.

B. Geomembrane: One sample of proposed geomembrane shall be provided to the approved laboratory by the Contractor. Sample size shall be three feet long by the entire roll width. Samples shall be obtained in accordance with ASTM D4354.

C. Double sided Geocomposite: One sample of proposed geocomposite shall be provided to the approved laboratory by the Contractor. Sample size shall be three feet long by the entire roll width. Samples shall be obtained in accordance with ASTM D4354.

D. Non-woven Geotextile Cushion: One sample of proposed geotextile shall be provided to the approved laboratory by the Contractor. Sample size shall be three feet long by the entire roll width. Samples shall be obtained in accordance with ASTM D4354.

PART 3 - EXECUTION

3.01 EXAMINATION

A. The Contractor shall be responsible for paying the costs associated with testing for the initial round of samples and retests.
B. Material interfaces shall be tested at the normal stresses indicated in this Section.

3.02 PREPARATION

A. Testing shall be performed in accordance with ASTM D5321. Boundary conditions include use of site specific substrates. Shearing shall occur for samples oriented in the direction in which they will be installed. The machine direction typically is the installation direction and shearing direction.

B. Shearing shall occur with all materials aligned together representing the site specific cross section of the liner system.

C. Materials shall be oriented in site specific directions in the following order from the bottom up: 16 oz/sy non woven geotextile, 60mil geomembrane, double sided geocomposite, “stink cove sediment”.
D. Stink Cove Sediment shall be compacted to 90 percent of the maximum dry density provided from laboratory analyses using ASTM D698. The moisture content shall be set at a minimum of 4 percent above optimum moisture determined from ASTM D698.

3.03 TESTING PARAMETERS

A. Shearing shall be performed at the following normal stresses: 250 psf, 500 psf, and 1,000 psf at a rate of 0.04 inches per minute for a “sandwich” of site specific materials on a gradient of 0.333.

B. Geotextile, geocomposite, and geoemembranes shall be tested in a wetted condition.

3.04 REPORTING

A. Test results shall be reported to the Resident in report format.

B. A description of apparatus used in testing and method of gripping the geomembrane.

C. Dry density and moisture content of soil.

D. Normal stress, lateral displacement, shear stress.

E. Plotted shear stress vs. lateral displacement

F. Failure envelope of plotted peak shear stress vs. normal stress.

G. Failure envelope of plotted residual shear stress vs. normal stress.

H. Adhesion value.

3.05 TOLERANCES

A. The minimum factors of safety of 1.5 for static and 1.0 for seismic must be achieved for material interfaces when evaluated using project-specific slopes.

B. Test results must be reviewed and approved by the Resident prior to use of any geosynthetic materials used in the liner system.

C. Unacceptable factors of safety will result in requiring alternative materials supplied by the Contractor needed to meet the factors of safety $\geq$ 1.5 and 1.0.

END OF SECTION

CES INC

SECTION 32 9219

SEEDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preparation of subsoil.

B. Placing topsoil.

C. Hydroseeding, mulching and fertilizer.

1.02 RELATED REQUIREMENTS

A. Section 31 2200 - Grading.

1.03 PRICE AND PAYMENT PROCEDURES

A. See Section 01 2210 - Measurement and Payment, for additional unit price requirements.

1.04 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.05 SUBMITTALS

A. See Section 01 3000 – Site Management

B. See Section 01 3300 – Submittal Procedures

C. See Section 32 9301 – Tree Purchase and Planting Specifications

1.06 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.01 SEED MIXTURE

A. Seed Mixture: Per Property Restoration Plan.

B. All seed shall be certified as to mixture, germination, purity, and live seed.

C. Each variety shall conform to the Residential Lot Restoration Plan.

D. Seed Mixtures shall consist of seed proportioned percent by weight as directed in the Residential Lot Restoration Plan.

2.02 SOIL MATERIALS

A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants, weeds and roots; pH value of minimum 5.4 and maximum 7.0.

2.03 ACCESSORIES

A. Fertilizer: Shall be applied per soil test recommendations or apply 10-2-10 (low P) general fertilizer; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated by analysis.

B. Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of grass.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this Section.

3.02 PREPARATION

A. Prepare subgrade in accordance with Section 31 2200.

B. Place topsoil in accordance with Section 31 2200.

3.03 FERTILIZING

A. Apply fertilizer in accordance with manufacturer's instructions.

B. Apply after smooth raking of topsoil and prior to roller compaction.

C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

D. Mix thoroughly into upper 2 inches of topsoil.

E. Lightly water to aid the dissipation of fertilizer.

3.04 SEEDING

A. Apply seed at a minimum rate of 42 lbs/acre evenly in two intersecting directions. Rake in lightly.

B. Do not seed areas in excess of that which can be mulched on same day.

C. Planting Season: In accordance with Restoration Plan.

D. Do not sow immediately following rain, when ground is too dry, or during windy periods.

E. Roll seeded area with roller not exceeding 112 lbs.

F. Immediately following seeding and compacting, apply mulch to a minimum thickness of 1/8 inches. Maintain clear of shrubs and trees.

G. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

H. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

3.05 HYDROSEEDING

A. Apply seeded slurry with a hydraulic seeder at a rate of 1.14 lbs per 1,000 square feet evenly in two intersecting directions.

B. Do not hydroseed area in excess of that which can be mulched on same day.

C. Immediately following seeding, apply mulch to a thickness of 1/8 inches. Maintain clear of shrubs and trees.

D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

E. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches.

END OF SECTION

CES INC

SECTION 32 9301

TREE PURCHASE AND PLANTING SPECIFICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Qualifications
B. Product Selection and Tagging
C. Handling
D. Transportation and Storage
E. Delivery
F. Excavation
G. Planting Operations
H. Guying, Staking, Wrapping, and Pruning
I. Cleanup
J. Acceptance
K. Guarantee
L. Final Inspection
M. Payment

1.02 RELATED REQUIREMENTS

A. Section 01 1000 – Summary of Work.
B. Section 01 2210 - Measurement and Payment.
C. Section 01 3000 – Site Management.
D. Seciton 01 3300 – Submittal Requirements.
E. Section 01 4000 - Quality Requirements.
R. Section 01 5713 – Sediment and Erosion Control.
G. Section 01 6000 - Product Requirements.
H. Section 01 7000 - Execution and Closeout Requirements.
I. Section 32 9219 – Seeding.

1.03 PRICE AND PAYMENT PROCEDURES

A. See Section 01 2210.

1.04 SCOPE

A. These specifications, including drawings and plant materials lists, apply to those items necessary for and incidental to the execution and completion of planting as indicated herein.

B. All labor, supervision, equipment, materials, and supplies necessary for the execution of the work shall be provided for by the Contractor at no additional cost to the Owner.

C. Reasonable care shall be exercised during excavation, planting, filling, grading, and cleanup, to protect from damage all existing trees, shrubs, and other specified vegetation, and other site features, improvements, structures, and utilities.

D. Applicable Specifications and Standards.
   1. American Standard for Nursery Stock, ANSI Z60.1. current edition, American Nursery and Landscape Association, 1000 Vermont Ave. NW, Suite 300, Washington, D.C. 20005.
      a. Index of Garden Plants: The New Royal Horticulture Society Dictionary. By Mark Griffiths, 1994. Timber Press, Inc. Portland OR.
      b. American National Standard for Tree Care Operations, ANSI A300-most current edition. International Society of Arborculture, PO Box 3129, Champaign IL 61826-3129.

E. Planting Season
   1. Planting shall be done within the following dates:
      a. deciduous trees and shrubs: May 1, 2011 to Oct 1, 2011.
      b. evergreen trees and other: May 1, 2011 to Oct 1, 2011.
   2. Exceptions: none.

F. If special conditions exist that warrant a variance in the above planting dates, a written request shall be submitted by the Contractor to Resident stating the special conditions and the proposed variance. Permission for the variance will be granted at the discretion of the Owner.

PART 2 PRODUCTS

2.01 A complete list of plants, including a schedule of quantities, sizes, and other requirements is included in the Residential Lot Restoration Plan.

A. The Contractor shall furnish a written list of the proposed sources of nursery stock. Such a list shall be furnished with completed bid documents. Such list may not be added to or altered without the consent of the Resident.

B. All plant material shall conform to American Standard for Nursery Stock. Plants shall be true to species and variety specified and nursery grown in accordance with good horticultural practices under climatic conditions similar to those in the locality of the project for at least 2 years. They shall have been freshly dug (during the most recent favorable harvest season). Plants shall be so trained in development and appearance as to be unquestionably superior in form, compactness, and symmetry. They shall be sound, healthy, vigorous, well branched and densely foliated when in leaf, and free of disease and insect adults eggs, pupae or larvae. They shall have healthy, well-developed

root systems and shall be free from physical damage or other conditions that would prevent thriving growth.

C. Trees with multiple leaders, unless specified, will be rejected. Trees with a damaged, cut, or crooked leader, included bark, abrasion of bark, sunscald, disfiguring knots, insect damage, mold, prematurely opened buds, or cuts of limbs over 3/4 inch (2 cm) diameter that are not completely callused are cause for rejection.

D. Balled and burlapped plants shall be dug with solid balls of standard size, the balls securely wrapped with non-synthetic, untreated, biodegradable burlap, and tightly bound with non-synthetic, biodegradable rope or twine. Alternatively they may be placed in wire basket lined with non-synthetic, untreated, biodegradable burlap and tightly bound with non-synthetic, biodegradable rope or twine. Root collar shall be apparent at surface of ball. Bare root plants shall have a healthy, well branched root system characteristic of the species and with adequate spread.

E. Containerized plants shall be well established in the container with a root system sufficiently developed to retain its shape and hold together when removed from the container. Plants shall not be pot bound, nor have kinked, circling, or bent roots. Root collar shall be apparent at surface of ball.

F. Plants shall conform to the measurements specified, except that plants larger than those specified may be used if approved by the Resident. Use of larger plants shall not increase the contract price nor allow the Contractor to use smaller than specified material on other plants. If larger plants are approved, the root ball, root spread, or container shall be increased in proportion to the size of the plant.

G. Caliper measurements shall be taken on the trunk 6 inches (15 cm) above the root collar for trees up to 4 inches (10 cm) in caliper, and 12 inches (30 cm) above the root collar for trees over 4 inches (10 cm) in caliper. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to branch tip. Plants shall be measured when branches are in their normal position. If a range of size is given, no plant shall be less than the minimum size, and no less than 50 percent of the plants shall be as large as the maximum size specified. Plants that meet measurements but do not possess a normal balance between height and spread shall be rejected.

H. Substitutions of plant materials will not be permitted unless authorized in writing by the Resident. If proof is submitted, substantiated in writing, that a plant specified is not obtainable, consideration will be given to the nearest available size or similar variety, with a corresponding adjustment of the contract price.

I. All plants shall be labeled by size and scientific plant name as listed in the current edition of Index of Garden Plants. Labels shall be attached securely to all plants, bundles, and containers of plant materials when delivered. Plant labels shall be durable and legible, with information given in weather-resistant ink or embossed process lettering.

J. Mulching material shall consist of aged or composted wood chips or shredded bark and shall be free of material injurious to plant growth. Wood chips shall be 1/8 inch nominal thickness with at least 50 percent having an area of not less than 1 square inch and no piece having an area of more than 6 square inches.

K. Water shall be provided by the Contractor and be suitable for irrigation and free from ingredients harmful to plant life.

L. Trunk wrapping material, if specified, shall be perforated drainage tubing or similar material approved by the Resident, large enough in diameter to prevent abrasion of the trunk and to allow air circulation between the tubing and the trunk.

M. Guying and staking materials, if specified, shall be as follows. Stakes shall be 6' to 8' long sections of unflanged metal or 2" x 2" hardwood. Support ties shall be 2" or wider bands of polypropylene, or elasticized or webbed strapping. Ground anchors shall be arrowhead shaped earth anchors of malleable iron castings, aluminum castings, or stamped steel.

2.02 Certification

A. All plant materials, shipments, and deliveries shall comply with state and federal laws and regulations governing the inspection, shipping, selling, and handling of plant stock. A certificate of inspection, or a copy thereof, for injurious insects, plant diseases, and other plant pests shall accompany each shipment or delivery of plant material. The certificate shall bear the name and address of the source of the stock.

2.03 Selection and Tagging

A. Plants shall be subject to inspection for conformity to specification requirements and approval by the Resident prior to installation.

B. A written request for the inspection of plant material at their place of growth shall be submitted to the Resident at least 5 working days prior to digging. This request shall state the place of growth and the quantity of plants to be inspected. The Resident may refuse inspection at this time if a sufficient quantity of plants is not available for inspection.

C. Plants shall be inspected upon delivery, and the Resident reserves the right to reject any plants that do not meet the standards or that have been damaged during shipment. Such approval shall not impair the right of inspection and rejection during progress of the work.

D. A Contractor's representative shall be present at all inspections.

E. The Owner and/or Resident shall be the sole judge of acceptability of stock at any time during the course of this contract.

PART 3 EXECUTION

3.01 Digging and Handling Plant Materials

A. Plants to be balled-and-burlapped shall be dug with firm, natural balls of earth of diameter not less than that recommended in the current edition of American Standard for Nursery Stock, and of sufficient depth to include fibrous and feeding roots. The root collar shall be within the top 2" of the soil ball. Balled and burlapped plants with manufactured balls or balls that are dry, cracked, or broken before or during planting operation will not be accepted.

3.02 Transportation and Storage of Plant Material

A. Fresh dug material is given preference over plant material held in storage. Plant material held in storage will be rejected if excessive growth or dieback of branches has occurred in storage.

B. Branches shall be tied with rope or twine only, and in such a manner that no damage will occur to the bark or branches.

C. During transportation of plant material, the Contractor shall exercise care to prevent injury and drying out of the trees. Should the roots be dried out, large branches broken, balls of earth broken or loosened, or areas of bark torn, Resident may reject the injured tree(s) and order them replaced at no additional cost to the Resident.

D. The root systems of each load of bare root stock sent from the storage facility shall be adequately covered with wet soil, sawdust, wood chips, moss, peat, straw, hay or other acceptable moisture-holding medium, and shall be covered with an open-mesh tarpaulin or canvas. Loads that are not protected in the above manner may be rejected. Note: tight-woven tarps and canvas can cause a load of trees to overheat on a sunny day, resulting in serious damage.

E. Plants must be protected at all times from sun or drying winds; Those that cannot be planted immediately on delivery shall be kept in the shade, well protected with soil covered with wood chips or other acceptable material, and kept well watered. Plants shall not remain unplanted any longer than 3 days after delivery without permission from the Resident. Plants shall not be bound with wire or rope at any time so as to damage the bark or break branches. Plants shall be lifted and handled with suitable support of the soil ball to avoid damaging it.

3.03 Delivery

A. Bid prices shall include delivery to the project.

B. Plant materials shall not be shipped C.O.D.

C. The Contractor shall give the Resident notice of delivery time 3 to 5 days prior to delivery.

3.04 Excavation of Planting Areas

A. The Contractor will notify Dig Safe to verify location of underground utilities before excavation begins. The Contractor shall be responsible for assuring that utility marking is complete before excavation begins. The Contractor shall be responsible for all damage resulting from neglect or failure to comply with this requirement.

B. The Contractor shall excavate planting areas as shown on the drawings. (The drawings may have to be customized depending on choice of options below). Excavation may be done by shovel, backhoe or stump grinder, but a soil auger may not be used. Digging the hole with a stump grinding machine produces the most friable soil and minimizes glazing of the sides of the hole particularly in heavy clay soils. Soil augers glaze the sides of the planting hole, particularly in heavy clay soils, preventing penetration by the roots into the surrounding soil. Augers could be acceptable in sandy soils if any glazing of the sides was broken up and surrounding soil was tilled.

C. The planting hole shall be at least 2 times the diameter of the soil ball and the soil shall be loosened at least one ball diameter's distance beyond the hole to a depth of 6" to 12" using a rotary tiller.

D. The soil pad on which the soil ball or root ball will be placed shall be of undisturbed soil. The depth of the pad shall correspond to the distance from the bottom of the soil ball to the root collar, or slightly less. Glazed planting hole surfaces shall be sufficiently roughened prior to backfilling.

E. Excavated planting holes that will be left open when work is not in progress or pose an immediate and considerable hazard to pedestrians or vehicles shall be adequately barricaded with appropriate warning devices.

F. The Contractor shall notify the Resident, in writing, of soil conditions or other obstructions the Contractor considers detrimental to tree growth. Such conditions shall be described, as well as suggestions for correcting them. Proper water drainage must be assured.

G. Where soil conditions or below ground obstructions which cannot be remedied are encountered, the Contractor shall designate alternate planting locations. The Contractor shall bear any costs associated with such relocation.

3.05 Planting Operations

A. Plants must be protected from excessive vibrations. Plants shall not be thrown or bounced off a truck or loader to the ground. Plants shall not be dragged, lifted, or pulled by the trunk or foliage parts in a manner that will loosen the roots in the ball.

B. Plants shall be set with the top of the root collar at or slightly above finished grade. Plants must be centered in the hole and set plumb. Plants shall be set so that they will be at the same depth 1 year after planting. Note: planting depth is important because research has shown that some species planted to deep will develop trunk diseases or girdling roots or be more susceptible to breakage in wind storms. These problems often don't show up until years after planting.

C. Bare root plants shall have their roots spread into a natural position, free of bunching, kinking, or circling. All broken or damaged roots shall be cut back to the point where they are clean and free of rot. No other root pruning shall be done.

D. For plants in plastic, metal or biodegradable containers, the container shall be removed before planting. If roots are crowded or coiled on the bottom, sides, or surface of the root ball, they shall be gently separated from the edges or surface.

E. For all plants moved with a tree spade, all holes and cavities between the ball and the surrounding soil shall be filled. Glazed planting hole surfaces shall be sufficiently roughened prior to backfilling. The ball shall be thoroughly soaked with water after planting.

F. Removal of ropes, strings, wire baskets, burlap, and other wrappings from B&B plants.

G. After the plant has been set and one half of the backfilling completed to support the ball, ropes, strings, wire baskets, burlap, and other wrappings shall be removed from the top one-half of the ball. The balance of the wrappings may be left intact around the bottom half of the ball. If the root collar is deep in the ball, remove excess soil away from the trunk using hands, not tools.

H. Planting holes shall be backfilled with suitable soil. When holes are approximately two-thirds full, they shall be thoroughly watered to eliminate air pockets. After this initial watering, excavated soil shall be installed to the top of the hole and watered. Prevent puddled soil conditions by avoiding compaction once the soil is wet. If burlap and wrappings are not removed they must be covered with soil.

I. Planting areas shall be finish-graded to conform to drawings after full settlement has occurred.

J. All plants shall be mulched over the root system with a 3-4-inch layer of aged wood chips or bark immediately after planting. Mulching material shall be pulled back no less than 3" and no more than 6" from the trunk.

K. Plants shall be thoroughly watered immediately after planting.

L. All twine, rope, transit guards or wrappings, and plant labels secured around the trunk or branches shall be removed after planting is completed.

3.06 Guying, Staking, Wrapping, and Pruning

A. Only those plants designated by the Resident shall have trunk protection installed or be staked and/or guyed. Note: Research has shown that typical paper or cloth tree wrap provides no benefit to the tree. However, where deer, voles or other animals may cause damage, protecting the trunks is called for. Staking is not recommended as a routine practice. Exceptions may include particularly windy areas, areas where vandalism is expected or when planting large bare root trees in light soil.

B. Only trees so designated shall have approved trunk protection installed. The trunk protection shall be secured at the top and bottom of the trunk in a manner so as not to restrict or damage the bark (see specification 4-E). The Contractor will be responsible for removing trunk protection after a one year period.

C. Only trees so designated shall be staked and guyed. Ties made of approved material shall be attached directly to the stakes or may be attached to stakes by wire. In no case shall the wire extend around the tree trunk. Ties should be attached loosely enough to allow a small amount of play in the trunk. For drooping stems, ties shall be placed at the point on the stem at which the top can stand up on its own. Stakes shall be driven outside the root ball. For trees larger than 3" in caliper, use ties attached to 3 guy wires and ground anchors. Ground anchors are to be driven at about a 45-degree angle to the ground and placed at 120-degree intervals around the trunk. Staking and guying shall further conform to the drawings. The Contractor will be responsible for removing all stakes and straps after a one year period. These stakes and straps will become the property of the Owner and should be figured into the bid.

D. Double leaders, dead branches and any branches damaged or broken during the planting process shall be the pruned. This shall be the only pruning allowed at planting. Pruning shall conform to American National Standard for Tree Care Operations, ANSI A300.

3.07 Cleanup

A. Soil, branches, binding and wrapping material, rejected plants, or other debris resulting from any tree planting shall be promptly cleaned up and removed. The work area shall be kept safe and neat at all times until the cleanup operation is completed. Under no condition shall the accumulation of soil, branches, or other debris be allowed upon a public property in such a manner as to result in a public hazard.

3.08 Acceptance

A. The Resident shall perform an inspection with the Contractor of all plant material after the original planting to note and correct any discrepancies.

B. Acceptance of plant material by the Resident shall be for general conformity to specified size, character, and quality and shall not relieve the Contractor of responsibility for full conformity to the contract documents, including correct species.

C. Upon completion and re-inspection of all repairs or renewals necessary in the judgment of the Resident, the Resident shall certify in writing that the work has been accepted. Any plant work so accepted will be paid within 30 days at the contract bid price, unless previously negotiated otherwise.

D. Work may be accepted in parts when the Resident and Contractor deem that practice to be in their mutual interest. Approval must be given in writing by the Resident to the Contractor verifying that the work may be completed in parts. Acceptance of work in parts shall not waive any other provision of this contract.

3.09 Guarantee Period and Replacement

A. The Contractor shall guarantee all plants to be healthy and in flourishing condition for two years from the date of acceptance.

B. The guarantee does not include vandalism, storm damage, animal damage or mechanical damage unrelated to contractor activities. This language can be included to reduce the cost, however it is not recommended, particularly if the contractor is responsible for the maintenance.

C. The Contractor shall remove and replace, without cost, and as soon as weather conditions permit, and within a specified planting period, all plants not in a healthy and flourishing condition as determined by the Resident any time during the guarantee period. Replacements shall be subject to all requirements stated in this specification.

D. The guarantee of all replacement plants shall extend for an additional period of two years from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of the said extended guarantee period, the Resident may elect subsequent replacement or credit for that item.

E. The Contractor shall be responsible for all maintenance of the trees during the guarantee period.

3.10 Final Inspection and Acceptance

A. At the end of the guarantee period and upon written request of the Contractor, the Resident shall inspect all guaranteed work for final acceptance. The request shall be received at least 5 working days before the anticipated date for final inspection. Upon completion and re-inspection of all repairs or renewals necessary in the judgment of the Resident at that time, the Resident shall certify, in writing, that the project has received final acceptance.

END OF SECTION

SECTION 32 9500

RESTORATION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This includes providing materials, equipment and labor necessary to conduct restoration activities of areas disturbed by the remediation activities, including the private properties within the Residential Use Area to as close to pre-excavation conditions as possible. In addition, establishment of grass vegetation shall be conducted for the cover over the Interim Stockpile at Operational Area Interim Stockpile.

B. This Section also includes the requirements for documenting existing conditions prior to conducting construction activities at identified individual properties within the Residential Use Area requiring remediation and for documenting the work and final restored conditions.

C. The photographic documentation includes administrative and procedural requirements for the following:
1. Preconstruction photographs and video,
2. Final condition photographs and video

1.02 RELATED WORK SPECIFIED ELSEWHERE:

A. Related Sections include the following:
1. Section 01 3300: Submittal Procedures
2. Section 01 7810: Project Record Documents
3. Section 31 0000: Earthwork

1.03 DEFINITIONS

A. Finish Grade: Completed elevation of finished surface.

B. Topsoil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments. Refer to Section 31 0000, “Earthwork”.

C. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath topsoil or final gravel surface.

1.04 SUBMITTALS

A. Property Restoration Plans
1. Draft Property Restoration Plans have been prepared and shall be used by the Contractor in preparation of final Property Restoration Plans. The draft plans were prepared based on the preliminary limits of excavation shown on the Drawings. The Property Restoration Plans will require modification and updating based on the final limits of soil excavation as determined by the Resident. All modified or amended Property Restoration Plans will require review and approval by the Owner as well as the private property owners prior to completing restoration activities.

B. Photograph Log and Key Plan: Prepare a log of photographs taken for each property along with a marked-up Individual Property Sketch with notation of vantage points marked for location and direction of each photograph. Indicate the progress of construction. Include same label information as corresponding set of photographs.

C. Digital Images: Submit a complete set of digital electronic files of photographs and videos for each individual property on DVD. Identify electronic media with property address and date photographs and video were taken.

D. Nomenclature/Identification of Photographs: Establish a photographic log to document all photographs. The photographic log may be in the form of a Microsoft Word or Excel file, or in the tag of the photograph. At a minimum, the log should include the following information:
1. Project number and name.
2. Property address.
3. Date photograph was taken if not digitally stamped by camera.
4. Description and purpose of photograph.
5. Vantage point, indicating location, direction (by compass point), and stage of construction.
6. Unique picture identification number.

E. Seed:
1. The Contractor shall select and submit proposed seed mixes for each restoration area depending on the use, level of maintenance, growing condition, etc.
2. Certification of Grass Seed: From seed vendor for each grass-seed mono-stand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
3. Seeding Schedule: Indicating anticipated dates for seeding.

F. Plants:
1. Submit the quality, size, genus, species, and variety of plants indicated in the Property Restoration Plans for each property
2. Planting Schedule: Indicating anticipated dates for planting.

G. Other Landscape Items:
1. Submit catalog cuts and/or vendor product data for other miscellaneous landscape restoration items (walkway/patio pavers, garden edging, etc.) as identified in the Property Restoration Plans.

1.05 COORDINATION AND COOPERATION WITH PROPERTY OWNERS

A. Coordinate and schedule access to each property with the property owners for property access prior to entering property in accordance with the signed Access Agreements. Notify the Resident or Owner in a timely fashion for issues concerning access or the ability to adequately document existing property conditions

1.06 QUALITY CONTROL

A. Provide quality, size, genus, species, and variety of plants indicated in the Property Restoration Plans for each property.

B. Provide quality materials and construction for the landscape restoration items indicated in the Property Restoration Plans for each property

1.07 DELIVERY, STORAGE, AND HANDLING

A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

B. Plants:
1. Deliver bare-root stock plants freshly dug. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.
2. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
3. Handle planting stock by root ball.
4. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.
5. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1.08 SCHEDULING

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
1. Spring Planting: April 1 – June 1.
2. Fall Planting: August 15 - September 15
3. Dormant Seeding – After September 15 – before snow fall. If dormant seeding is conducted, additional seeding will likely be required the following spring.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

1.09 MAINTENANCE SERVICE

A. Initial Maintenance Service: Provide maintenance of grass and plantings as required in Part 3. Begin maintenance immediately after seeding and plants are installed, and continue until turf and plantings are acceptably healthy and well established, but for not less than maintenance period below.
1. Maintenance Period for Trees and Shrubs: 3 months from date of planting completion.
2. Maintenance Period for Ground Cover and Other Plants: 1 month from date of planting completion.

3. Seeded Turf: 60 days from date of planting completion. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

B. Maintain and establish vegetation by watering, fertilizing, replanting, and other operations. Re-grade, and replant bare or eroded areas and re-mulch to produce a uniform growth. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.

C. Watering of seeded areas: Provide and maintain temporary piping, hoses, and watering equipment to convey water from sources and to keep seeded area uniformly moist to a depth of 4 inches.
1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water seeded areas at a minimum rate of 1 inch per week.

D. Plant watering: Provide and maintain temporary piping, hoses, and watering equipment to convey water from sources to planting locations as follows:
1. The plants shall be watered immediately following planting.
2. Soak the plants thoroughly again within a twenty-four (24) hour period after initial planting.
3. Additional watering shall be made at least once every three weeks, unless otherwise directed, until final acceptance of the plant material.

1.10 WARRANTY

A. Warranty: Reseed, repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

B. Failures include, but are not limited to, the following:
1. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by property owner, or incidents that are beyond Contractor's control.
2. Structural failures including plantings falling or blowing over.

C. Warranty Periods from Date of Seeding or Planting Completion:
1. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
2. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.
3. Annuals: 3 months.
4. Grass Turf will be 12 months.

PART 2 - PRODUCTS

2.01 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in uncompressed TIFF format or JPEG, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1024 by 768 pixels. Software for image viewing will be Adobe® Acrobat Professional.

2.02 VIDEO MEDIA

A. Digital Video: Provide video using a DVD camera with image stabilizer in MPEG-2 or MPEG-4 format.

2.03 TOPSOIL:

A. Refer to Section 31 0000, “Earthwork”.

2.04 SOIL MIX FOR PLANTS

A. Planting soil will be a mixture of topsoil, inorganic and organic soil amendments, and fertilizer. Topsoil will meet the requirements Section 31 0000, “Earthwork”.

B. For ericaceous plants and broad-leaved evergreens requiring an acid soil, planting soil will have a true pH of 4.5 to 5.5. If not, pH will be amended by the Contractor at his own expense to the proper range by mixing with sulfur.

C. Planting soil for general planting of nonacid-loving plants will have a true pH value of 6.0 to 7.0. If not, pH will be amended by the Contractor at his own expense to the proper range by mixing with dolomite limestone.

D. The amount of either sulfur or limestone required to adjust the planting soil to the proper pH range (above) will be determined on the basis of soil analysis tests.

2.05 INORGANIC SOIL AMENDMENTS

A. Provide soil inorganic amendments based on recommendations for soil analysis to be added to produce satisfactory planting soil suitable for healthy, viable plants.

B. Lime: Agricultural ground dolomite limestone conforming to the standards of the Association of Official Agricultural Chemists (AOAC).

C. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, and with a minimum of 99 percent passing through No. 6 sieve and a maximum of 10 percent passing through No. 40 sieve.

D. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

E. Aluminum Sulfate: Commercial grade, unadulterated.

F. Perlite: Horticultural perlite, soil amendment grade.

G. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 sieve.

H. Sand: Clean, washed, natural or manufactured, and free of toxic materials.

I. Diatomaceous Earth: Calcined, 90 percent silica, with approximately 140 percent water absorption capacity by weight.

2.06 ORGANIC SOIL AMENDMENTS

A. Provide soil organic amendments based on recommendations for soil analysis or; add peat or compost at a ratio of 1 to 10 topsoil and manure at a ratio of 1 to 4 topsoil; to produce satisfactory planting soil suitable for healthy, viable plants.

B. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1/2-inch, and free of substances toxic to plantings.

C. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, with a pH range of 3.4 to 4.8.

D. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture, with a pH range of 6 to 7.5.

E. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.

F. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.07 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species: State-certified seed of grass species with not less than 80 percent germination, not less than 85 percent pure seed. Proposed seed mixes shall be suitable for the location, use, and maintenance requirements (i.e. lawn or unmaintained area).

C. Contractor proposed mix as recommended by Hancock County Conservation District and/or approved by the Owner.

2.08 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features the Property Restoration Plans for each property. General requirements for all plants are specified herein. All plants will be first-class representatives of their normal species or varieties. Plants will have well-furnished branch systems together with vigorous fibrous root systems. Plants will be free from all insect pests, plant diseases, disfiguring knots, stubs, sun-scalds, abrasions of the bark, or any other form of injury or objectionable disfigurements. All plant material will comply with state and federal laws with respect to inspection for plant diseases and insect infestations. Plants will not be pruned before delivery, and no plants will be cut back from larger sizes to meet the sizes specified. Plants will be nursery grown unless otherwise specified and bear evidence of proper nursery care, including adequate transplanting and root pruning. No plant will be considered to be nursery grown unless it has been growing in a nursery

for at least two years and unless it has been root pruned or transplanted no more than five years prior to digging.

B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare will be visible before planting.

C. Annuals and Biennials: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery.

2.09 WATER

A. Clean, fresh potable water.

2.10 MULCHES FOR SEEDING

A. Straw Mulch: Provide air-dry, clean, mildew-and see-free, salt hay or threshed straw of wheat, rye, oats or barley.

f2.11 MULCHES FOR PLANTINGS

A. Provide organic or mineral mulch in accordance the Property Restoration Plan for each property.

B. Organic Mulch: Shredded hardwood, or Ground or shredded bark.

C. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; and free of substances toxic to plantings.

D. Mineral Mulch: Rounded riverbed gravel or smooth-faced stone; Crushed stone or gravel; Marble chips; or Granite chips.
1. Size Range: 1 inch maximum, 1/4 inch minimum.
2. Color: Uniform color range.

2.12 WEED-CONTROL BARRIERS

A. Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, 3 oz./sq. yd. minimum.

B. Composite Fabric: Woven, needle-punched polypropylene substrate bonded to a nonwoven polypropylene fabric, 4.8 oz./sq. yd.

PART 3 - EXECUTION

3.01 PRE-CONSTRUCTION DOCUMENTATION

A. General: Document existing property conditions prior to starting construction activities.

1. Take photographs and video using the maximum range of depth of field, and that are in focus, to clearly show the condition of existing features.
2. Photographs or video that are blurry or out-of-focus will not be accepted.
3. If required, provide temporary lighting required to produce clear, well-lit photographs or videos without obscuring shadows.

B. Digital Images: Provide digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
   1. Field Office Images: Maintain one set of images on DVD in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Resident.
   2. Maintain the photograph log and key plan with each set of property photographs that identifies each photographic location.

C. Preconstruction Photographs: Before starting construction, take color, digital photographs of each individual property to suitably document existing conditions.
   1. Document existing features that are to be removed and replaced during the work.
   2. Flag excavation areas and/or construction limits before taking construction photographs.
   3. Take a suitable number of photographs to document existing conditions before starting the Work, and as required provide images from different vantage points.
   4. The Resident with the Contractor will conduct interior and exterior photographic documentation of existing buildings or permanent structures to accurately record existing conditions prior to the start of construction. Include condition of foundations or basement walls, floors, walls, doors and windows, and ceilings. Existing observed damage will receive detailed documentation (i.e. width and lengths of cracking utilizing scales or rules; infrared shots of cracks; floors using long levels; bulging or leaning walls; etc.).

D. Preconstruction Video: Video documentation may be used to supplement the still image photographs. Provide audio recording of comments or observations as required during the recording.

3.02 FINAL CONDITION PHOTOGRAPHS

A. Final Condition Photographs: After construction is completed, including restoration of all features, take color, digital photographs of each individual property to suitably document final conditions.
   1. Document features that have been restored during the work.
   2. Document the condition of existing features that remained in place during the Work.
   3. Take a suitable number of photographs to document final conditions following completion of the Work, and provide images from similar vantage points as the pre-construction photographs.
   4. Include interior and exterior photographic documentation of existing buildings or permanent structures to accurately record conditions following completion of construction. Include condition of foundations or basement walls, floors, walls, doors and windows, and ceilings. Existing or new damage will receive detailed documentation.

B. Final Condition Video: Video documentation may be used to supplement the still image photographs. Provide audio recording of comments or observations as required during the recording.

3.03 EXAMINATION

A. Examine areas to be seeded or planted for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.04 GRADING AND SPREADING TOPSOIL:

A. Remove all debris and other inorganic materials on any prepared subgrades, and reshape and dress any damaged or eroded slopes, swales, and other areas. Scarify and loosen subgrade to a friable condition in any areas where compaction may have occurred. Loam shall not be placed until subgrade is in suitable condition and free of excessive moisture or frozen materials. Stockpiled and off-site loam shall be spread as required on all disturbed and bare areas to produce a total depth of 4" or 8" as shown on the plan. Fill all depressions in existing grades with suitable fill materials as specified in Section 02200 prior to spreading or loam, then shape and finish grade to depth of loam required.

B. Area shall be progressively fine graded and machine and hand raked, with stockpiled and off-site loam added as required to correct depressions and other irregularities, to produce smooth and unbroken finish grades and the depth of topsoil required. Where additional topsoil is placed on existing loam disc harrow to mix to 4".

C. Drawings show grading design intent to achieve a uniform grade. Finish grades shall conform to lines, grades, sections, and shapes of lawn areas as required. Provide positive drainage. Provide smooth, uniform, rounded transitions at all changes and break in grade.

D. Starter fertilizers: All required materials shall be spread and distributed into the soil at rates and amounts specified herein.

E. After establishment of finish grade, entire area shall be hand raked and rolled using a light roller.

3.05 PREPARATION OF AREAS FOR SEEDING:

A. This work shall consist of the preparation of the seed bed. Work shall be done as described herein:
   1. Areas shall be finely raked to a finished grade. Substantially, all sticks, litter, wire, weeds, cable or stones larger than one inch (1”) in greater dimension shall be removed and disposed of as directed.
   2. Where the soil has become compacted, prior to fine raking, areas to be seeded shall be scarified by discing, york raking or other approved methods to a minimum depth of two inches (2”).
   3. No seeding will be permitted on areas where the seedbed has not been properly prepared or where the soil is compacted.
   4. Request inspection of the work for approval before proceeding with seeding.

3.06 APPLICATION OF LIMESTONE:

A. When applied dry, limestone shall be spread evenly and incorporated thoroughly into the soil by discing or other approved means.

B. When applied hydraulically, no discing will be necessary.

C. Granular treatment to be applied at the rate of 25 to 50lbs per 1000 S.F. or as required by soil pH test to produce a pH of 6.0 to 6.5.

3.07 APPLICATION OF LAWN STARTER FERTILIZER:

A. After the incorporation of ground limestone into the seed bed, then apply the fertilizer.

B. Fertilizer shall be applied at the rate of 20lbs per 1000 S.F.
C. Apply fertilizer according to manufacturer's recommendations.

3.08 APPLICATION OF TURF MAINTENANCE FERTILIZER:

A. One application of turf maintenance fertilizer will be required before final acceptance of seeded areas.

B. Fertilizer shall be applied at the rate of 2lbs per 1,000 S.F. after seeding has been established.

C. Fertilizer should be applied at a time which shall be requested in writing by the Contractor and approved in writing by the Resident.

3.09 SEEDING

A. Dry Method
1. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
2. Do not use wet seed or seed that is moldy or otherwise damaged.
3. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.

B. Hydraulic Method
1. The application of grass, seed, fertilizer, limestone, and a suitable mulch, if approved, may be accomplished in one operation by the use of an approved spraying machine.
2. Mix materials with water in the machine and keep in an agitated state in order that the materials may be uniformly suspended in the water.
3. The spraying equipment shall be so designed that when the solution is sprayed over an area, the resulting deposits of limestone, fertilizer, and grass seed are equal in quantity to the required rates.
4. Flush and clean hydraulic seeding and fertilizing machine each day before seeding is to be started.
5. If the results of the spray operations are unsatisfactory, abandon this method and apply the materials by the dry method.
6. When inoculum is required, mix with the seed and spray.
7. Compaction or rolling not required.

8. Unless mulch material required is applied during the seeding operation or within 1/2 hour following the seeding operation, take measures to protect the seed from sunlight and heat such as the use of a light brush dragged over the seeded areas to stir the seed into the soil, taking care not to carry the seed ahead.

C. Sow seed at the rate recommended for each seed mix.

D. Protect seeded areas by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
   1. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment.

3.10 SATISFACTORY GRASS TURF GROWTH

A. Satisfactory Seeded Growth: At end of maintenance period, a healthy, uniform, close stand of grass has been established, with coverage exceeding 85 percent over any 10 sq. ft. and bare spots not exceeding 4 by 4 inches. Contractor is responsible for providing water as necessary to ensure establishment and growth.

B. The Contractor shall be responsible for ensuring adequate grass growth and maintenance through two (2) cuttings.

3.11 PLANTING AREA ESTABLISHMENT

A. Loosen subgrade of planting areas to a minimum depth of 6 inches. Remove stones larger than 2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter.
   1. Thoroughly blend planting soil before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.
   2. Spread planting soil to a depth of 8 inches but not less than required for plant requirements and to meet finish grades after natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

B. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.12 EXCAVATION FOR TREES AND SHRUBS

A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping slightly inward. Ensure that root ball will sit on firmly compacted topsoil in the base of the hole to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
   1. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
   2. Do not excavate deeper than the depth of compacted topsoil base and depth of the root ball, measured from the root flare to the bottom of the root ball.

3.13 TREE, SHRUB, AND VINE PLANTING

A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1.

B. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

C. Set stock plumb and in center of planting pit or trench with root flare 1 to 2 inches above adjacent finish grades.
   1. Use planting soil for backfill.
   2. Balled and Burlapped: After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
   3. Container-Grown: Carefully remove root ball from container without damaging root ball or plant.
   4. Fabric Bag-Grown Stock: Carefully remove root ball from fabric bag without damaging root ball or plant. Do not use planting stock if root ball is cracked or broken before or during planting operation.
   5. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
   6. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
   7. Continue backfilling process. Water again after placing and tamping final layer of soil.

D. Bare-Root Stock: Set and support bare-root stock in center of planting pit or trench with root flare 1 to 2 inches above adjacent finish grade.
   1. Use planting soil for backfill.
   2. Spread roots without tangling or turning toward surface, and carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling, and maintain plumb while working backfill around roots and placing layers above roots.
   3. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside soil-covered roots about 1 inch from root tips; do not place tablets in bottom of the hole or touching the roots.
   4. Continue backfilling process. Water again after placing and tamping final layer of soil.

E. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.14 TREE, SHRUB, AND VINE PRUNING

A. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Resident, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.

3.15 GROUND COVER AND PLANT PLANTING

A. Set out and space ground cover and plants other than trees, shrubs, and vines nursery or planting instructions in even rows with triangular spacing.

B. Use planting soil for backfill.

C. Dig holes large enough to allow spreading of roots.

D. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.

E. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

F. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.16 PLANTING AREA MULCHING

A. Install weed-control barriers before mulching according to manufacturer's written instructions. Completely cover area to be mulched, overlapping edges a minimum of 4 inches and secure seams with galvanized pins.

B. Mulch backfilled surfaces of planting areas and other areas indicated.
   1. Trees and Tree-like Shrubs in Turf Areas: Apply organic or mineral mulch ring of 2-inch average thickness, with a minimum 18-inch radius around trunks or stems unless otherwise directed. Do not place mulch within 3 inches of trunks or stems.
   2. Organic Mulch and Mineral Mulch in Planting Areas: Apply 2-inch average thickness of mulch extending approximately 8 inches beyond edge of individual planting pit or trench and over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

3.17 PLANT MAINTENANCE

A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.

B. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use practices to minimize the use of pesticides and reduce hazards.

D. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with other construction operations and others in proximity to the Work. Notify Owner before each application is performed.

E. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods.

3.18 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by seeding work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.

C. Remove erosion-control measures after grass establishment period.

3.19 WINTERIZATION

A. Should Project timing and schedule require establishing a vegetated cover during the following, the Contractor shall completely and adequately mulch all disturbed areas at the end of construction activities and temporary and applicable erosion and sediment control measures left in place.

B. The Contractor may conduct dormant seeding prior to mulching the Site, but additional seeding in the spring will likely be required. The seeding maintenance period will be cared over to the following spring.

3.20 ROAD RESTORATION

A. Old Mine Road and any other disturbed roadways within the Residential Use Area shall be replaced to the original location and upgraded as required to meet the minimum standards/requirements identified by the Town of Brooksville.

END OF SECTION

DRAFT
OU1 RESIDENTIAL LOT RESTORATION PLAN

CALLAHAN MINE SUPERFUND SITE
BROOKSVILLE, MAINE

Prepared for:

Maine Department of Transportation
16 State House Station
Augusta, Maine 04333

Prepared by:

MACTEC Engineering and Consulting, Inc.
511 Congress Street
Portland, Maine 04101

MACTEC Project 3612102163

September 2010

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September 2010

Peter S. Baker, C.G.
Principal Project Manager

Stanley W. Reed, P.E.
Principal Engineer

TABLE OF CONTENTS

FIGURES

TABLES

LIST OF ACRONYMS

MEDEP	Maine Department of Environmental Protection
OU	Operable Unit
RLRP	Residential Lot Restoration Plan
USEPA	U.S. Environmental Protection Agency

1.0 INTRODUCTION

This Residential Lot Restoration Plan (RLRP) was prepared for the four residential lots that will be remediated as part of Operable Unit (OU) 1 at the Callahan Mine Superfund Site, located in Brooksville, Maine. The four lots (Lot A, Lot B, Lot C, and Lot D) are located on Old Mine Road, a public road formerly known as the as the Bob Mant Road and maintained by the Town of Brooksville. Lots A and D are located on separate properties. Lots B and C are located on the same property. Property owners are listed below:

Lot	**Owner**
Lot A	Jack and Abby Fassnacht
Lot B	David and Sassy Betts
Lot C	David and Sassy Betts
Lot D	Sara Peters

The Feasibility Study (MACTEC, 2009), and subsequently the Record of Decision (U.S. Environmental Protection Agency [USEPA], 2009), for OU1 identified areas on each of these lots that require soil excavation and removal to prevent exposure to contaminants of concern at concentrations exceeding the cleanup levels established in the Record of Decision. Figure 1-1 shows the overall area identified for excavation in the Feasibility Study. This area may change based on additional sampling to be performed by the USEPA, or if not by USEPA, by the remediation contractor in accordance with Specification Section 01450 - Contractor Quality Assurance. Excavation and removal of all soil exceeding cleanup levels, regardless of depth, is planned. The planned activities will result in the excavation of lawns, trees, and other landscape features within the excavation area. In addition, decks, stairs, walk-ways, and other structures may require removal to allow access to contaminated soil.

The intent of this RLRP is to restore disturbed areas, landscaped areas, and structures to at least pre-excavation conditions, or, alternately, conditions mutually agreed upon by USEPA and the property owner.

This RLRP is based on a property inventory of the lots performed in August of 2010. The focus of the inventory was on the area of proposed excavation on each of the lots. However, in some instances the inventories also included areas adjacent to the proposed excavation areas where additional sampling is proposed to further delineate soil contamination. Inventoried features within these adjacent areas will not be subject to restoration unless disturbed by site remedial activities.

If additional soil characterization indicates the need for soil excavation beyond the area identified in Figure 1-1 or that disturbs additional areas or features, this restoration plan must be updated by the implementation contractor, in consultation with the property owner(s), and the updated plan agreed to by USEPA and the Maine Department of Environmental Protection (MEDEP).

2.0 PROPERTY INVENTORIES

Meetings with the property owners and property inventories were conducted at Lots A, B, and C on August 3 and 4, 2010. At Lot D, the property inventory was performed on August 4, and a meeting with the property owner was completed on August 18, 2010. Figures 2-1 through 2-4 show the approximate areal extent of the inventories and existing property conditions for Lots A through D, along with the approximate currently identified extent of excavation areas. Tables 2-1 through 2-4 serve as the legends for the aforementioned figures, detailing individual inventoried items on the properties, including plant types, out buildings, and structure details. The figures and tables are based on information gathered during the remedial design process and the inventories completed at the properties in August 2010.

3.0 PROPERTY RESTORATION

Excavated/disturbed areas, landscaped areas, and structures will be restored to at least pre-excavation conditions. Structures that are removed during remedial activities and that cannot be reinstalled, will be replaced. Structures with documented damage resulting from excavation activities will be repaired or replaced.

Tables 2-1 through 2-4 provide a listing of inventoried property features and a proposed status for restoration. In some instances features were identified outside of the currently proposed excavation areas. These features will only be restored if documented damage results from excavation activities. If excavation or disturbance occurs outside of the inventory areas identified in Figures 2-1 through 2-4 this restoration plan must be updated by the implementation contractor, in consultation with the property owner(s), and the updated plan agreed to by USEPA and MEDEP.

Figures 3-1 through 3-4 illustrate the items that will be used to restore the properties following proposed excavation activities. Tables 3-1 through 3-4 describe the restoration items that will be replaced (i.e., items that occur within areas currently identified for excavation). The final extent of property restoration will be determined based on the area that is ultimately excavated/disturbed during remediation activities.

Available nursery stock will be used to replace trees, shrubs, and herbaceous plants impacted by the remedial activities. Best efforts will be made to replace plants with the same variety or cultivar or agreed upon alternates requested by the property owner in a timely manner. Other items, such as decks, stairs, walkways, and landscaped areas impacted during remediation activities will be repaired, replaced in kind, or temporarily stored on site and reinstalled following completion of excavation activities.

Property restoration shall be performed in accordance with applicable specifications that are part of the OU1 design, including the following

1. Section 01340: Submittal Procedures
2. Section 01780: Project Record Documents
3. Section 02315: Earthwork
4. Section 02940: Restoration

4.0 REFERENCES

MACTEC, 2009. Final Operable Unit 1 Feasibility Study Report, Callahan Mine Superfund Site, Brooksville, Maine; prepared for Maine Department of Transportation,16 State House Station, Augusta, Maine; Portland, Maine. July.

USEPA, 2009. Record of Decision, Operable Unit 1, Callahan Mine Superfund Site. September.

FIGURES

LOT A

LOT B

LOT C

LOT D

Penobscot
Blue Hill
Castine
Brooksville
Sedgwick

Legend

- Arsenic <= 14, Lead <= 375, and Thallium <= 15 mg/kg
- Arsenic > 14, Lead > 375, and Thallium > 15 mg/kg
- Bedrock Outcrops
- Risk Assessment Data Groups
- Area to be excavated - 41060 Sq. Feet
- Property Line

0 30 60 Feet

N

Prepared/Date: BRP 09/27/10 | Checked/Date: SWR 09/27/10

Figure 1-1
Residential Lot Remediation Area

OU1 Design
Callahan Mine Superfund Site
Brooksville, Maine
MACTEC, Inc.

Document: P:\Projects\mdot\Callahan Mine\6.0 GIS\Property Inventories\COMBINED LOTS\Res_Remed_Area_Overview_11x17P.mxd PDF: P:\Projects\mdot\Callahan Mine\6.0 GIS\Property Inventories\COMBINED LOTS\Figures\Figure 1-1.pdf 09/27/2010 3:05 PM brpeters

DT8
CT3
CT2
CT5
DT7
DW1
Grassed Area
DS19
LA4
CT4
SP2
G1
Garage
DS15
LA5
LA6
LA7
DS20
DS14
DS13
DT9
DS12
SP1
SP3
SR1
LI1
LA8
DS11
DS10
DP1
LA1
DS9
DS8
LA2
DS7
UO1
DS16
UO3
DS6
UO2
DT2
DS18
DS17
DS3
LA3
SR2
DS1
DT6
DS5
DT5
DS2
DS4
DT1
S1
CT1
DT3
DT4
CT6

Legend

- Conf. Tree 0-2" DBH
- Conif. Tree 2-8" DBH
- Conif. Tree 18-60" DBH
- Conif. Tree > 60" DBH
- Decid. Tree 2-8" DBH
- Decid. Tree 8-18" DBH
- Decid. Shrub < 2' diameter
- Decid. Shrub 2-6' diameter
- Decid Shrub 6-10' diameter
- Decid Shrub > 10' diameter
- Pipe, Water
- Tank
- Valve, Gas
- Porch
- Sidewalk
- Concrete Pad
- Stairs
- Garden, Perennials
- Garden, Vegetables
- Rock Outcrop
- Area to be Excavated
- Limit of Inventory Survey

N

0 7.5 15 Feet

Notes: DBH = Diameter at Breast Height
DS2 - Red ID indicates within Area to be Excavated

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OU 1 Design
Callahan Mine Superfund Site
Brooksville, Maine

MACTEC

Figure 2-1
Existing Conditions
Lot A

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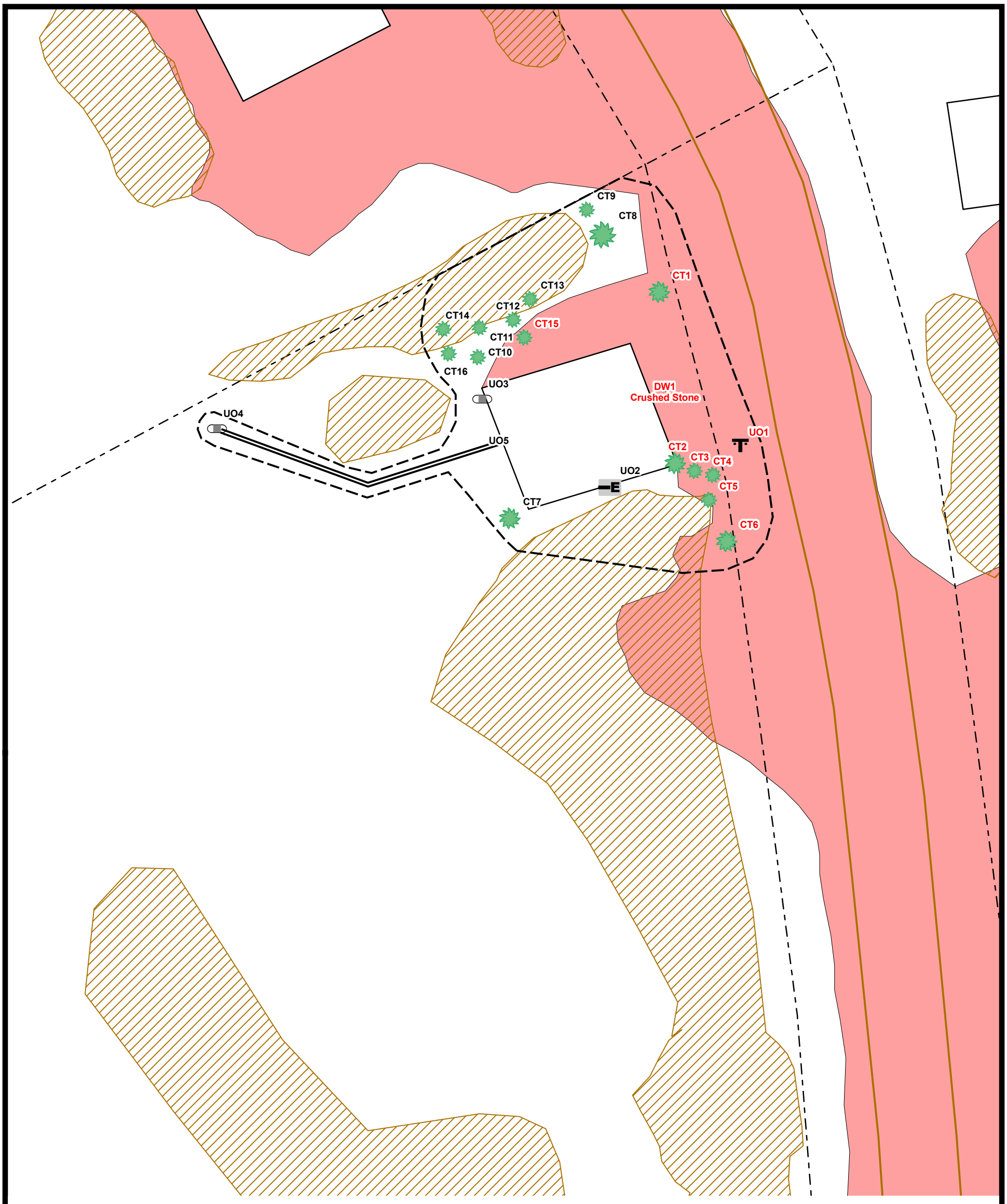

Notes: DBH = Diameter at Breast Height
DS2 - Red ID indicates within Area to be Excavated

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OU 1 Design
Callahan Mine Superfund Site
Brooksville, Maine

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Figure 2-2
Existing Conditions
Lot B

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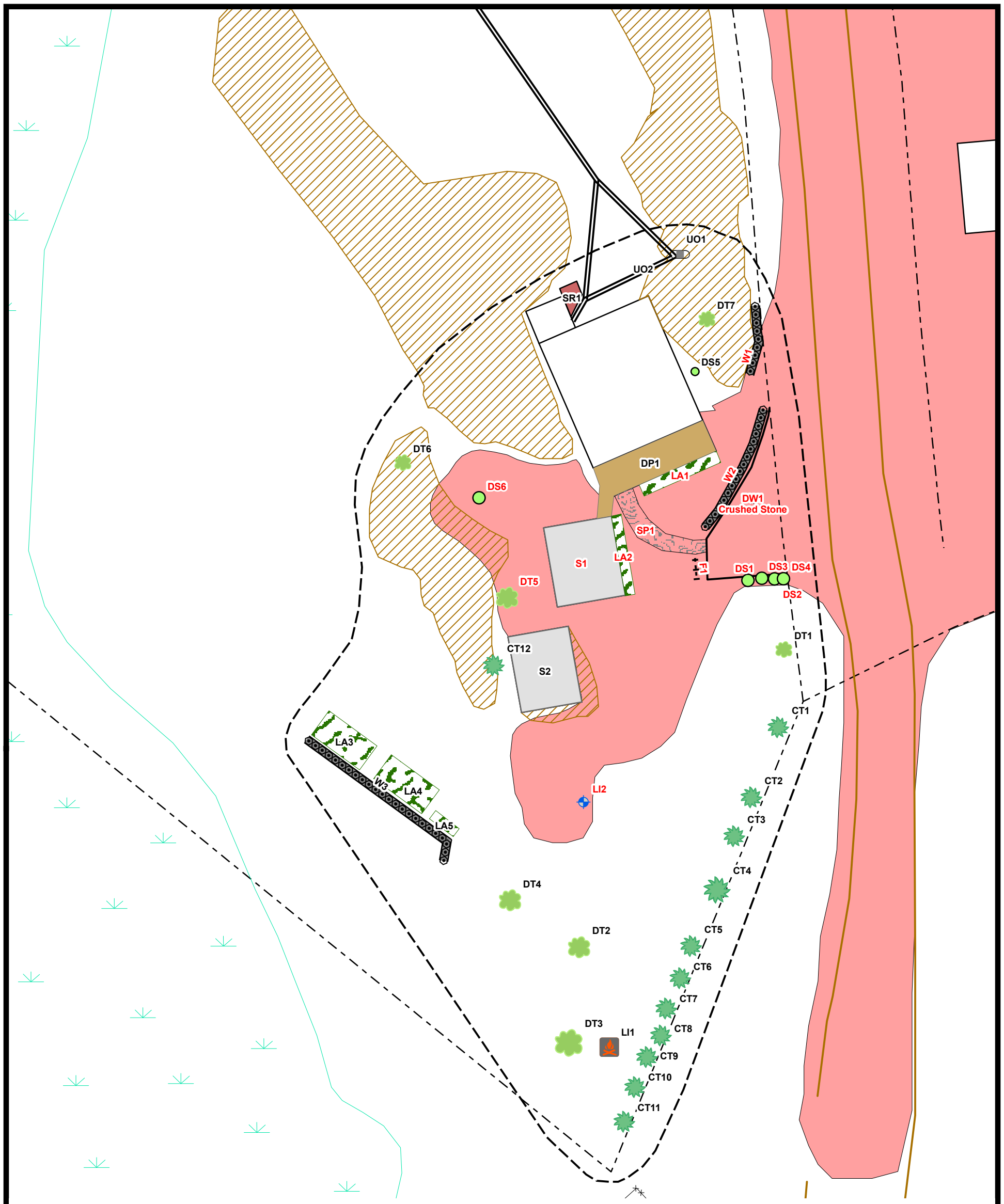

Notes: DBH = Diameter at Breast Height
DS2 - Red ID indicates within Area to be Excavated

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OU 1 Design
Callahan Mine Superfund Site
Brooksville, Maine

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Figure 2-3
Existing Conditions
Lot C

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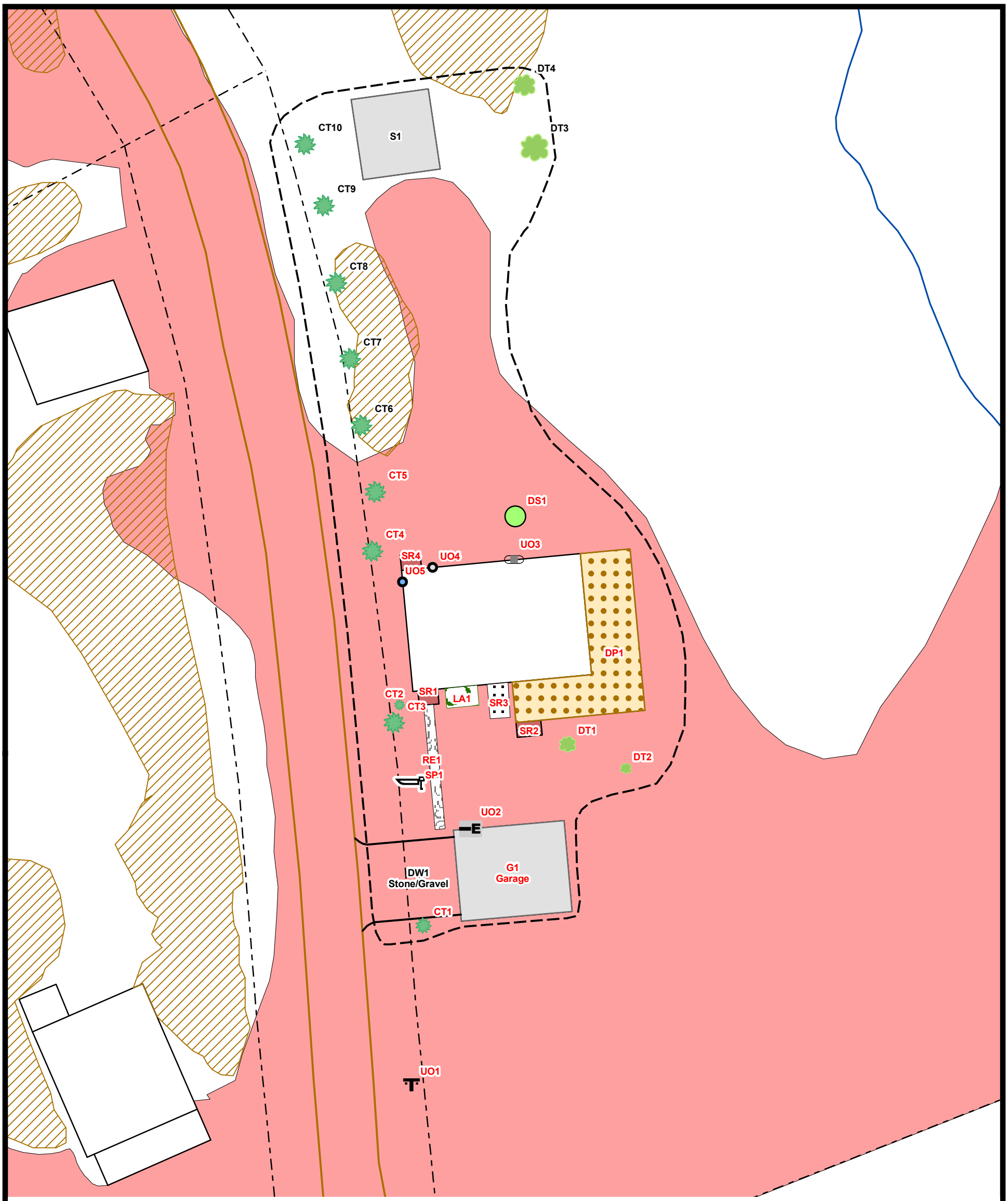

Notes: DBH = Diameter at Breast Height
DS2 - Red ID indicates within Area to be Excavated

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Checked/Date: SWR 09/27/10

OU 1 Design
Callahan Mine Superfund Site
Brooksville, Maine

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Figure 2-4
Existing Conditions
Lot D

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DS19
LA4
SP2
DS15
LA5
LA6
LA7
DS14
DS13
DS12
SP1
SP3
SR1
LA1
LA8
DS11
DS9
DS10
DS8
DS7
LA2
DS6
DT2
LA3
SR2
DS1
LA9
DS2
DT1
DT3
CT1
CT6
DT4
DT5

Legend

- Conif. Tree
- Decid. Tree
- Sidewalk
- Concrete Pad
- Stairs
- Eave Drip
- Garden, Perennials
- Garden, Vegetables
- Rock Outcrop

N

0 7.5 15 Feet

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OU 1 Design
Callahan Mine Superfund Site
Brooksville, Maine

MACTEC

Figure 3-1
Proposed Restoration Features
Lot A

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CT1

CT15

DW1
Crushed Stone

CT3

CT4

CT5

CT6

Legend

Conif. Tree

Rock Outcrop

N

0 7.5 15 Feet

Prepared/Date: BRP 09/27/10
Checked/Date: SWR 09/27/10

OU 1 Design
Callahan Mine Superfund Site
Brooksville, Maine

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Figure 3-2
Proposed Restoration Features
Lot B

390

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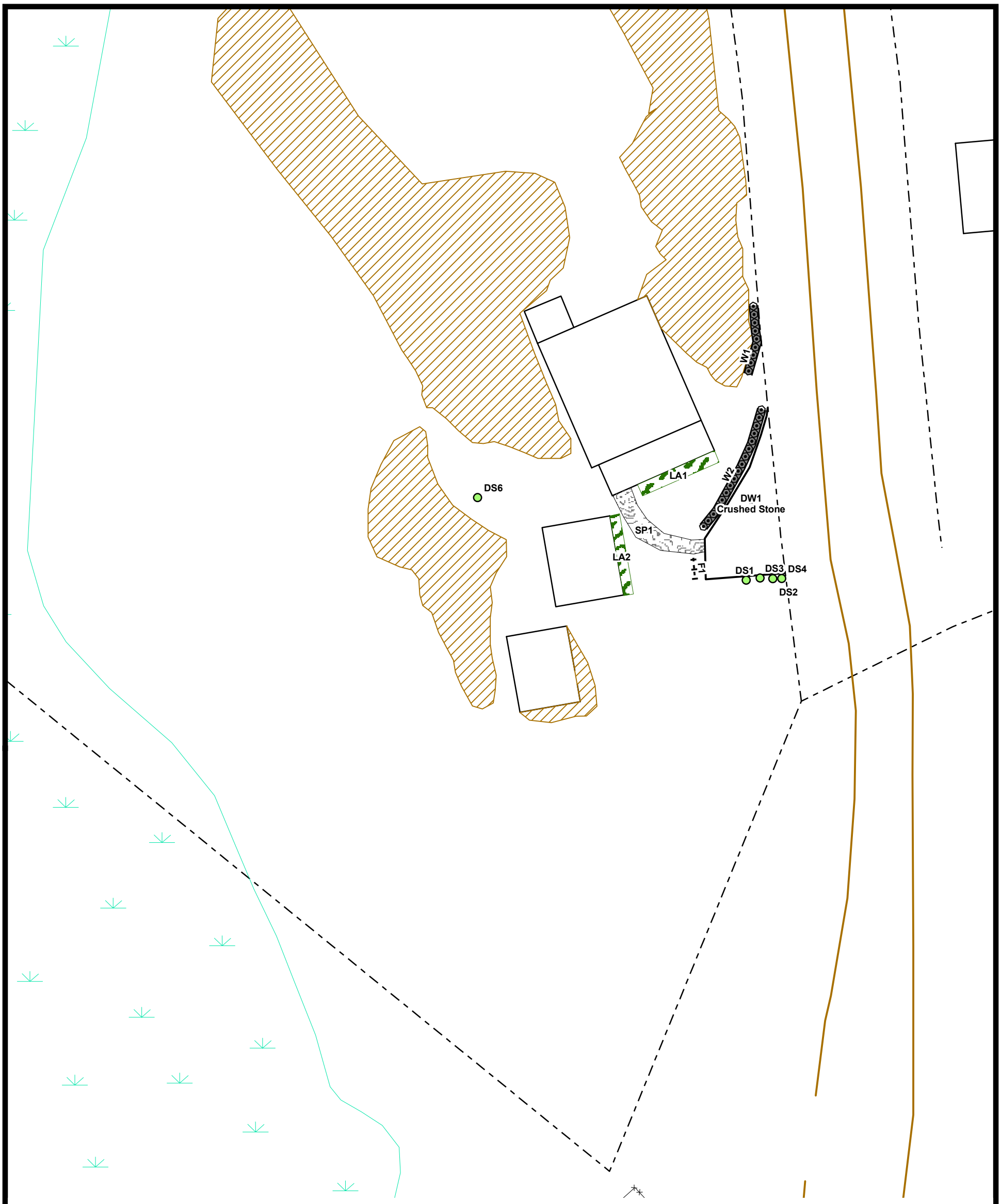

Legend

Decid. Shrub | Garden, Perennials | Stone Wall | Rock Outcrop | Sidewalk

N

0 10 20 Feet

Prepared/Date: BRP 09/27/10
Checked/Date: SWR 09/27/10

OU 1 Design Callahan Mine Superfund Site Brooksville, Maine	MACTEC	Figure 3-3 Proposed Restoration Features Lot C

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CT5
CT5
CT4
CT4
CT4
DS1
SR4
SR1
LA1
SR2
CT3
SP1
DT1
DT2
DW1
Stone/Gravel
CT1

Legend

- Conif. Tree
- Decid. Shrub
- Decid. Tree
- Garden, Perennials
- Concrete Pavers
- Basement Hatch
- Stairs
- Rock Outcrop

N

0 10 20 Feet

Prepared/Date: BRP 09/27/10
Checked/Date: SWR 09/27/10

OU 1 Design
Callahan Mine Superfund Site
Brooksville, Maine

MACTEC

Figure 3-4
Proposed Restoration Features
Lot D

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TABLES

Table 2-1

Lot A — Callahan Mine Superfund Site

DECK/PORCH					
ID: DP1	Porch	Material: Wood	Type Description: Gray		Proposed Status: LEAVE
		LENGTH: 10 FT	WIDTH: 6 FT	HEIGHT: 3 FT	
		Comment: Painted			
ID: DP1	Rail	Material: Wood	Type Description: Gray		Proposed Status: LEAVE
		LENGTH: 10 FT	WIDTH: 4 IN	HEIGHT: 30 IN	
		Comment: Painted			
ID: DP1	Roof	Material: Asphalt Shingle	Type Description: Black		Proposed Status: LEAVE
		:	:	:	
		Comment: Painted			
DRIVEWAY					
ID: DW1	Grassed Area	Material: Grassed Area	Type Description: Green		Proposed Status: REPLACE
		LENGTH: 35 FT	WIDTH: 20 FT	:	
		Comment:			
GARAGE					
ID: G1	1 Car Detached Garage	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: LEAVE
		LENGTH: 24.5 FT	HEIGHT: 8 FT	WIDTH: 12.5 FT	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
LEAVE = Item will be left in place during excavation activities
REMOVE = Item will be removed if included in excavation area
STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

ID: G1	Garage Roof	Material: Asphalt Shingle	Type Description: Black		Proposed Status: LEAVE
		PEAK HEIGHT: 12 FT	:	:	
		Comment:			
LANDSCAPE AREA					
ID: LA1	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 2 FT	WIDTH: 2 FT	:	
		Comment:			
ID: LA2	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 10 FT	WIDTH: 4 FT	:	
		Comment:			
ID: LA3	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 9 FT	WIDTH: 4.5 FT	:	
		Comment:			
ID: LA3	Landscape Edge	Material: Stone	Type Description: Gray		Proposed Status: REPLACE
		HEIGHT: 6 IN	WIDTH: 6 IN	TOTAL LENGTH: 27 FT	
		Comment:			
ID: LA4	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 31 FT	WIDTH: 6 FT	:	
		Comment:			
ID: LA5	Garden, Vegetables	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 4 FT	WIDTH: 2 FT	:	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
LEAVE = Item will be left in place during excavation activities
REMOVE = Item will be removed if included in excavation area
STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

Table 2-1

Lot A — Callahan Mine Superfund Site

ID: LA5	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: REPLACE
		HEIGHT: 12 IN	WIDTH: 2 IN	TOTAL LENGTH: 12 FT	
		Comment:			
ID: LA6	Garden, Vegetables	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 4 FT	WIDTH: 2 FT	:	
		Comment:			
ID: LA6	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: REPLACE
		HEIGHT: 12 IN	WIDTH: 2 IN	TOTAL LENGTH: 12 FT	
		Comment:			
ID: LA7	Garden, Vegetables	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 4 FT	WIDTH: 2 FT	:	
		Comment:			
ID: LA7	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: REPLACE
		HEIGHT: 12 IN	WIDTH: 2 IN	TOTAL LENGTH: 12 FT	
		Comment:			
ID: LA8	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 10 FT	WIDTH: 4 FT	:	
		Comment:			

LANDSCAPE ITEM

ID: LI1	Clothes Line	Material:	Type Description:		Proposed Status: STORE
		:	:	:	
		Comment:			

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Table 2-1

Lot A — Callahan Mine Superfund Site

SHED/DOGHOUSE

ID: S1	Wood Shed	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: LEAVE
		LENGTH: 6.5 FT	HEIGHT: 1 FT	WIDTH: 4.5 FT	
		Comment: well house; cinder block foundation, cedar shingle roof			

SHRUBS

ID: DS1	Hydrangea Macrophylla	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 1-2 FT	DIAMETER: 1-2 FT	:	
		Comment: Forever Red Hydrangea			
ID: DS2	Rose	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 4-6 FT	DIAMETER: 4-6 FT	:	
		Comment:			
ID: DS3	Hydrangea Macrophylla	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 4-6 FT	:	
		Comment: Endless Summer Hydrangea			
ID: DS4	Hydrangea Paniculata	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 2-4 FT	:	
		Comment: Grandiflora			
ID: DS5	Hydrangea Macrophylla	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: < 1 FT	DIAMETER: < 1 FT	:	
		Comment: Endless Summer Hydrangea			

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Table 2-1

Lot A — Callahan Mine Superfund Site

ID: DS6	Rose, New Dawn Climber	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 6-8 FT	DIAMETER: 2-4 FT	:	
		Comment:			
ID: DS7	Peony, Red	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 2-4 FT	:	
		Comment:			
ID: DS8	Peony, White	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 1-2 FT	DIAMETER: 1-2 FT	:	
		Comment:			
ID: DS9	Rose	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 4-6 FT	DIAMETER: 10+ FT	:	
		Comment:			
ID: DS10	Hydrangea Paniculata	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 6-8 FT	DIAMETER: 4-6 FT	:	
		Comment:			
ID: DS11	Common Lilac	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 1-2 FT	DIAMETER: 1-2 FT	:	
		Comment:			
ID: DS12	Hydrangea Macrophylla	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 2-4 FT	:	
		Comment: Endless Summer Hydrangea			

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Table 2-1

Lot A — Callahan Mine Superfund Site

ID: DS13	Rose	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 1-2 FT	DIAMETER: 1-2 FT	:	
		Comment:			
ID: DS14	Rose	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 4-6 FT	DIAMETER: 4-6 FT	:	
		Comment:			
ID: DS15	Common Lilac	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 1-2 FT	:	
		Comment:			
ID: DS16	Hydrangea Macrophylla	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 1-2 FT	DIAMETER: 1-2 FT	:	
		Comment: Forever Red Hydrangea			
ID: DS17	Rose, Rugosa	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 10+ FT	:	
		Comment:			
ID: DS18	Rose, Rugosa	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 4-6 FT	DIAMETER: 8-10 FT	:	
		Comment:			
ID: DS19	Rhododendron	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 4-6 FT	DIAMETER: 4-6 FT	:	
		Comment: Pink			

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ID: DS20	Phlox	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 1-2 FT	:	
		Comment: Purple			
SIDEWALK/PATIO					
ID: SP1	Concrete Pad	Material: Concrete, Poured	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 6 FT	WIDTH: 1.5 FT	:	
		Comment:			
ID: SP2	Concrete Pad	Material: Concrete, Poured	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 6.5 FT	WIDTH: 9 FT	:	
		Comment:			
ID: SP3	Sidewalk	Material: Stone/Gravel	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 5 FT	WIDTH: 6 FT	:	
		Comment:			
STAIRS/RAMP					
ID: SR1	Rail	Material: Wood	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 11 FT	WIDTH: 4 IN	HEIGHT: 30 IN	
		Comment: Newel posts and rail of round cedar, painted			
ID: SR1	Stairs	Material: Wood	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 3.5 FT	WIDTH: 6 FT	HEIGHT: 3 FT	
		Comment: Newel posts and rail of round cedar, painted			

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Table 2-1

Lot A — Callahan Mine Superfund Site

ID: SR2	Stairs	Material: Concrete	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 3 FT	WIDTH: 3.5 FT	HEIGHT: 1 FT	
		Comment:			
TREES					
ID: DT1	Apple Tree, Early Variety	Material:	Type Description:		Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT1	Pine, Eastern White	Material:	Type Description:		Proposed Status: REPLACE
		DIAMETER: 18-36 IN	:	:	
		Comment:			
ID: DT2	Apple Tree, Early Variety	Material:	Type Description:		Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT2	Atlantic White Cedar	Material:	Type Description:		Proposed Status: REPLACE
		DIAMETER: 2-4 IN	:	:	
		Comment:			
ID: DT3	Apple Tree	Material:	Type Description:		Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT3	Colorado Spruce	Material:	Type Description:		Proposed Status: REPLACE
		DIAMETER: 2-4 IN	:	:	
		Comment: Replace with Balsam Fir			

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Table 2-1

Lot A — Callahan Mine Superfund Site

ID: CT4	Atlantic White Cedar	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN :	:	
		Comment: Group of several (6)		
ID: DT4	Crabapple	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN :	:	
		Comment: Replace with maple		
ID: DT5	Apple Tree	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 8-12 IN :	:	
		Comment: Replace with maple, move to new location		
ID: CT5	Colorado Spruce	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 0-2 IN :	:	
		Comment: Replace with Balsam Fir		
ID: CT6	Colorado Spruce	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 2-4 IN :	:	
		Comment: Replace with Balsam Fir		
ID: DT6	Oak, Red	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN :	:	
		Comment:		
ID: DT7	Maple, Red	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 2-4 IN :	:	
		Comment:		

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ID: DT8	Birch, White	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 2-4 IN :	:	
		Comment:		
ID: DT9	Oak, Red	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN :	:	
		Comment:		

UTILITY, OTHER

ID: UO1	Tank	Material:	Type Description:	Proposed Status: STORE
		: :	:	
		Comment: Propane tank		
ID: UO2	Tank	Material:	Type Description:	Proposed Status: LEAVE
		: :	:	
		Comment: Septic tank		
ID: UO3	Pipe, Water	Material:	Type Description:	Proposed Status: LEAVE
		: :	:	
		Comment: Water Supply Line		

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LANDSCAPE AREA PLANTS

ID: LA1	Ornamental Grass	Quantity: 3 Plant(s)	Proposed Status: REPLACE
ID: LA2	Astilbe	Quantity: 6 Plant(s)	Proposed Status: REPLACE
ID: LA4	Daylily	Quantity: 50 Plant(s)	Proposed Status: REPLACE
ID: LA6	Tomato Plant	Quantity: 8 Plant(s)	Proposed Status: REPLACE
ID: LA7	Various Herbs	Quantity: 10 Plant(s)	Proposed Status: REPLACE
ID: LA8	Blackeyed Susan	Quantity: 5 Plant(s)	Proposed Status: REPLACE
ID: LA8	Daylily	Quantity: 5 Plant(s)	Proposed Status: REPLACE
ID: LA8	Heather & Shasta Daisy	Quantity: 10 Plant(s)	Proposed Status: REPLACE
ID: LA8	Various Annuals	Quantity: 10 Plant(s)	Proposed Status: REPLACE

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Table 2-2

Lot B — Callahan Mine Superfund Site

DRIVEWAY

ID: DW1	Crushed Stone	Material: Crushed Stone		Type Description: Other	Proposed Status: REPLACE
		LENGTH: 6 FT	WIDTH: 20 FT	:	
		Comment:			

TREES

ID: CT1	Red Spruce	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN	:	:	
		Comment:			
ID: CT2	Red Spruce	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN	:	:	
		Comment:			
ID: CT3	Pine, Eastern White	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT4	Red Spruce	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT5	Red Spruce	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			

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Table 2-2

Lot B — Callahan Mine Superfund Site

ID: CT6	Pine, Eastern White	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 8-12 IN	:	:	
		Comment:			
ID: CT7	Pine, Eastern White	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN	:	:	
		Comment:			
ID: CT8	Pine, Eastern White	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 18-36 IN	:	:	
		Comment:			
ID: CT9	Balsam Fir	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT10	Red Spruce	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT11	Red Spruce	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT12	Balsam Fir	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			

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ID: CT13	Balsam Fir	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT14	Red Spruce	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT15	Balsam Fir	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT16	Red Spruce	Material:		Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN	:	:	
		Comment:			

UTILITY, OTHER

ID: UO1	Pole, Utility	Material:		Type Description:	Proposed Status: LEAVE
		:	:	:	
		Comment:			
ID: UO2	Cable, Electrical	Material:		Type Description:	Proposed Status: LEAVE
		:	:	:	
		Comment:			
ID: UO3	Tank	Material:		Type Description:	Proposed Status: STORE
		:	:	:	
		Comment:			

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Table 2-2

Lot B — Callahan Mine Superfund Site

ID: UO4	Tank	Material:	Type Description:	Proposed Status: LEAVE
		: :	:	
		Comment: Sewage pump station		
ID: UO5	Pipe, Sewer & Water	Material:	Type Description:	Proposed Status: REPLACE
		: :	:	
		Comment:		

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Table 2-3

Lot C — Callahan Mine Superfund Site

DECK/PORCH					
ID: DP1	Porch	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: LEAVE
		LENGTH: 21 FT	WIDTH: 7 FT	HEIGHT: 2 FT	
		Comment: Painted			
ID: DP1	Rail	Material: Wood	Type Description: White		Proposed Status: LEAVE
		LENGTH: 1 FT	WIDTH: 6 IN	HEIGHT: 24 IN	
		Comment: Painted			
ID: DP1	Roof	Material: Asphalt Shingle	Type Description: Black		Proposed Status: LEAVE
		:	:	:	
		Comment: Painted			
DRIVEWAY					
ID: DW1	Crushed Stone	Material: Crushed Stone	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 37 FT	WIDTH: 16 FT	:	
		Comment:			
FENCES					
ID: F1	3' Rail, Flat	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: REPLACE
		LENGTH: 8 FT	HEIGHT: 3 FT	:	
		Comment: Pressure treated wood			

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Table 2-3

Lot C — Callahan Mine Superfund Site

LANDSCAPE AREA

ID: LA1	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 15 FT	WIDTH: 2.5 FT	:	
		Comment:			
ID: LA1	Landscape Edge	Material: Stone	Type Description: Gray		Proposed Status: REPLACE
		HEIGHT: 6 IN	WIDTH: 6 IN	TOTAL LENGTH: 35 FT	
		Comment:			
ID: LA2	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 17 FT	WIDTH: 2 FT	:	
		Comment:			
ID: LA2	Landscape Edge	Material: Stone	Type Description: Gray		Proposed Status: REPLACE
		HEIGHT: 8 IN	WIDTH: 6 IN	TOTAL LENGTH: 38 FT	
		Comment:			
ID: LA3	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 12 FT	WIDTH: 6 FT	:	
		Comment:			
ID: LA3	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: REPLACE
		HEIGHT: 8 IN	WIDTH: 2 IN	TOTAL LENGTH: 36 FT	
		Comment:			
ID: LA4	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 12 FT	WIDTH: 6 FT	:	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
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Table 2-3

Lot C — Callahan Mine Superfund Site

ID: LA4	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: REPLACE
		HEIGHT: 8 IN	WIDTH: 2 IN	TOTAL LENGTH: 36 FT	
		Comment:			
ID: LA5	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 6 FT	WIDTH: 2 FT	:	
		Comment:			
ID: LA5	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: REPLACE
		HEIGHT: 8 IN	WIDTH: 2 IN	TOTAL LENGTH: 16 FT	
		Comment:			
LANDSCAPE ITEM					
ID: LI1	Fireplace	Material:	Type Description:		Proposed Status: REMOVE
		:	:	:	
		Comment:			
ID: LI2	Well	Material:	Type Description:		Proposed Status: LEAVE
		:	:	:	
		Comment:			
SHED/DOGHOUSE					
ID: S1	Wood Shed	Material: Wood	Type Description: Other		Proposed Status: LEAVE
		LENGTH: 15.5 FT	HEIGHT: 10 FT	WIDTH: 12.5 FT	
		Comment:			

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Table 2-3

Lot C — Callahan Mine Superfund Site

ID: S2	Wood Shed	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: LEAVE
		LENGTH: 15.5 FT	HEIGHT: 8 FT	WIDTH: 12 FT	
		Comment:			
SHRUBS					
ID: DS1	PJM Rhododendron	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 4-6 FT	DIAMETER: 4-6 FT	:	
		Comment:			
ID: DS2	PJM Rhododendron	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 4-6 FT	DIAMETER: 4-6 FT	:	
		Comment:			
ID: DS3	PJM Rhododendron	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 4-6 FT	DIAMETER: 4-6 FT	:	
		Comment:			
ID: DS4	PJM Rhododendron	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 2-4 FT	:	
		Comment:			
ID: DS5	Hydrangea Paniculata	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 1-2 FT	DIAMETER: 1-2 FT	:	
		Comment:			
ID: DS6	Hydrangea Paniculata	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 2-4 FT	DIAMETER: 2-4 FT	:	
		Comment:			

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Table 2-3

Lot C — Callahan Mine Superfund Site

SIDEWALK/PATIO					
ID: SP1	Sidewalk	Material: Concrete, Poured	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 26 FT	WIDTH: 2 FT	:	
		Comment:			
STAIRS/RAMP					
ID: SR1	Stairs	Material: Concrete	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 6 FT	WIDTH: 3.5 FT	HEIGHT: 1 FT	
		Comment:			
TREES					
ID: CT1	Colorado Spruce	Material:	Type Description:		Proposed Status: REMOVE
		DIAMETER: 12-18 IN	:	:	
		Comment:			
ID: DT1	Maple, Red	Material:	Type Description:		Proposed Status: REMOVE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: DT2	Maple, Red	Material:	Type Description:		Proposed Status: REPLACE
		DIAMETER: 8-12 IN	:	:	
		Comment:			
ID: CT2	Red Spruce	Material:	Type Description:		Proposed Status: REMOVE
		DIAMETER: 12-18 IN	:	:	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
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Table 2-3

Lot C — Callahan Mine Superfund Site

ID: DT3	Bigtooth Aspen	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 18-36 IN :	:	
		Comment:		
ID: CT3	Red Spruce	Material:	Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN :	:	
		Comment:		
ID: DT4	Maple, Red	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 8-12 IN :	:	
		Comment:		
ID: CT4	Pine, Eastern White	Material:	Type Description:	Proposed Status: REMOVE
		DIAMETER: 18-36 IN :	:	
		Comment:		
ID: DT5	Horse Chestnut	Material:	Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN :	:	
		Comment:		
ID: CT5	Pine, Eastern White	Material:	Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN :	:	
		Comment:		
ID: DT6	Maple, Red	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 2-4 IN :	:	
		Comment:		

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Table 2-3

Lot C — Callahan Mine Superfund Site

ID: CT6	Red Spruce	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN	:	:	
		Comment:			
ID: DT7	Horse Chestnut	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 4-8 IN	:	:	
		Comment:			
ID: CT7	Red Spruce	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN	:	:	
		Comment:			
ID: CT8	Red Spruce	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN	:	:	
		Comment:			
ID: CT9	Red Spruce	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN	:	:	
		Comment:			
ID: CT10	Red Spruce	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 8-12 IN	:	:	
		Comment:			
ID: CT11	Pine, Eastern White	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 12-18 IN	:	:	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
LEAVE = Item will be left in place during excavation activities
REMOVE = Item will be removed if included in excavation area
STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

ID: CT12	Pine, Eastern White	Material:		Type Description:	Proposed Status: REMOVE
		DIAMETER: 12-18 IN	:	:	
		Comment:			
UTILITY, OTHER					
ID: UO1	Tank	Material:		Type Description:	Proposed Status: LEAVE
		:	:	:	
		Comment: Concrete septic tank, low-boy			
ID: UO2	Pipe, Sewer & Water	Material:		Type Description:	Proposed Status: REPLACE
		:	:	:	
		Comment:			
WALL					
ID: W1	Stone	Material:		Type Description: Vertical	Proposed Status: REPLACE
		LENGTH: 18 FT	HEIGHT: 1 FT	:	
		Comment:			
ID: W2	Stone	Material:		Type Description: Vertical	Proposed Status: REPLACE
		LENGTH: 21 FT	HEIGHT: 1.5 FT	:	
		Comment:			
ID: W3	Stone	Material:		Type Description: Vertical	Proposed Status: REPLACE
		LENGTH: 39 FT	HEIGHT: 1.5 FT	:	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
LEAVE = Item will be left in place during excavation activities
REMOVE = Item will be removed if included in excavation area
STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

LANDSCAPE AREA PLANTS

ID: LA1	Batchelor Button	Quantity: 3 Plant(s)		Proposed Status: REPLACE
ID: LA1	Daisy	Quantity: 10 Plant(s)		Proposed Status: REPLACE
ID: LA1	Heather	Quantity: 5 Plant(s)		Proposed Status: REPLACE
ID: LA2	Bee Balm	Quantity: 10 Plant(s)		Proposed Status: REPLACE
ID: LA2	Blackeyed Susan	Quantity: 10 Plant(s)	Gold Sturm	Proposed Status: REPLACE
ID: LA2	Spirea	Quantity: 10 Plant(s)		Proposed Status: REPLACE

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***

LEAVE = Item will be left in place during excavation activities

REMOVE = Item will be removed if included in excavation area

STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

Table 2-4

Lot D — Callahan Mine Superfund Site

DECK/PORCH					
ID: DP1	Deck	Material: Wood	Type Description: Gray		Proposed Status: LEAVE
		LENGTH: 32.5 FT	WIDTH: 10 FT	HEIGHT: 6 FT	
		Comment: Pressure treated wood			
ID: DP1	Rail	Material: Wood	Type Description: Gray		Proposed Status: LEAVE
		LENGTH: 76.5 FT	WIDTH: 5 IN	HEIGHT: 3 IN	
		Comment: Pressure treated wood			
DRIVEWAY					
ID: DW1	Stone/Gravel	Material: Stone/Gravel	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 20 FT	WIDTH: 14 FT	:	
		Comment:			
GARAGE					
ID: G1	2 Car Detached Garage	Material: Wood	Type Description: Red		Proposed Status: LEAVE
		LENGTH: 22 FT	HEIGHT: 12 FT	WIDTH: 18 FT	
		Comment:			
ID: G1	Garage Roof	Material: Asphalt Shingle	Type Description: Black		Proposed Status: LEAVE
		PEAK HEIGHT: 25 FT	:	:	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
LEAVE = Item will be left in place during excavation activities
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STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

Table 2-4

Lot D — Callahan Mine Superfund Site

LANDSCAPE AREA

ID: LA1	Garden, Perennials	Material:	Type Description:		Proposed Status: REPLACE
		LENGTH: 6.5 FT	WIDTH: 4 FT	:	
		Comment:			
ID: LA1	Landscape Edge	Material: Stone	Type Description: Gray		Proposed Status: REPLACE
		HEIGHT: 6 IN	WIDTH: 6 IN	TOTAL LENGTH: 21 FT	
		Comment:			

RECREATION EQUIPMENT

ID: RE1	Boat	Material: Wood	Type Description:		Proposed Status: STORE
		:	:	:	
		Comment: Old dory, property owner to move			

SHED/DOGHOUSE

ID: S1	Wood Shed	Material: Wood	Type Description: Natural (plain wood)		Proposed Status: REMOVE
		LENGTH: 12 FT	HEIGHT: 8 FT	WIDTH: 12 FT	
		Comment: Abandoned shed			

SHRUBS

ID: DS1	Common Lilac	Material:	Type Description:		Proposed Status: REPLACE
		HEIGHT: 6-8 FT	DIAMETER: 10+ FT	:	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
LEAVE = Item will be left in place during excavation activities
REMOVE = Item will be removed if included in excavation area
STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

Table 2-4

Lot D — Callahan Mine Superfund Site

SIDEWALK/PATIO

ID: SP1	Sidewalk	Material: Concrete, Pavers	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 25 FT	WIDTH: 2 FT	:	
		Comment:			

STAIRS/RAMP

ID: SR1	Stairs	Material: Concrete	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 3 FT	WIDTH: 4 FT	HEIGHT: 1 FT	
		Comment:			
ID: SR2	Rail	Material: Wood	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 7 FT	WIDTH: 5 IN	HEIGHT: 3 IN	
		Comment: Pressure treated wood			
ID: SR2	Stairs	Material: Wood	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 3 FT	WIDTH: 5 FT	HEIGHT: 2.8 FT	
		Comment: Pressure treated wood			
ID: SR3	Basement Hatch	Material: Wood	Type Description: Gray		Proposed Status: LEAVE
		LENGTH: 7 FT	WIDTH: 4 FT	HEIGHT: 1.5 FT	
		Comment:			
ID: SR4	Stairs	Material: Concrete	Type Description: Gray		Proposed Status: REPLACE
		LENGTH: 3 FT	WIDTH: 4 FT	HEIGHT: 2 FT	
		Comment:			

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
LEAVE = Item will be left in place during excavation activities
REMOVE = Item will be removed if included in excavation area
STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

Table 2-4

Lot D — Callahan Mine Superfund Site

TREES

ID: DT1	Crabapple	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 2-4 IN :	:	
		Comment: Relocate to southeast		
ID: CT1	Red Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 4-8 IN :	:	
		Comment:		
ID: DT2	Crabapple	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 0-2 IN :	:	
		Comment: Relocate to southeast		
ID: CT2	Red Spruce	Material:	Type Description:	Proposed Status: REMOVE
		DIAMETER: 0-2 IN :	:	
		Comment:		
ID: DT3	Maple, Red	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 18-36 IN :	:	
		Comment:		
ID: CT3	Red Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN :	:	
		Comment: Replace with Balsam Fir		
ID: DT4	Maple, Red	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN :	:	
		Comment:		

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
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Table 2-4

Lot D — Callahan Mine Superfund Site

ID: CT4	Pitch Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN	:	:
		Comment: Replace with 2 Arborvitae - Dark American (Thuja occidentalis, nigra), 6 ft intervals		
ID: CT5	Red Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN	:	:
		Comment: Replace with 2 Arborvitae - Dark American (Thuja occidentalis, nigra), 6 ft intervals		
ID: CT6	Red Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN	:	:
		Comment: Replace with 2 Arborvitae - Dark American (Thuja occidentalis, nigra), 6 ft intervals		
ID: CT7	Red Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN	:	:
		Comment: Replace with 2 Arborvitae - Dark American (Thuja occidentalis, nigra), 6 ft intervals		
ID: CT8	Red Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 8-12 IN	:	:
		Comment:		
ID: CT9	Red Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN	:	:
		Comment:		
ID: CT10	Red Pine	Material:	Type Description:	Proposed Status: REPLACE
		DIAMETER: 12-18 IN	:	:
		Comment:		

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
LEAVE = Item will be left in place during excavation activities
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Table 2-4

Lot D — Callahan Mine Superfund Site

UTILITY, OTHER

ID: UO1	Pole, Utility	Material:	Type Description:	Proposed Status: LEAVE
		: :	:	
		Comment:		
ID: UO2	Cable, Electrical	Material:	Type Description:	Proposed Status: LEAVE
		: :	:	
		Comment:		
ID: UO3	Tank	Material:	Type Description:	Proposed Status: STORE
		: :	:	
		Comment: Propane tank		
ID: UO4	Pipe, Sewer	Material:	Type Description:	Proposed Status: LEAVE
		: :	:	
		Comment:		
ID: UO5	Pipe, Water	Material:	Type Description:	Proposed Status: LEAVE
		: :	:	
		Comment:		

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
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REMOVE = Item will be removed if included in excavation area
STORE = Item will be stored onsite if necessary and returned upon completion of excavation activities

LANDSCAPE AREA PLANTS

ID: LA1	Daylily - Stella D'oro	Quantity: 3 Plant(s)	Proposed Status: REPLACE
ID: LA1	Lupine	Quantity: 3 Plant(s)	Proposed Status: REPLACE
ID: LA1	Phlox maculata - White Summer Phlox	Quantity: 3 Plant(s)	Proposed Status: REPLACE
ID: LA1	Rudbeckia - Gold Sturm	Quantity: 2 Plant(s)	Proposed Status: REPLACE

Proposed Status Key: ***REPLACE = Item will be replaced if disturbed during excavation activities***
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Table 3-1

Lot A — Callahan Mine Superfund Site

LANDSCAPE AREA

ID: LA1	Garden, Perennials	Material:	Type Description:	
		LENGTH: 2 FT	WIDTH: 2 FT	:
		Comment:		
ID: LA2	Garden, Perennials	Material:	Type Description:	
		LENGTH: 10 FT	WIDTH: 4 FT	:
		Comment:		
ID: LA3	Garden, Perennials	Material:	Type Description:	
		LENGTH: 9 FT	WIDTH: 4.5 FT	:
		Comment: Leave as mulched bed for planting by property owner		
ID: LA3	Landscape Edge	Material: Stone	Type Description: Gray	
		HEIGHT: 6 IN	WIDTH: 6 IN	TOTAL LENGTH: 27 FT
		Comment: Leave as mulched bed for planting by property owner		
ID: LA4	Garden, Perennials	Material:	Type Description:	
		LENGTH: 31 FT	WIDTH: 6 FT	:
		Comment:		
ID: LA5	Garden, Vegetables	Material:	Type Description:	
		LENGTH: 4 FT	WIDTH: 2 FT	:
		Comment:		
ID: LA5	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)	
		HEIGHT: 12 IN	WIDTH: 2 IN	TOTAL LENGTH: 12 FT
		Comment:		

ID: LA6	Garden, Vegetables	Material:	Type Description:	
		LENGTH: 4 FT	WIDTH: 2 FT	:
		Comment:		
ID: LA6	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)	
		HEIGHT: 12 IN	WIDTH: 2 IN	TOTAL LENGTH: 12 FT
		Comment:		
ID: LA7	Garden, Vegetables	Material:	Type Description:	
		LENGTH: 4 FT	WIDTH: 2 FT	:
		Comment:		
ID: LA7	Landscape Edge	Material: Wood	Type Description: Natural (plain wood)	
		HEIGHT: 12 IN	WIDTH: 2 IN	TOTAL LENGTH: 12 FT
		Comment:		
ID: LA8	Garden, Perennials	Material:	Type Description:	
		LENGTH: 10 FT	WIDTH: 4 FT	:
		Comment:		
ID: LA9	Eave Drip	Material:	Type Description: Gray	
		LENGTH: 23 FT	WIDTH: 1.5 FT	:
		Comment: 2" crushed stone over weed barrier, slope away from house		

SHRUBS

ID: DS1	Hydrangea Macrophylla	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: Forever Red Hydrangea, 3 gallon; alternate Cityline Paris or Forever Pink		
ID: DS2	Rose	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 2 gallon		

ID: DS6	Rose, New Dawn Climber	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 2 gallon		
ID: DS7	Peony, Red	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 2 gallon		
ID: DS8	Peony, White	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 2 gallon		
ID: DS9	Rose	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 2 gallon		
ID: DS10	Hydrangea Paniculata	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: Little Lamb, 3 gallon		
ID: DS11	Common Lilac	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 4-5 gallon		
ID: DS12	Hydrangea Macrophylla	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: Endless Summer Hydrangea, 3 gallon		
ID: DS13	Rose	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 2 gallon		

ID: DS14	Rose	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 2 gallon		
ID: DS15	Common Lilac	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 4-5 gallon		
ID: DS19	Rhododendron	Material:	Type Description:	
		HEIGHT: 2-2.5 FT	DIAMETER:	:
		Comment: Scintilation, alternate Henry's Red		

SIDEWALK/PATIO

ID: SP1	Concrete Pad	Material: Concrete, Poured	Type Description: Gray	
		LENGTH: 6 FT	WIDTH: 1.5 FT	:
		Comment:		
ID: SP2	Concrete Pad	Material: Concrete, Poured	Type Description: Gray	
		LENGTH: 6.5 FT	WIDTH: 9 FT	:
		Comment:		
ID: SP3	Sidewalk	Material: Stone/Gravel	Type Description: Gray	
		LENGTH: 5 FT	WIDTH: 6 FT	:
		Comment:		

STAIRS/RAMP

ID: SR1	Rail	Material: Wood	Type Description: Gray	
		LENGTH: 11 FT	WIDTH: 4 IN	HEIGHT: 30 IN
		Comment: Newel posts and rail of round cedar, painted		

ID: SR1	Stairs	Material: Wood	Type Description: Gray	
		LENGTH: 3.5 FT	WIDTH: 6 FT	HEIGHT: 3 FT
		Comment: Newel posts and rail of round cedar, painted		
ID: SR2	Stairs	Material: Concrete	Type Description: Gray	
		LENGTH: 3 FT	WIDTH: 3.5 FT	HEIGHT: 1 FT
		Comment:		

TREES

ID: DT1	Apple Tree, Early Variety	Material:	Type Description:	
		DIAMETER: 1 3/4-2 IN	HEIGHT: 6-8 FT	:
		Comment: McIntosh		
ID: CT1	Pine, Eastern White	Material:	Type Description:	
		DIAMETER:	HEIGHT: 4-6 FT	:
		Comment:		
ID: DT2	Apple Tree, Early Variety	Material:	Type Description:	
		DIAMETER: 1 3/4-2 IN	HEIGHT: 6-8 FT	:
		Comment: Macoun		
ID: DT3	Apple Tree	Material:	Type Description:	
		DIAMETER: 1 3/4-2 IN	HEIGHT: 6-8 FT	:
		Comment: Crabapple, Indian Summer		
ID: DT4	Maple, Sugar	Material:	Type Description:	
		DIAMETER: 1 3/4 -2 IN	HEIGHT: 7 FT	:
		Comment:		
ID: DT5	Maple, Sugar	Material:	Type Description:	
		DIAMETER: 1 3/4 -2 IN	HEIGHT: 7 FT	:
		Comment:		

ID: CT6 Balsam Fir Material: Type Description:

DIAMETER: HEIGHT: 4-6 FT :

Comment:

LANDSCAPE AREA PLANTS

ID: LA1	Ornamental Grass	Quantity: 3 Plant(s)	
ID: LA2	Astilbe	Quantity: 6 Plant(s)	Bridle veil, Fanal
ID: LA4	Daylily	Quantity: 50 Plant(s)	Stella D'oro
ID: LA6	Tomato Plant	Quantity: 8 Plant(s)	
ID: LA7	Various Herbs	Quantity: 10 Plant(s)	
ID: LA8	Blackeyed Susan	Quantity: 5 Plant(s)	Gold Sturm
ID: LA8	Daylily	Quantity: 5 Plant(s)	Happy Returns
ID: LA8	Heather & Shasta Daisy	Quantity: 10 Plant(s)	
ID: LA8	Various Annuals	Quantity: 10 Plant(s)	

Table 3-2

Lot B — Callahan Mine Superfund Site

DRIVEWAY				
ID: DW1	Crushed Stone	Material: Crushed Stone	Type Description: Other	
		LENGTH: 6 FT	WIDTH: 20 FT	:
		Comment:		
TREES				
ID: CT1	Red Spruce	Material:	Type Description:	
		DIAMETER:	HEIGHT: 4-6 FT	:
		Comment:		
ID: CT3	Pine, Eastern White	Material:	Type Description:	
		DIAMETER:	HEIGHT: 4-6 FT	:
		Comment:		
ID: CT4	Red Spruce	Material:	Type Description:	
		DIAMETER:	HEIGHT: 4-6 FT	:
		Comment:		
ID: CT5	Red Spruce	Material:	Type Description:	
		DIAMETER:	HEIGHT: 4-6 FT	:
		Comment:		
ID: CT6	Pine, Eastern White	Material:	Type Description:	
		DIAMETER:	HEIGHT: 4-6 FT	:
		Comment:		

ID: CT15 Balsam Fir Material: Type Description:

DIAMETER: HEIGHT: 4-6 FT :

Comment:

Table 3-3

Lot C — Callahan Mine Superfund Site

DRIVEWAY				
ID: DW1	Crushed Stone	Material: Crushed Stone	Type Description: Gray	
		LENGTH: 37 FT	WIDTH: 16 FT	:
		Comment:		
FENCES				
ID: F1	3' Rail, Flat	Material: Wood	Type Description: Natural (plain wood)	
		LENGTH: 8 FT	HEIGHT: 3 FT	:
		Comment: Pressure treated wood		
LANDSCAPE AREA				
ID: LA1	Garden, Perennials	Material:	Type Description:	
		LENGTH: 15 FT	WIDTH: 2.5 FT	:
		Comment:		
ID: LA1	Landscape Edge	Material: Stone	Type Description: Gray	
		HEIGHT: 6 IN	WIDTH: 6 IN	TOTAL LENGTH: 35 FT
		Comment:		
ID: LA2	Garden, Perennials	Material:	Type Description:	
		LENGTH: 17 FT	WIDTH: 2 FT	:
		Comment:		
ID: LA2	Landscape Edge	Material: Stone	Type Description: Gray	
		HEIGHT: 8 IN	WIDTH: 6 IN	TOTAL LENGTH: 38 FT
		Comment:		

SHRUBS				
ID: DS1	PJM Rhododendron	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 3-4 gallon		
ID: DS2	PJM Rhododendron	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 3-4 gallon		
ID: DS3	PJM Rhododendron	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 3-4 gallon		
ID: DS4	PJM Rhododendron	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 3-4 gallon		
ID: DS6	Hydrangea Paniculata	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 3 gallon, Grandiflora, shrub form; Alternate = Little Lamb		
SIDEWALK/PATIO				
ID: SP1	Sidewalk	Material: Concrete, Poured	Type Description: Gray	
		LENGTH: 26 FT	WIDTH: 2 FT	:
		Comment:		
WALL				
ID: W1	Stone	Material:	Type Description: Vertical	
		LENGTH: 18 FT	HEIGHT: 1 FT	:
		Comment:		

ID: W2 Stone Material: Type Description: Vertical

LENGTH: 21 FT HEIGHT: 1.5 FT :

Comment:

LANDSCAPE AREA PLANTS

ID: LA1	Batchelor Button	Quantity: 3 Plant(s)	
ID: LA1	Daisy	Quantity: 10 Plant(s)	
ID: LA1	Heather	Quantity: 5 Plant(s)	
ID: LA2	Bee Balm	Quantity: 10 Plant(s)	
ID: LA2	Blackeyed Susan	Quantity: 10 Plant(s)	Gold Sturm
ID: LA2	Spirea	Quantity: 10 Plant(s)	

Table 3-4

Lot D — Callahan Mine Superfund Site

DRIVEWAY				
ID: DW1	Stone/Gravel	Material: Stone/Gravel	Type Description: Gray	
		LENGTH: 20 FT	WIDTH: 14 FT	:
		Comment:		
LANDSCAPE AREA				
ID: LA1	Garden, Perennials	Material:	Type Description:	
		LENGTH: 6.5 FT	WIDTH: 4 FT	:
		Comment:		
ID: LA1	Landscape Edge	Material: Stone	Type Description: Gray	
		HEIGHT: 6 IN	WIDTH: 6 IN	TOTAL LENGTH: 21 FT
		Comment:		
SHRUBS				
ID: DS1	Common Lilac	Material:	Type Description:	
		HEIGHT:	DIAMETER:	:
		Comment: 4-5 gallon, 4 containers		
SIDEWALK/PATIO				
ID: SP1	Sidewalk	Material: Concrete, Pavers	Type Description: Gray	
		LENGTH: 25 FT	WIDTH: 2 FT	:
		Comment:		

STAIRS/RAMP

ID: SR1	Stairs	Material: Concrete	Type Description: Gray	
		LENGTH: 3 FT	WIDTH: 4 FT	HEIGHT: 1 FT
		Comment:		
ID: SR2	Rail	Material: Wood	Type Description: Gray	
		LENGTH: 7 FT	WIDTH: 5 IN	HEIGHT: 3 IN
		Comment: Pressure treated wood		
ID: SR2	Stairs	Material: Wood	Type Description: Gray	
		LENGTH: 3 FT	WIDTH: 5 FT	HEIGHT: 2.8 FT
		Comment: Pressure treated wood		
ID: SR4	Stairs	Material: Concrete	Type Description: Gray	
		LENGTH: 3 FT	WIDTH: 4 FT	HEIGHT: 2 FT
		Comment:		

TREES

ID: DT1	Crabapple	Material:	Type Description:	
		DIAMETER: 1 3/4-2 IN	HEIGHT: 10-12 FT	:
		Comment:		
ID: CT1	Red Pine	Material:	Type Description:	
		DIAMETER:	HEIGHT: 4-6 FT	:
		Comment: 10 ft south of garage		
ID: DT2	Crabapple	Material:	Type Description:	
		DIAMETER: 1 3/4-2 IN	HEIGHT: 10-12 FT	:
		Comment:		

ID: CT3	Balsam Fir	Material:	Type Description:	
		DIAMETER:	HEIGHT: 4-6 FT	:
		Comment: 10 ft from house		
ID: CT4	Arborvitae	Material:	Type Description:	
		DIAMETER:	HEIGHT: 6-8 FT	:
		Comment: Dark American (Thuja occidentalis, nigra), 2 trees, 6 ft apart, the first 10 ft from house		
ID: CT5	Arborvitae	Material:	Type Description:	
		DIAMETER:	HEIGHT: 6-8 FT	:
		Comment: Dark American (Thuja occidentalis, nigra), 2 trees, 6 ft apart		

LANDSCAPE AREA PLANTS

ID: LA1	Daylily - Stella D'oro	Quantity: 3 Plant(s)
ID: LA1	Lupine	Quantity: 3 Plant(s)
ID: LA1	Phlox maculata - White Summer	Quantity: 3 Plant(s)
ID: LA1	Rudbeckia - Gold Sturm	Quantity: 2 Plant(s)

SECTION 33 0513

MANHOLES, STRUCTURES, COVERS, AND FRAMES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Manholes.

B. Frames and Cover.

C. Testing.

1.02 RELATED SECTIONS

A. Section 31 0000 - Earthwork.

B. Section 31 2200 - Grading.

C. Section 31 2316 - Excavation.

D. Section 31 2316.26 - Rock Removal

E. Section 33 3111 - Piping

E. Section 33 3600 - Septic Tanks, Secondary Pretreatment Units.

F. Section 33 3601 – Subsurface Sewage System

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM).
   1. ASTM A48-83 - Specification For Gray Iron Castings.
   2. ASTM C478-84 - Precast Reinforced Concrete Manhole Sections.
   3. ASTM C923-84 - Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes.

1.04 SUBMITTALS

A. Manufacturer's Literature: Supply copies of descriptive literature and recommendations for installation.

B. Certificates: Supply copies of manufacturer's certification that supplied products comply with specification requirements.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver products on manufacturer's original skids, or in original unopened protective packaging.

B. Store materials to prevent physical damage.

C. Protect material during transportation and installation to avoid physical damage.

1.06 PROJECT RECORD DRAWINGS

A. Submit documents under provisions of Section 01 3300.

B. Accurately record location of manholes, rims, and invert elevations of all incoming and outgoing pipes.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Sewer Manholes.
   1. Precast concrete, conforming to ASTM Specification C478.
      a. Minimum 28 day compressive strength of 4,000 psi, rated for H-20 loading.
   2. Eccentric cone section.
   3. Base and barrel sections: Circular components of minimum one (1) foot and maximum four (4) foot deep segments.
   4. Manhole inverts to be precast or poured in place. Concrete to be 3,000 psi minimum.
   5. Wet well for pump station shall have flat top for top section.

B. Manhole Steps
   1. Copolymer polypropylene plastic coated steel or forged aluminum conforming to applicable safety requirements.
      a. Steel: 1/2 inch diameter grade 60, minimum
      b. Aluminum: ALCOA No. 12653B or equal.

C. Pipe-to-Manhole Joints
   1. Molded neoprene compound, conforming to ASTM Specification C923.

D. Frames and Covers.
   1. All frame and cover castings shall be American made. Foreign castings will not be considered.
   2. Gray iron conforming to ASTM Specification A48-83, Class 30B.
   3. Manholes
      a. 24 inch diameter gray cast iron.
      b. Cover labeled “Sewer”.
      c. Model E245S as manufactured by Etheridge Foundry, or approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify site conditions noting irregularities affecting work of this section.

B. Beginning of work means acceptance of existing conditions.

3.02 INSTALLATION

A. Manholes:
   1. Establish pipe invert elevations for all incoming and outgoing pipes as indicated on Contract Drawings.
   2. Place manholes on compacted foundation of 3/4 inch crushed stone as indicated on Details.
   3. Install precast barrel sections to minimize use of precast rings for shimming frames and covers to finish grade.
      a. In no case shall precast ring shimming exceed one foot in height.
   4. Tightly seal all joints with 2 strips of Kent Seal No. 2, or approved equal.
   5. Plug all lift holes and parge all joints with non-shrinking mortar.
   6. Excavation Drainage
      a. Provide temporary channels as required for water flowing along or across work site.
      b. Pumped or drained water: Suitably disposed, causing no damage to adjacent property or interference with work.
      c. In no case is drainage to be allowed though pipes being installed.

3.03 FIELD QUALITY CONTROL

A. Manhole Testing
   1. General:
      a. Perform test on all manholes.
      b. Perform testing in presence of Resident.
      c. Testing may be performed by one of the four following methods as applicable.
   2. Exfiltration Tests Prior to Backfilling:
      a. Fill manhole with water to top of frame.
      b. After 15 minutes, if no moving water is visible on exterior surface, manhole is satisfactorily watertight.
   3. Exfiltration Test After Backfilling:
      a. Fill manhole with water to top of frame.
      b. Allow up to 2 hours at contractor's discretion, for wall absorption.
      c. After absorption period, refill manhole to top of frame.
      d. Test period - four (4) hours.
      e. After test period, refill manhole to top of frame, measuring water volume added.
      f. Exfiltration limit: Not to exceed 1/16 gallon per foot of diameter per vertical foot above groundwater per four (4) hour test period.
   4. Infiltration Tests:
      a. Permitted on portion of manholes below groundwater level.
      b. Test period - 15 minutes.

c. After test period, if no moving water visible on interior surface, portion of manhole below groundwater is satisfactorily watertight.

5. Vacuum Test:
   a. Install testing equipment according to manufacturer's instruction.
   b. Draw a vacuum of 10 inches of mercury (Hg) on manhole.
   c. Time the loss of one (1) inch of Hg.
   d. Passing test: one (1) inch loss in greater than two (2) minutes.
   e. If test fails, located leaks (s) and make repairs, and retest until passing test attained.
   f. Test manhole with exfiltration test if vacuum cannot be attained.

B. Manhole Repairs
   1. Correct leakage by reconstruction, replacement of gaskets and/or other Resident approved methods.

END OF SECTION

SECTION 33 3111

PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Sanitary Gravity Sewer Piping.

B. Sanitary Force Main Piping.

C. Service Laterals, and connection to existing lateral piping.

D. Fittings.

E. Testing.

1.02 RELATED SECTIONS

A. Section 31 0000 - Earthwork.

B. Section 31 2200 - Grading.

C. Section 31 2316 - Excavation.

D. Section 31 2316.26 - Rock Removal

E. Section 33 0513 – Manhole, Structures, Covers and Frames

E. Section 33 3600 - Septic Tanks, Secondary Pretreatment Units.

F. Section 33 3601 – Subsurface Sewage System

1.03 REFERENCES

A. ANSI/ASTM D3034 - Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

B. ANSI A3212 - Joints for Drain and Sewer Pipes using Flexible Elastomeric Seals.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 3000:
   1. Product data for pipe, pipe accessories including documentation those products comply with specification requirements.
   2. Manufacturer's recommendations and instructions for installation.

1.05 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 3300:
   1. Documents for requirements of Contract closeout, including but not limited to, warranties, testing, adjusting, spare parts, etc.
   2. Accurately record location of pipe runs, connections, manholes, and invert elevations.
   3. Field measurements for locating ends of unconnected service laterals.
   4. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver products on manufacturer's original skids, or in original unopened protective packaging.

B. Store materials to prevent physical damage.

C. Protect material during transportation and installation to avoid physical damage.

PART 2 - PRODUCT

2.01 MANUFACTURERS

A. PVC Pipe - John Mansville, Extrusion Technologies, Inc.

B. Couplings - Fernco, Inc.

C. HDPE Pipe - Plexco, Inc.

D. Substitutions: In accordance with Section 013300.

2.02 GRAVITY SEWER PIPE MATERIALS

A. Polyvinyl Chloride (PVC) Non-pressure Sewer Pipe, conforming to ASTM Specification D3034.
   1. Class: SDR 35
   2. Joints: Flexible Elastomeric Seals conforming to ASTM Specifications D3212.
      a. All joints to be an integral part of pipe bell.
   3. Polyvinyl Chloride Resin Compound: Conforming to ASTM 1784.
   4. Rubber gaskets for use with PVC pipe; ASTM D1869, all joints to be an integral part of pipe bell.
   5. Elastomeric polyvinyl chloride fittings and reducers with stainless steel straps; meeting the requirements of ASTM C443, C425, C564, and D1869.

2.03 FORCE MAIN SEWER PIPE MATERIALS

A. Polyvinyl Chloride (PVC) Pressure Pipe, conforming to ASTM Specification D-2281.
   1. Class: SDR 32.5, Class 125
   2. Joints: Flexible elastomeric seals conforming to ASTM Specification D-3212.
      a: All joints to be an integral part of pipe bell.
      b. Polyvinyl Chloride Resin Compound: Conforming to ASTM 1784.
      c. Rubber gaskets for use with pressure pipe; ASTM D-1869 and F-477, all joints to be an integral part of pipe bell.
      d. Fittings shall be made of PVC compound meeting ASTM D-1784 and shall be Class 200 and conform to the requirements of SDR 32.5.

B. High Density Polyethylene (HDPE) conforming to ASTM Specification D3350.
   1. Class: HDPE SDR 17, PSI.
   2. Joints: Heat fusion joints constructed by Contractor.
   3. Fittings: Shall be manufactured in accordance with ASTM D2683 or ASTM D3261, and shall be of the same material as the pipe.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that trench cut is ready to receive work, and excavations, locations, dimensions, and elevations are as indicated on Drawings.

B. Excavate test pits as necessary to verify locations and grades of existing utilities.

C. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

A. Hand trim excavations to required elevations. Correct over-excavation with 3/4" crushed stone.

B. Remove large stones or other hard matter which could damage pipes or impede consistent bedding, backfilling or compaction.

C. Rock Removal for pipe installation shall be in accordance with Section 31 2316.26.

3.03 GRAVITY PIPE INSTALLATION

A. Install pipes, fittings and accessories according to manufacturer's instructions.

B. Place pipe on bedding in accordance with Section 31 0000.

C. Lay pipe to alignment, slope gradient and elevations noted on Drawings.

D. Joints and joint material conforming to manufacturer's recommendation.

E. Lay pipe without break, upgrade from structure to structure with bell end upstream.

F. Install bedding at bottom sides and over top of pipe, at depths shown on Drawings.

G. Manually "chink" bedding around pipe haunches for lateral support.

1. Do not mechanically compact crushed stone over flexible pipe.

H. Install and bed pipe up to spring line; do not cover pipe without the presence of the Resident.
1. Work backfilled without presence of Resident shall be uncovered at Contractor's expense.

I. Place excavated material or select granular backfill over pipe, as directed by Resident.
1. Place material in maximum 12-inch lifts, compact per Section 31 0000.
2. Increase compaction of each successive lift per Section 31 0000.
3. Do not displace or damage pipe during compaction.

J. Backfill and secure each pipe length prior to installing next length.

K. Insulate pipe with polyethylene board insulation were earth cover is less than 5 feet.

L. Continue backfill placement to finish grade level as per Section 31 0000.

M. Protect pipes against impact shocks and free falls.
1. Remove and replace damaged pipe.
2. Place and tamper sufficient bedding material over and around pipe to prevent damage and movement.

N. Install a water tight plug in open pipe ends when pipe laying not in progress.

3.04 FORCE MAIN INSTALLATION

A. Force Main
1. Install pipes, fittings and accessories according to manufacturer’s instructions.
2. Joints and joint materials conforming to manufacturer’s recommendation.
3. Lay pipe without break, upgrade from pump station to discharge point with bell end upstream.
4. Lay pipe to alignment, horizontal and vertical, as shown on Drawings at or above the elevation of the perimeter trench drain as appropriate.
5. Place pipe on bedding in accordance with Section 31 0000.
6. Install bedding material at sides and over top of pipe, at depths shown on Drawings, compacted per Section 31 0000.
7. Thrust Blocks
   a. Back up bends exceeding 20 degrees with Concrete Thrust Blocks.
   b. Concrete: 3000 psi at 28 day compressive strength.

c. Pour concrete against undisturbed trench sides.
d. Backfill around thrust blocks compacted per Section 31 0000.

8. Place select granular backfill over bedding material to depths shown on Drawings.
   a. Place material in maximum 12 inch lifts, compacted per Section 31 0000.
9. Place excavated material or select granular backfill, as directed by Resident, to aggregate subbase level.
   a. Place material in maximum 12 inch lifts, compacted per Section 31 0000.
   b. Increase compaction of each successive lift per Section 31 0000.

3.05 FIELD QUALITY CONTROL

A. Examine pipes for defects, weak structural components, and deviations allowable tolerances.

B. Remove rejected materials from job site.

C. Obtain Resident certification and installation conformance to specifications prior to backfilling.

D. Install pipe to lines and grades shown on Contract Drawings.

E. Allowable Tolerances.
   1. Pipe elevation: plus or minus 0.02 feet/100 feet.
   2. Horizontal layout: plus or minus 0.03 feet/100 feet.

3.06 PIPE LEAKAGE TESTING

A. General
   1. Test all lines after backfilling.
   2. Lines to meet infiltration limit of 100 gal/day/inch/mile.
      a. Limit inferred by air exfiltration test.

B. Low Pressure Air Test
   1. Perform test according to stated procedures in presence of Resident.
   2. Equipment used, a minimum:
      a. Pneumatic plugs with sealing length greater than or equal to pipe diameter.
      b. Plugs to resist test pressures requiring no external bracing
      c. Air used passing through single control panel.
      d. Use three (3) individual hoses for following connections:
         1. From control panel to pneumatic plugs for inflation.
         2. From control panel to sealed line for introducing pressure air.
         3. From sealed line to control panel for continually monitoring air pressure rise in sealed line.
   3. Seal test plugs prior to actual test as follows:
      a. Seal both ends of a length of pipe laid on ground.
      b. Introduce air to plugs to 30 psig.
      c. Pressurize pipe to 5 psig.

d. Plugs must hold without movement to pass.

4. After backfilling manhole to manhole segment:
   a. Clean pipe segment.
   b. Cap or suitably plug service connections.
   c. Place plugs in line at each manhole and inflate to 30 psig.
   d. Introduce air to sealed pipe to pressure of greater than or equal to 4 psig above average groundwater back pressure on line.
   e. Allow 2 minutes for air pressure stabilization.
   f. Maintain minimum of 3.5 psig after stabilization.
   g. Disconnect air supply from control panel.
   h. A test is acceptable if 0.5 psig pressure loss is greater than time shown in following table:

Pipe Size (Inches)	Time
4	2 min. 32 sec.
6	3 min. 50 sec.
8	5 min. 6 sec.
10	6 min. 22 sec.
12	7 min. 39 sec.

5. Areas of Known Groundwater
   a. Install ½ inch diameter capped pipe nipple 10-inches long, through manhole wall above an inlet line.
   b. Prior to performing air test, determine groundwater level as follows:
      1. Remove nipple cap.
      2. Blow air through nipple to clear.
      3. Connect clear plastic tube to nipple.
      4. Hold hose vertically and measure height of water.
      5. Divide height by 2.3 to obtain groundwater back pressure in psig.
6. If pipe segment fails air test:
   a. Perform necessary work to meet these requirements.
7. Provide as necessary, proper plugs, weirs and necessary equipment to perform tests.
8. Testing of pipe sections to include service connection portions installed under this Contract.
9. Provide, as necessary, equipment to bypass flow around test segments.
   a. Maintain service to services temporarily disconnected, capped or plugged for test.
10. Test each day's work.
    a. Pipe laying may be stopped by Resident if testing procedures or results are unacceptable.

3.07 LIGHT TEST

A. Test all lines immediately after backfilling and compaction.

B. Light test manhole to manhole pipe sections.
   1. True circle of light visible from manhole to manhole for acceptance.

C. Remove and/or repair any pipe displacements discovered.

3.08 DEFLECTION TESTING

A. Test all lines 2 weeks after backfilling and compaction.

B. Lines to be clean and free of foreign materials prior to testing.

C. Perform test in presence of Resident.

D. Pull mandrel through pipes installed.

E. Maximum Deflection Allowable: Less than 5 percent of internal pipe diameter.

F. Remove and replace pipe sections failing test.

END OF SECTION

CES INC

SECTION 33 3600

SEPTIC TANK AND SECONDARY TREATMENT UNITS

PART 1 - GENERAL

1.01 GENERAL

A. Furnish all tools, equipment, plant, labor, skill, supervision, materials, and perform all operations necessary for installing, retrofitting, pumping, and examining existing and proposed treatment tanks.

1.02 SECTION INCLUDES

A. Three Compartment Septic Tanks.

B. Secondary Treatment System

1.03 RELATED SECTIONS

A. Section 31 0000 - Earthwork.

B. Section 31 2200 - Grading.

C. Section 31 2316 - Excavation.

D. Section 31 2316.26 - Rock Removal.

E. Section 33 0513 – Manhole, Structures, Covers and Frames.

F. Section 33 3111 - Piping

1.04 QUALITY ASSURANCE

A. Comply with all local, State, and Federal regulations.

B. Reference Standards
   1. State Plumbing Code, State of Maine Subsurface Wastewater Disposal Rules, State Law 22 MRSA 42 as administered by the Maine Department of Human Services, Division of Health Engineering, latest edition.

1.05 SUBMITTALS

A. Manufacturer's Literature: Supply copies of descriptive literature and recommendations for installation.

B. Certificates: Supply copies of manufacturer's certification that supplied products comply with specification requirements.

1.06 PRODUCT DELIVER, STORAGE, AND HANDLING

A. Store materials to prevent physical damage.

B. Protect materials during transportation and installation to avoid physical damage.

PART 2 - PRODUCTS

2.01 GENERAL

A. Reference State Plumbing Code.

2.02 PRE-CAST REINFORCED CONCRETE SEPTIC TANK

A. Size as indicated and manufactured by American Concrete Industries or approved equal.

2.03 SECONDARY TREATMENT SYSTEM

A. Clean Solutions Alternative Septic Systems, Manufactured by Wastewater Alternative Treatment Inc. or approved equal.

2.04 RISERS AND MANHOLE COVERS

A. Pre-cast Reinforced Concrete Septic Tanks shall be installed with concrete risers and covers as manufactured by American Concrete Industries or approved equal. Riser and cover shall be installed over septic tank cleanouts and outlet inspection covers.

B. Secondary Treatment Systems shall be installed with polyethylene risers and covers as recommended by selected manufacture

PART 3 - EXECUTION

3.01 GENERAL

A. All work shall conform to the requirements of the Maine State Plumbing Code and applicable laws.

B. The Contractor shall be responsible under these items for all work related to installation of proposed septic tank and secondary pretreatment units. Connection from proposed septic tank to existing building sewer, where available, shall be incidental to the cost of the Item.

C. Remove existing septic tanks or cesspools are to be located and removed from site and pump out and properly disposed. Contents to be properly disposed of at a DEP licensed septage disposal site.

D. Make every effort to continue sewer service to the homeowner during installation of the septic tank and associated piping.

E. Installation
   1. Place tanks and secondary treatment units on a level foundation of ¾" crushed stone not less than eight inches (8") in depth, brought to an accurate level grade such that when the tank is placed inlets and outlets will be aligned as necessary to conform to building sewer grades defined in the construction drawings.
   2. The tank and secondary treatment units will be watertight. No holes will be left unplugged in the tanks.
   3. Remove all water from the excavation and keep it dry until the tank is set and, if necessary to prevent flotation, the tank shall be filled with clean water.
   4. Dirty or muddy water from excavation shall not be used.
   5. Plastic riser sections and covers shall be placed on the tank outlet and brought to final grade.

3.02 PRE-CAST CONCRETE

A. Place item and backfill as indicated on the drawings.

B. Grout all lifting holes and joints with non-shrinking mortar.

3.03 EXISTING SEPTIC TANKS

A. Locate and expose cleanout openings of tanks.

B. Pump out and remove all solids and liquids from tank. Dispose of sewage at licensed facility.

3.04 TESTING

A. All tanks shall be tested for water tightness in Residents presence by the following methods:
   1. Install tank as shown on plans.
   2. Prior to backfilling, fill with water. If no leaks are evident, tank will be considered watertight.
   3. Grouting around inlet and outlet piping shall be tested for water tightness by plugging pipe, raising water level in tank above the pipe, and checking for leaks.

3.05 REPAIR OF PREMISES

A. The Contractor shall be responsible for loaming and seeding, graveling, paving or other operations required, on all surfaces destroyed by his operations. The Resident will be the sole judge in resolving disputes. It is recommended that the Contractor take "before" construction photographs of site before he begins his operation. All restoration work with the exception of paving shall be completed within 14 days of substantially completing system. All surface restoration costs shall be incidental to unit cost of Bid Item.

END OF SECTION

CES INC

SECTION 33 3601

SUBSURFACE SEWAGE DISPOSAL FIELD

PART 1 - GENERAL

1.01 GENERAL

A. Furnish all equipment, labor, and materials to properly complete the subsurface sewage disposal fields as required by the Contract Documents. Disposal field begins at connection to proposed flow splitting manhole.

B. Obtain and pay all costs of plumbing permits as required by local and State laws.

1.02 SECTION INCLUDES

A. Fill under disposal fields.

B. Fill extensions around disposal fields.

C. System Sand

D. Distribution Boxes.

E. Pipe.

F. System Piping

G. Rigid Insulation.

H. Geotextile filter fabric.

1.03 RELATED SECTIONS

A. Section 31 0000 - Earthwork.

B. Section 31 2200 - Grading.

C. Section 31 2316 - Excavation.

D. Section 31 2316.26 – Rock Removal

E. Section 33 3111 - Piping

F. Section 33 3600 – Septic Tank and Secondary Pretreatment Units

1.04 QUALITY ASSURANCE

A. Comply with all local, State and Federal regulations.

B. Reference Standards:
1. State Plumbing Code, State of Maine Subsurface Wastewater Disposal Rules, State Law 22MRSA 42 as administered by the Maine Department of Human Services, Division of Health Engineering effective date August 2009 plus any subsequent revisions.

1.05 SUBMITTALS

A. Manufacturer's Literature: Supply copies of descriptive literature and recommendations for installation and shop drawings.

B. Certificates: Supply copies of manufacturer's certification that supplied products comply with specification requirements.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver products on manufacturer's original skids or in original unopened protective packaging.

B. Store materials to prevent physical damage, or incorporation with unsuitable materials.

C. Protect materials during transportation and installation to avoid physical damage or incorporation with unsuitable materials.

D. Submit field samples of fills and stone for analysis before placement.

PART 2 - PRODUCTS

2.01 PRECAST CONCRETE MANUFACTURERS

A. Type B Concrete Chamber as manufactured by American Concrete Industries or approved Equal.
B. Distribution Boxes as manufactured by American Concrete Industries or approved equal.

2.02 FILL UNDER DISPOSAL FIELDS

A. See State Plumbing Code.

B. See Section 31 0000.

2.03 FILL EXTENSIONS AROUND AND OVER DISPOSAL FIELDS

A. As per selected manufacturer’s specifications.

B. See Section 31 0000.

2.04 SYSTEM Stone

A. As per manufacturer’s recommendations.

B. See Section 31 0000.

2.05 DISTRIBUTION BOXES

A. Concrete shall have a minimum 28 day compressive strength of 4000 psi and be reinforced with 2-inch by 2-inch, 14/14 galvanized welded wire mesh.

B. As indicated on contract plans.

C. Boxes shall have an inlet baffle to still incoming sewage flows and be fitted with removable covers to facilitate piping.

C. Knockout ports not used for piping shall be watertight. Boxes having broken knockouts shall be replaced or repaired to the satisfaction of the Resident prior to placement.

2.06 CONCRETE CHAMBERS

A. Reinforced concrete shall have a minimum 28 day compressive strength of 4000 psi.

B. 4'-0" wide by 8'-0" wide x 1'-1" high side or end feed unit.

C. Inspection

D. Inlet shall be suitable for a 4-inch diameter PVC pipe

2.07 PIPE

A. All solid gravity pipes and fittings used in constructing the subsurface disposal systems shall be Polyvinyl Chloride Schedule 40 of the size specified in the contract drawings and documents and shall conform to ASTM D3034.

B. Solid SDR 35 PVC may also be used as an alternate to Schedule 40.

2.08 RIGID INSULATION

A. Install 2-inch thick polystyrene board insulation over distribution boxes and piping were earth cove is less than five feet.

2.09 GEOTEXTILE FILTER FABRIC

A. MIRAFI-140 N non-woven fabric, Typar 3401, Fibertex 202 or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

A. All work shall conform to the requirements of the State Plumbing Code and applicable laws.

B. The Contractor shall be responsible under these Items for all proposed work within the disposal area inclusive, as described in Section 01 2210, Measurement and Payment.

C. Verify grades and protect locations and elevations controls prior to construction.

3.02 DISTRIBUTION BOXES

A. Install on undisturbed ground or stone as indicated on Contract Drawings.

B. Insulate and backfill as indicated on Contract Drawings.

C. Adjust dial-flow adjustors for equal flows.

3.03 PIPES

A. Install 4 inch diameter SCH 40 or SDR 35 PVC as indicated on Contract Drawings.

B. Insulate pipes were earth cover is less than five feet.

3.04 DISPOSAL FIELDS

A. Construct disposal field as indicated on the drawings.

B. Strip vegetation to maximum depth of 3-inches from entire disposal field and fill extensions.

C. Construct a 6-inch transition layer by rototilling the existing ground surface under the disposal system and fill extension. Import coarse sand fill and apply a 4-inch layer to area previously rototilled. Mix existing soil imported by harrowing or tilling the material to a depth of 4-inches below existing ground surface.

D. Permit no machinery onto the surface prior to placing of fill or stone. Dump materials outside the field and push onto the system by a lightweight bulldozer.

E. Contractor shall re-rototill the excavation if the surface is rained upon or "sheening" occurs or as directed by Resident.

F. Compact fill layers by running a small bulldozer over the surface while spreading the material. Spread material in 8-inch lifts.

G. Fines that settle at the bottom of the truck transporting the system stone shall not be dumped into the disposal system. Prior to placement of concrete chambers contact Resident for fill compaction verification.

H. Place concrete chambers to invert elevations as indicated in the Contract Drawing with a maximum tolerance of 1"/100'. Place fabric over chambers and overlap fabric three inches at all seams. Place 8-inch thick layer of coarse sand fill over fabric. Place 4-inches of coarse loamy sand fill over fabric.

I. Install fill over fabric and topsoil over fill.

J. The Contractor shall use extreme care not to expose the disposal area soils to vehicular traffic and compaction during construction.

3.05 REPAIR OF PREMISES

A. The Contractor shall be responsible for loaming and seeding, graveling, paving or other operations required, on all surfaces destroyed or damaged by his operations. The Resident will be the sole judge in resolving disputes. It is recommended that the Contractor take "before" construction photographs of the site before he begins his operation. All restoration work with the exception of paving shall be completed within 14 days of substantially completing each individual system.

END OF SECTION

APPENDIX A TO DIVISION 100

SECTION 1 - BIDDING PROVISIONS

A. Federally Required Certifications By signing and delivering a Bid, the Bidder certifies as provided in all certifications set forth in this Appendix A - Federal Contract Provisions Supplement including:

- Certification Regarding No Kickbacks to Procure Contract as provided on this page 1 below.
- Certification Regarding Non-collusion as provided on page 1 below.
- Certification Regarding Non-segregated Facilities as provided by FHWA Form 1273, section III set forth on page 21 below.
- "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion" as provided by FHWA Form 1273, section XI set forth on page 32 below.
- "Certification Regarding Use of Contract Funds for Lobbying" as provided by FHWA Form 1273, section XII set forth on page 35 below.

Unless otherwise provided below, the term "Bidder", for the purposes of these certifications, includes the Bidder, its principals, and the person(s) signing the Bid. Upon execution of the Contract, the Bidder (then called the Contractor) will again make all the certifications indicated in this paragraph above. Upon execution of the Contract, the Bidder (then called the Contractor) will again make all the certifications indicated in this paragraph above.

CERTIFICATION REGARDING NO KICKBACKS TO PROCURE CONTRACT Except expressly stated by the Bidder on sheets submitted with the Bid (if any), the Bidder hereby certifies, to the best of its knowledge and belief, that it has not:

(A) employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other then a bona fide employee working solely for me) to solicit or secure this contract;

(B) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or;

C) paid, or agreed to pay, to any firm, organization, or person (other than a bona fide employee working solely for me) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the contract;

By signing and submitting a Bid, the Bidder acknowledges that this certification is to be furnished to the Maine Department of Transportation and the Federal Highway Administration, U.S. Department of Transportation in connection with this contract in anticipation of federal aid highway funds and is subject to applicable state and federal laws, both criminal and civil.

CERTIFICATION REGARDING NONCOLLUSION Under penalty of perjury as provided by federal law (28 U.S.C. §1746), the Bidder hereby certifies, to the best of its knowledge and belief, that:

the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with the Contract.

For a related provisions, see Section 102.7.2 (C) of the Standard Specifications - "Effects of Signing and Delivery of Bids" - "Certifications", Section 3 of this Appendix A entitled "Other Federal Requirements" including section XI - "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" and section XII. - "Certification Regarding Use of Contract Funds for Lobbying."

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B. Bid Rigging Hotline To report bid rigging activities call: **1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

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SECTION 2 - FEDERAL EEO AND CIVIL RIGHTS REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 2 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Nondiscrimination & Civil Rights - Title VI The Contractor and its subcontractors shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Department deems appropriate. The Contractor and subcontractors shall comply with Title VI of the Civil Rights Act of 1964, as amended, and with all State of Maine and other Federal Civil Rights laws.

For related provisions, see Subsection B - "Nondiscrimination and Affirmative Action - Executive Order 11246" of this Section 2 and Section 3 - Other Federal Requirements of this "Federal Contract Provisions Supplement" including section II - "Nondiscrimination" of the "Required Contract Provisions, Federal Aid Construction Contracts", FHWA-1273.

B. Nondiscrimination and Affirmative Action - Executive Order 11246 Pursuant to Executive Order 11246, which was issued by President Johnson in 1965 and amended in 1967 and 1978, this Contract provides as follows.

The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its efforts to achieve maximum results from its actions. The Contractor shall

document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

1. Ensure and maintain a working environment free of harassment, intimidations, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all forepersons, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its union have employment opportunities available, and to maintain a record of the organization's responses.

3. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

4. Provide immediate written notification to the Department's Civil Rights Office when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Design-Builder's efforts to meet its obligations.

5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under B above.

6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligation; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review

of these items with on-site supervisory personnel such as Superintendents, General Forepersons, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractor's and Subcontractors with whom the Contractor does or anticipates doing business.

9. Direct its recruitment efforts, both orally and written to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later that one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above describing the openings, screenings, procedures, and test to be used in the selection process.

10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth, both on the site and in other areas of a Contractor's workforce.

11. Validate all tests and other selection requirements.

12. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

13. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

14. Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractor's and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

16. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

C. Goals for Employment of Women and Minorities Per Executive Order 11246, craft tradesperson goals are 6.9% women and .5% minorities employed. However, goals may be adjusted upward at the mutual agreement of the Contractor and the Department. Calculation of these percentages shall not include On-the-Job Training Program trainees, and shall not include clerical or field clerk position employees.

For a more complete presentation of requirements for such Goals, see the federally required document "Goals for Employment of Females and Minorities" set forth in the next 6 pages below.

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Start of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

§60-4.2 Solicitations

(d) The following notice shall be included in, and shall be part of, all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of $10,000 to be performed in geographical areas designated by the Director pursuant to §60-4.6 of this part (see 41 CFR 60-4.2(a)):

Notice of Requirement for Affirmative Action to Ensure Equal Opportunity (Executive Order 11246)

1. The Offeror's or bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Goals for female participation in each trade 6.9%

Goals for minority participation for each trade
Maine
001 Bangor, ME 0.8%
Non-SMSA Counties (Aroostook, Hancock, Penobscot, Piscataquis, Waldo, Washington)

002 Portland-Lewiston, ME
SMSA Counties: 4243 Lewiston-Auburn, ME 0.5%
(Androscoggin)

6403 Portland, ME 0.6%
(Cumberland, Sagadahoc)

Non-SMSA Counties: 0.5%
(Franklin, Kennebec, Knox, Lincoln, Oxford, Somerset, York)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be in violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor, estimated dollar amount of the subcontract; estimated started and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the Contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department form 941;

   d. "Minority" includes:
      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of the North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor, is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors for Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a. through p. of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specific.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant, thereto.

6. In order for the non working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the

apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as expensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation, coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, when possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment sources or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.

   f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific

review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment, efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing prior to the date for the acceptance of applications for apprenticeship or the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of

solicitation to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7 a through p.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7 a through p. of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program and reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions take on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both make and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, specific minority group of women is underutilized.)

10. The Contractor shall not use the goals and timetables or affirmative action even through the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementation regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the

requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.6.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and location sat which the work was performed. Records be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

End of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

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D. Disadvantaged Business Enterprise (DBE) Requirements The Department has established an annual Disadvantaged Business Enterprise goal to be achieved through race neutral means. This goal will adjusted periodically and will be provided by Supplemental Provision. The Contractor shall comply with all provisions of this section regarding DBE participation and the Department's latest version of the Disadvantaged Business Enterprise Program Manual, said Manual being incorporated herein by reference. In the case of conflict between this Contract and said Manual, this Contract shall control. The Department reserves the right to adjust DBE goals on a project-by-project basis by addendum.

Policy. It is the Department's policy that DBEs as defined in 23 CFR Part 26 and referenced in the Transportation Equity Act for 21st Century of 1998, as amended from the Surface Transportation Uniform Relocation Assistance Act of 1987, and the Intermeddle Surface Transportation Efficiency Act of 1991. The intent hereto remains to provide the maximum opportunity for DBEs to participate in the performance of contracts financed in whole or in part with federal funds.

The Department and its Contractors shall not discriminate on the basis of race, color, national origin, ancestry, sex, age, or disability in the award and performance of DOT assisted contracts.

Disadvantaged Business Enterprises are those so certified by the Maine Department of Transportation Civil Rights Office prior to bid opening date.

The Department has determined that elements of a good faith effort to meet the contract goal include but are not limited to the following:

1. Whether the Contractor advertised in general circulation, trade association, and minority/women's-focus media concerning the subcontracting opportunities;

2. Whether the Contractor provided written notice to a reasonable number of specific DBEs that their interest in the contract is being solicited;

3. Whether the Contractor followed up on initial solicitations of interest by contacting DBEs to determine with certainty whether the DBEs were interested;

4. Whether the Contractor selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goals;

5. Whether the Contractor provided interested DBEs with adequate information about the plans, specification and requirements of the contract;

6. Whether the Contractor negotiated in good faith with interested DBEs, not rejecting the DBE as unqualified without sound reasons based on a thorough investigation of their capabilities;

7. Whether the Contractor made efforts to assist interested DBEs with other appropriate technical/financial assistance required by the Department or Contractor;

8. Whether the Contractor effectively used the services of available minority/women's community organizations, minority/women's business assistance offices; and other organizations that provide assistance in the recruitment and placement of DBEs.

Substitutions of DBEs. The following may be acceptable reasons for Civil Rights Office approval of such a change order:

- The DBE defaults, voluntarily removes itself or is over-extended;
- The Department deletes portions of the work to by performed by the DBE.

It is not intended that the ability to negotiate a more advantageous contract with another certified DBE be considered a valid basis for such a change in DBE utilization once the DBE Bid Submission review has been passed. Any requests to alter the DBE commitment must be in writing and included with the change order.

Failure to carry out terms of this Standard Specification shall be treated as a violation of this contract and will result in contract sanctions which may include withholding of partial payments totaling the creditable dollars amount which would have been paid for said DBE participation, termination of this contract or other measures which may affect the ability of the Contractor to obtain Department contracts.

Copies of the Maine Department of Transportation's DBE Program may be obtained from:
Maine Department of Transportation
Civil Rights Office
#16 State House Station
Augusta, Maine 04333-0016
tel. (207) 624-3519

Quarterly Reporting Requirement. The Contractor must submit Semi-annual reports of actual dollars paid to Disadvantaged Business Enterprises (DBE's) on this Project to the MDOT Civil Rights Office by the end of the third week of April and October for the period covering the preceding six months considered Federal Fiscal Year periods. The reports will be submitted directly to the Civil Rights Office on the form provided in the latest version of the DBE Program Manual. Failure to submit the report by the deadline may result in a withholding of approval of partial payment estimates by the Department.

SECTION 3 - OTHER FEDERAL REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 3 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Buy America

If the cost of products purchased for permanent use in this project which are manufactured of steel, iron or the application of any coating to products of these materials exceeds 0.1 percent of the contract amount, or $2,500.00, whichever is greater, the products shall have been manufactured and the coating applied in the United States. The coating materials are not subject to this clause, only the application of the coating. In computing that amount, only the cost of the product and coating application cost will be included.

Ore, for the manufacture of steel or iron, may be from outside the United States; however, all other manufacturing processes of steel or iron must be in the United States to qualify as having been manufactured in the United States.

United States includes the 50 United States and any place subject to the jurisdiction thereof.

Products of steel include, but are not limited to, such products as structural steel, piles, guardrail, steel culverts, reinforcing steel, structural plate and steel supports for signs, luminaries and signals.

Products of iron include, but are not limited to, such products as cast iron grates.

Application of coatings include, but are not limited to, such applications as epoxy, galvanized and paint.

To assure compliance with this section, the Contractor shall submit a certification letter on its letterhead to the Department stating the following:

> "This is to certify that products made of steel, iron or the application of any coating to products of these materials whose costs are in excess of $2,500.00 or 0.1 percent of the original contract amount, whichever is greater, were manufactured and the coating, if one was required, was applied in the United States."

B. Materials

a. Convict Produced Materials References: 23 U.S.C. 114(b)(2), 23 CFR 635.417

Applicability: FHWA's prohibition against the use of convict material only applies to Federal-aid highways. Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if: 1) such materials have been produced by convicts who are on parole, supervised release, or probation from a prison; or 2) such material has been produced in a qualified prison facility, e.g., prison industry, with the amount produced during any 12-month period, for use in Federal-aid projects, not exceeding the amount produced, for such use, during the 12-month period ending July 1, 1987.

Materials obtained from prison facilities (e.g., prison industries) are subject to the same requirements for Federal-aid participation that are imposed upon materials acquired from other sources. Materials manufactured or produced by convict labor will be given no preferential treatment.

The preferred method of obtaining materials for a project is through normal contracting procedures which require the contractor to furnish all materials to be incorporated in the work. The contractor selects the source, public or private, from which the materials are to be obtained (23 CFR 635.407). Prison industries are prohibited from bidding on projects directly (23 CFR 635.112e), but may act as material supplier to construction contractors.

Prison materials may also be approved as State-furnished material. However, since public agencies may not bid in competition with private firms, direct acquisition of materials from a prison industry for use as State-furnished material is subject to a public interest finding with the Division Administrator's concurrence (23 CFR 635.407d). Selection of materials produced by convict labor as State-furnished materials for mandatory use should be cleared prior to the submittal of the Plans Specifications & Estimates (PS&E).

b. Patented/Proprietary Products References: 23 U.S.C. 112, 23 CFR 635.411

FHWA will not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

- the item is purchased or obtained through competitive bidding with equally suitable unpatented items,
- the STA certifies either that the proprietary or patented item is essential for synchronization with the existing highway facilities or that no equally suitable alternative exists, or
- the item is used for research or for a special type of construction on relatively short sections of road for experimental purposes. States should follow FHWA's procedures for "Construction Projects Incorporating Experimental Features" (expermnt.htm) for the submittal of work plans and evaluations.

The primary purpose of the policy is to have competition in selection of materials and allow for development of new materials and products. The policy further permits materials and products that are judged equal may be bid under generic specifications. If only patented or proprietary products are acceptable, they shall be bid as alternatives with all, or at least a

reasonable number of, acceptable materials or products listed; and the Division Administrator may approve a single source if it can be found that its utilization is in the public interest.

Trade names are generally the key to identifying patented or proprietary materials. Trade name examples include 3M, Corten, etc. Generally, products identified by their brand or trade name are not to be specified without an "or equal" phrase, and, if trade names are used, all, or at least a reasonable number of acceptable "equal" materials or products should be listed. The licensing of several suppliers to produce a product does not change the fact that it is a single product and should not be specified to the exclusion of other equally suitable products.

c. State Preference References: 23 U.S.C. 112, 23 CFR 635.409

Materials produced within Maine shall not be favored to the exclusion of comparable materials produced outside of Maine. State preference clauses give particular advantage to the designated source and thus restrict competition. Therefore, State preference provisions shall not be used on any Federal-aid construction projects.

This policy also applies to State preference actions against materials of foreign origin, except as otherwise permitted by Federal law. Thus, States cannot give preference to in-State material sources over foreign material sources. Under the Buy America provisions, the States are permitted to expand the Buy America restrictions provided that the STA is legally authorized under State law to impose more stringent requirements.

d. State Owned/Furnished/Designated Materials References: 23 U.S.C. 112, 23 CFR 635.407

Current FHWA policy requires that the contractor must furnish all materials to be incorporated in the work, and the contractor shall be permitted to select the sources from which the materials are to be obtained. Exceptions to this requirement may be made when there is a definite finding, by MDOT and concurred in by Federal Highway Administration’s (FHWA) Division Administrator, that it is in the public interest to require the contractor to use materials furnished by the MDOT or from sources designated by MDOT. The exception policy can best be understood by separating State-furnished materials into the categories of manufactured materials and local natural materials.

Manufactured Materials When the use of State-furnished manufactured materials is approved based on a public interest finding, such use must be made mandatory. The optional use of State-furnished manufactured materials is in violation of our policy prohibiting public agencies from competing with private firms. Manufactured materials to be furnished by MDOT must be acquired through competitive bidding, unless there is a public interest finding for another method, and concurred in by FHWA’s Division Administrator.

Local Natural Materials When MDOT owns or controls a local natural materials source such as a borrow pit or a stockpile of salvaged pavement material, etc., the materials may be designated for either optional or mandatory use; however, mandatory use will require a public interest finding (PIF) and FHWA’s Division Administrator's concurrence.

In order to permit prospective bidders to properly prepare their bids, the location, cost, and any conditions to be met for obtaining materials that are made available to the contractor shall be stated in the bidding documents.

Mandatory Disposal Sites Normally, the disposal site for surplus excavated materials is to be of the contractor's choosing; although, an optional site(s) may be shown in the contract provisions. A mandatory site shall be specified when there is a finding by MDOT, with the concurrence of the Division Administrator, that such placement is the most economical or that the environment would be substantially enhanced without excessive cost. Discussion of the mandatory use of a disposal site in the environmental document may serve as the basis for the public interest finding.

Summarizing FHWA policy for the mandatory use of borrow or disposal sites:

- mandatory use of either requires a public interest finding and FHWA's Division Administrator's concurrence,
- mandatory use of either may be based on environmental consideration where the environment will be substantially enhanced without excessive additional cost, and
- where the use is based on environmental considerations, the discussion in the environmental document may be used as the basis for the public interest finding.

Factors to justify a public interest finding should include such items as cost effectiveness, system integrity, and local shortages of material.

C. Standard FHWA Contract Provisions - FHWA 1273

Unless expressly otherwise provided in the Bid Documents, the following "Required Contract Provisions, Federal Aid Construction Contracts", FHWA-1273, are hereby incorporated into the Bid Documents and Contract.

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Start of FHWA 1273 REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS(As revised through March 10, 1994)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

   Section I, paragraph 2;
   Section IV, paragraphs 1, 2, 3, 4, and 7;
   Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

   a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

   b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION (Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:
   a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

   b. The contractor will accept as his operating policy the following statement:
   "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment,

upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

2. EEO Officer. The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy. All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

   a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

   b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

   c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

   d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

   e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment. When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

   a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions. Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion.

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision

for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions. If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

   a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

   b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

   c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

   d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment. The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. Records and Reports. The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the MDOT and the Federal Highway Administration.

The Contractor will submit to the MDOT a report for the month of July, indicating the total hours worked by minority, women and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR-1391. If on-the-job training is being required by "Training Special Provision," the Contractor will be required to furnish Form FHWA-1409. The report is required for week ending July 15 and can be obtained from MDOT, is due by week ending August 20th. This report is to be furnished directly to MDOT - Civil Rights Office.

III. NONSEGREGATED FACILITIES (Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE (Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

   a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the

provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor

as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers. Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT). Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding. The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4

and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation. Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages. The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS (Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3). The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

   a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

   b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in

Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

   (1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

   (2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

   (3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

   a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

   b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

   c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

   a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor,

with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health

standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more that $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations

in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:
(Applicable to all Federal-aid contracts - 49 CFR 29)

   a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

   b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

   c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

   d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

   e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out

in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--
Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or

local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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2. Instructions for Certification - Lower Tier Covered Transactions: (Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--
Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING
(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
   a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

   b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a

Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

End of FHWA 1273