

Gold Nugget Market Interim Action Plan

1.0 INTRODUCTION AND SITE HISTORY

1.1. General

The Washington State Department of Ecology (Ecology) is conducting an interim remedial action at the Gold Nugget Market site in Buena, Washington. The work will be completed under a Public Works contract. Work generally shall consist of: excavating pipe trenches and installing air sparge (AS) piping disposing of potentially contaminated soil at an off-site permitted facility; backfilling trenches with on-site soil and/or imported fill and re-paving site excavations; installing AS system equipment including valves and manifolds; providing and installing an electrical connection to the AS remediation system; and constructing a treatment compound.

The site is located near the intersection of Yakima Valley Highway and Buena Road. The Gold Nugget Market property measures about 0.83 acres, and is bounded on the north by Buena Road, on the west by Yakima Valley Highway, on the south by a residential property, and on the east by Buena Road extension. The Gold Nugget Market building is located approximately in the middle of the site. The north portions of the site are paved with asphalt concrete or gravel surfacing. The south portions of the site are undeveloped. The site is relatively level, with a slight grade down towards the southwest.

GeoEngineers conducted site characterization activities at the site in 2010, including drilling four direct-push borings (DP-5 through DP-8) and drilling and installing three groundwater monitoring wells (MW-16 through MW-18) at or near the Gold Nugget Market. The groundwater sample collected from monitoring well MW-17 in July 2010, installed in the general area of the former underground storage tanks (USTs), was contaminated with gasoline-range petroleum hydrocarbons (GRPH) and benzene greater than Model Toxics Control Act (MTCA) Method A cleanup levels. Groundwater samples collected from MW-17 during subsequent groundwater sampling events completed by Ecology in December 2010, March 2011 and June 2011 also indicated groundwater underlying the Gold Nugget Market site was contaminated with GRPH and benzene at concentrations greater than MTCA Method A cleanup levels. Groundwater samples collected from monitoring well MW-18, located about 200 feet southwest (downgradient) from MW-17, were not contaminated with petroleum hydrocarbons. In July 2010, groundwater flow direction appeared to be south-southeast under a gradient of approximately 0.005 feet per foot (ft/ft). Additional subsurface explorations were completed in November 2011.

Previous site remediation work completed by others also included excavation, land farming and replacement of shallow (vadose zone) contaminated soil. However, analytical results of soil samples collected during recent soil investigation activities indicated that petroleum contaminated soil remained on the site.

The interim action is being conducted in accordance with the Model Toxics Control Act (WAC 173-340-430). The interim action is intended to reduce petroleum hydrocarbon contamination in groundwater beneath the Site. All work will be directly contracted by Ecology. Ecology plans to designate GeoEngineers to serve as Ecology's on-site representative (Ecology's Representative). The minimum tasks necessary to complete work include:

- Site preparation such as installing temporary facilities and site controls; erosion and sediment controls; protecting existing utilities.
- Excavate shallow trenches and install piping that connects the AS wells to the remediation system compressor.
- Dispose of petroleum contaminated soil excavated from the trenches at a permitted facility.
- Backfill, compact, grade, and pave the trenches using clean reusable site soil and imported fill.
- Construct a fenced and gated treatment compound.
- Purchase, transport, and install AS system equipment.
- Subcontract a qualified electrician to provide power to the remediation system.

Other, non-listed tasks might be required to satisfactorily complete the work. Four AS injection wells will be installed by others prior to initiating the work described in these specifications.

2.0 CONTACTS/ROLES

The following provides a listing of parties that will be involved in the remedial actions at the Site including Ecology, (regulatory agency and Owner) and Ecology’s Representative. All questions, comments and requests regarding this RFP shall be addressed to Ecology or Ecology’s Representative.

2.1. Ecology

Name: Washington State Department of Ecology
 Contact: Mary Monahan
 Address: 15 West Yakima Avenue, Suite 200, Yakima, Washington 98902-3452
 Phone: (509) 454-7840
 E-mail: mmon461@ecy.wa.gov

2.2. Owner’s Representative

Name: GeoEngineers, Inc.
 Contacts: David Lauder – Project Manager/Engineer
 Bruce Williams – Principal
 Address: 523 East Second Avenue, Spokane, Washington 99202
 Phone: 509.363.3125
 Fax: 509.363.3126
 E-mail: dlauder@geoengineers.com
bwilliams@geoengineers.com

Additional representatives might be retained by Ecology during execution of work as necessary. Ecology’s Representative listed above shall be the main point of contact for coordination between the Contractor, other Ecology representatives and Ecology. In these specifications, “Ecology’s Representative” is synonymous with “Ecology”.

3.0 REFERENCES

All work under the Contract shall be done in accordance with this document and, insofar as they may apply, the most current edition of the following codes, specifications, standards and guides, and others as specified elsewhere in these specifications.

- American Conference of Governmental Industrial Hygienists (ACGIH)
- American Public Works Association (APWA)
- American Society for Testing and Materials (ASTM)
- Environmental Protection Agency (EPA)
- Hazardous Waste Operations (HAZWOPER)
- Model Toxics Control Act (MTCA)
- Manual of Uniform Traffic Control Devices (MUTCD)
- National Institute of Occupational Safety and Health (NIOSH)
- Occupational Safety and Health Administration (OSHA)
- Washington Administrative Code (WAC)
- Washington Department of Occupational Safety and Health (WDOSH)
- Washington Industrial Safety and Health Act (WISHA)
- Washington State Department of Transportation (WSDOT)
- COORDINATION OF OPERATIONS

The Contractor shall conduct their operations in a manner that causes the least possible obstruction and inconvenience to any activities of the surrounding businesses and the public. The Contractor shall conduct site activities in a manner to cause the least disturbance to the operation of the Gold Nugget Market. At its sole expense, the Contractor shall furnish, erect, and maintain temporary fences, vehicular barricades, signs, lights, and cones as may be necessary to provide access to abutting streets and to warn the public and on-site personnel of work in progress. Coordination of all traffic and traffic control devices shall be in accordance with the current MUTCD, WSDOT, and local standards. The Contractor shall coordinate all activities with other contractors in the area when necessary.

■ REGULATIONS AND PERMITS

This interim cleanup action is being implemented in accordance with WAC 173-340-430 Interim Actions. WAC 173-340 is known as the MTCA Cleanup Regulations. Relevant regulations for the Site include, but are not necessarily limited to:

General Health and Safety: WAC 296-155 (Safety Standards for Construction); WAC 296-843 (Hazardous Waste Operations (HAZWOPER) regulations); 29 CFR 1910 (Occupational Safety and Health Standards); 29 CFR 1926 (Safety and Health Regulations for Construction); 29 CFR 1910.120 specifies health and safety standards at hazardous waste sites.

Waste Characterization: Waste generated during the remediation will be characterized by the Ecology or Ecology's Representative in accordance with WAC 173-303. The Contractor will not be responsible for costs related to waste characterization, except where indicated in these specifications.

Solid Waste Management: WAC 173-304 specifies requirements for the proper handling of all solid waste materials. The Contractor will be responsible for complying with these requirements when solid waste is to be transported off of the Site.

Noise Control: The Contractor shall control noise to meet the requirements of WAC 173-60. WAC 173-60-050 (3) (a) should exempt the project from the requirements of WAC 173-60-040. The Contractor shall conduct work in a manner that prevents public disturbance noise between the hours of 7:00 p.m. and 7:00 a.m.

Air Monitoring: During earthwork activities, the Contractor shall employ appropriate dust suppression methods to keep total dust below 5.0 mg/m³. If this level is attained at any time, additional dust suppression shall be implemented. The Contractor shall monitor the site boundaries for volatile organic compounds (VOC) in accordance with their approved Health and Safety Plan (HASP). VOC concentrations exceeding the action levels instituted in the HASP will activate the appropriate response as described in the HASP. All dust control plans and dust suppression activities will adhere to the requirements and regulations established by the Yakima Regional Clean Air Agency (YRCAA).

4.0 UTILITIES AND MONITORING WELLS

The Contractor shall be responsible for providing water supply services to the Site for the scope of work specified in this document. A portable water supply will be acceptable provided all applicable health and safety standards are met.

The Contractor shall be responsible for providing electrical services, as needed, for the project. The Contractor will be responsible for coordinating permitting, installation, inspection and final energizing of a new 3-phase electrical service to be installed at the location of the treatment system compound. The new electrical service will be metered and setup as a separate utility account with Ecology's contact information listed above.

The Contractor shall be responsible for locating, marking, protecting, and capping all existing Site utilities in accordance with these specifications and all applicable regulations. This includes calling the One-Call telephone number (1-800-424-5555) and local utilities as needed. The Contractor also shall utilize a private utility locator to locate private utility lines.

The Contractor also shall protect AS wells and groundwater monitoring wells located at the site. The Contractor shall be responsible for marking and protecting wells. The Contractor shall leave a 3-foot buffer around monitoring wells undisturbed by construction activities. Damage to wells shall be repaired by Ecology or Ecology's Representative at the Contractor's expense. Costs for repairs shall be deducted from the other pay items in these specifications.

5.0 SAFETY

1. The Contractor shall be solely and completely responsible for Site conditions and safety during the term of the Contract. This obligation shall include the safety of all persons within or affected by the line of construction, and all private and public property affected by the work.
2. The Contractor shall prepare a site-specific HASP for review by Ecology's Representative prior to initiating the work. Required submittals relating to health and safety are described in **Section 10.2** and **10.3** of these specifications.
3. The Contractor shall be fully responsible to comply with all federal OSHA regulations that apply to this Contract.
4. The Contractor's responsibility shall be continuous and not limited to working hours or days, and shall not cease until Ecology fully accepts the work.
5. The Contractor shall be responsible for posting signs that comply with federal, state, and local agencies rules and requirements.
6. The Contractor shall give a "clear and reasonable warning" to its employees and the general public for any workplace or environmental exposure which results from its activities during the course of this project.
7. The Contractor shall be responsible for furnishing, erecting, and maintaining fences, barriers, lights and signs as necessary for physical security, public safety and safety of its workers. The Contractor shall secure the fencing at the end of each working day.
8. The Contractor shall store fuel, water and equipment required for the work within the designated Support Zone or in the active construction areas approved by Ecology.

6.0 PROJECT SUPERVISION

6.1. Contractor's Supervision

The Contractor shall provide the services of a full-time, experienced and qualified construction field superintendent who shall be assigned to the job during the course of the work. The person designated as construction field superintendent shall have direct charge of the work and shall be authorized to accept and execute all orders and directions issued by Ecology. The construction field superintendent shall be readily available during normal work hours for consultation with Ecology and be physically on the job Site during Site activities. The construction field superintendent shall not be removed or replaced during the entire course of the contract work without the written approval of Ecology.

6.2. Job Site Administration

Ecology or Ecology's Representative will represent Ecology on the Site.

7.0 SITE WORK

All intrusive/sub-grade Site work described in this contract shall be completed by 40-hour HAZWOPER trained personnel. Supervision of personnel at the Site shall be performed by individuals that have received appropriate Hazardous Waste Site Supervisors training. Work performed by personnel without

HAZWOPER training (i.e., electrical subcontractor, equipment delivery personnel, surveyors, etc.) must be performed prior to initiating subgrade work expected to expose contaminated soil or outside an exclusion zone set up by the Contractor or after excavations have been backfilled and possible contact with contaminated soil is no longer expected.

The attached plan set includes:

- Sheet G1.0 : Cover Sheet – Table of Contents for Plans and maps showing location of Site.
- Sheet G1.1: Project Overview – Summary of project elements; location of site features.
- Sheet C1.0 : Remediation System Layout – Plan view presentation of AS wells, proposed conveyance piping and trench layout, and location of treatment system compound.
- Sheet C1.1 : AS System Piping and Instrumentation Diagram – Presents P&ID of proposed AS and vapor treatment components.
- Sheet D1.0 : AS System Details – Presents detailed drawings of specific AS system components.
- Sheet D1.1 : Construction Details – Presents detailed drawings of general site construction components.

7.1. Mobilization and Demobilization

Mobilization consists of providing all construction equipment, materials and supplies, temporary electrical and fresh water supplies to complete the contract work. Demobilization includes removing all equipment, remaining materials and supplies, and all temporary facilities, and cleanup of the Site at the completion of this contract work as provided in these Specifications.

7.2. Site Preparation

All work shall be performed in accordance with the following specifications except as may be exempted or modified by these contract documents. These specifications are included by reference, made a part of this Sub-Section and shall control and guide activities where referred to directly, paragraph by paragraph.

- WSDOT/APWA “2012 Standard Specifications for Road, Bridge and Municipal Construction” as amended by the APWA Supplements, hereinafter referred to as the “Standard Specifications”.

In conjunction to these standard specifications, the following other specifications and standard plans shall apply to the extent to which they are called out in these Plans and Specifications.

- All other requirements or permits as identified by Yakima County, YRCAA, or State of Washington.

The Contractor shall complete the following activities before performing any excavation actions:

1. Clearing and grubbing and installation of temporary facilities and controls;
2. Installation of temporary erosion and sedimentation controls (TESC);
3. Installation of temporary security fencing;
4. Identification of utilities; and
5. Protecting and capping site utilities.

Descriptions of specific tasks relating to these activities are provided below.

7.2.1. Temporary Facilities and Site Controls

The Contractor shall supply all materials, equipment and labor necessary to clear and grub the site of existing vegetation and to install the temporary facilities and controls at the locations indicated in the Plans. The Contractor shall:

1. In consultation with Ecology's Representative, establish a Support Zone for storage, sanitary facilities, hand washing facilities and parking for non-construction vehicles.
2. Provide, maintain and pay for suitable quantity of water service for the activities related to the contract work including dust suppression. Provide potable water and portable restrooms within the designated Support Zone. Provide, maintain and pay for suitable quantity of water service for the activities related to the contract work. Contractor shall attain applicable permits to provide potable water and portable restrooms within the designated Support Zone.
3. Be responsible for identifying and marking adjacent right-of-ways. Work activities and equipment staging, including the temporary security fence, shall not infringe on adjacent right-of-ways or private property.
4. Provide and maintain in clean, good working order, an emergency decontamination and eye wash station.
5. Provide portable units for sanitary waste that shall be regularly collected by a licensed sanitary waste management contractor and disposed of in an appropriate manner.
6. Provide all power for operation of Contractor's equipment, or for any other use by the Contractor at the Contractor's expense.
7. In consultation with Ecology, establish and lay out work zones and establish boundaries, barriers, facilities and controls to ensure that all personnel and equipment exiting the Exclusion Zone shall pass through the Decontamination Zone before entering the Support Zone and before exiting the Site.
8. Be responsible for maintaining construction equipment and machinery on Site and ensuring that equipment is in proper working order. The Contractor shall inspect equipment and machinery for fluid leaks prior to mobilization on Site. Maintain spill response kits and materials onsite to respond to fuel spills or equipment leaks. The Contractor shall be solely responsible for excavation and disposal of soil contaminated by fluid leaks and spills.
9. Remove existing site fencing as needed to excavate trenches and conduct site operations. Contractor shall replace fencing at the conclusion of site activities.
10. Prevent tracking of soil or contaminants onto any public right-of-way or private property during all contract work. During the construction activities, Contractor shall be responsible for all costs associated with removal and/or cleanup of materials located outside of the Contractor Limits of Work and any damage that may have been caused by the materials.
11. For work involving the excavation of contaminated materials, the Contractor shall:

- a. Prepare a decontamination pad in the Decontamination Zone on Site within the Exclusion Zone for vehicle and personnel decontamination. The Contractor shall provide facilities to decontaminating vehicles, equipment and personnel prior to leaving the Exclusion Zone.
 - b. Provide a drainage and collection system for wastewater generated during decontamination procedures. The wastewater shall be transferred to on-site storage tanks provided by the Contractor. The water collection system shall be approved by Ecology's Representative prior to collection.
12. Contractor shall use an approved construction entrance for ingress/egress to the Site during Site work, unless otherwise approved by Ecology.
13. Install temporary chain link fencing around the working area of the Site such that all equipment and unfinished sub-grade work (trenches, etc.) are within the fence and secured. The Contractor shall furnish and post signs at a spacing no greater than 100 feet warning the general public that the Site contains physical and chemical hazards and that the access is forbidden to unauthorized persons. The Contractor shall furnish all other required signage required by local, state or federal regulations, and/or Ecology warning the public of construction activities on Site. The Contractor shall provide the posts or supports and erect and maintain the signs in a clean, neat and presentable condition until the necessity for them has ceased. Temporary fencing shall not encroach into the right-of-way of the adjacent streets or neighboring properties. The Contractor shall be responsible for determining the location of the right-of-way and property boundaries and marking them in the field.
- a. After concluding trenching, piping and backfill to AS-1, the Contractor shall move the temporary security fence to not encroach on the Gold Nugget Market parking area.
14. Contractor shall remove the temporary fencing upon completion of the contract work, upon approval by Ecology.

7.2.2. Temporary Erosion and Sedimentation Controls (TESC)

Dust control techniques will be implemented for activities that could generate dust in accordance with the Contractor's approved Work Plan and HASP. The Contractor shall comply with applicable Federal, State and local regulations. Dust control can include but is not limited to spraying exposed surfaces with water and repeating as necessary throughout the course of construction. Water applied as dust control shall not leave the Site as surface runoff.

Dust control techniques must be approved by Ecology prior to application. Routine maintenance of chosen dust control technique is necessary to keep dust to a minimum. Contractor shall coordinate use of possible water sources from public or private sources to provide dust control throughout the contract work. The Contractor is responsible for a use permit and associated expenses, as required.

1. Surrounding roads will be kept clean of debris and mud associated with construction vehicles and equipment. Any sediment that is tracked onto pavement shall be removed by shoveling or street sweeping. The sediment removed by sweeping shall be disposed with trenching spoils. The pavement shall not be cleaned by washing down the street, except when sweeping is ineffective. Runoff from street washing must be controlled and stabilized on Site. If the entrance and exit to the Site is tracking sediment onto pavement areas, then alternative measures to keep the roads free of

sediment must be implemented. Any cost incurred by Ecology for cleaning up litter or mud shall be charged to the Contractor and deducted from funds paid for the Work.

2. Install stormwater controls, such as berms, as needed, within the limits of work area to avoid any stormwater runoff discharge and to avoid any stormwater run-on into the work area. Stormwater controls will be approved by Ecology's Representative prior to placement.
3. Contain decontamination water, and stormwater runoff in excess of natural infiltration within the Exclusion Zone. The decontamination water and excess stormwater runoff shall be collected and stored in on-site water storage tanks and transported off Site for disposal at a facility licensed to dispose of the water. The tanks shall be equipped with readily accessible sampling ports for Ecology's Representative to collect water samples. The Contractor shall be responsible for sampling and adequately characterizing the water to meet the acceptance requirements for disposal at a licensed facility. Water testing information and anticipated disposal method for the water shall be submitted to Ecology's Representative for approval prior to disposal of water.

7.3. Trenching

7.3.1. Excavation, Soil Handling, and Disposal

The Contractor shall supply all materials, equipment and labor necessary to excavate trenches for the AS piping from the areas indicated on the Plans. Portions of the excavated soil might be contaminated with gasoline-, diesel-, or oil-range petroleum hydrocarbons, requiring stockpiling and characterization to determine disposal requirements. The Contractor shall:

1. Stake trench boundaries indicated on the Plans prior to excavation and protect and preserve the survey stakes during the work.
2. Remove concrete and asphalt as necessary to excavate trenches to the lines and grades indicated on the Plans. Saw-cut existing concrete and asphalt in order to provide uniform joints upon patching. Concrete and asphalt shall be disposed at a permitted facility in accordance with all applicable regulations.
3. Be solely responsible for excavation slope stability. Excavation work shall be in compliance with applicable OSHA regulations and in accordance with the Contractor's HASP.
4. Control dust emissions and odors during excavation activities in accordance with these specifications and the project HASP. Dust control techniques will be implemented for construction activities that generate large amounts of dust.
5. Perform excavation in a manner that does not disturb or damage existing structures, utilities or other facilities not indicated to be removed including the existing AS wells and monitoring well, unless the removal of such items is shown on the Plans. Damaged facilities shall be repaired or replaced at the Contractor's expense as determined by Ecology or Ecology's Representative.
6. Support all existing utilities during excavation activities to not cause damage and to protect on-site workers.
7. Stockpile excavated soil in a temporary Stockpile Area approved by Ecology for characterization by Ecology, as necessary. The Contractor shall seek pre-approval for soil reuse or disposal at a local permitted facility based on assessment sample results provided by Ecology. If additional characterization is required, the Contractor shall assist Ecology's Representative in obtaining soil

stockpile samples. The Ecology representative will assist the Contractor with identifying potentially contaminated and non-contaminated soil, so the Contractor can keep the uncontaminated soil separate from contaminated soil. Based on characterization results, reuse excavation soil as trench backfill or load and haul material to the selected landfill facility as directed by Ecology.

8. Vehicles or containers shall be carefully loaded to prevent site materials from coming in contact with exterior vehicle or container surfaces. The Contractor shall be solely responsible for proper loading and abiding by the load limits and weight limits, for all vehicles leaving the Site. All fines, taxes, penalties or judgments resulting from overweight or improperly loaded vehicles or containers shall be the Contractor's responsibility. Multiple handling of soil shall be at the Contractor's expense. Soil stockpiles shall be placed on a low permeability surface (plastic sheeting or existing pavement), bermed and tarped or otherwise managed by the Contractor to prevent contaminated soil from being mobilized off the site by wind or in precipitation runoff. Berming and tarping of the stockpiles shall be considered as a subsidiary obligation of the Contractor. No separate measurement and payment shall be made for berming, tarping, or other management of the stockpile areas.
9. Prevent cross-contamination of clean areas and cross-contamination of backfill materials and release of contaminated material outside of the Exclusion Zone using methods approved by Ecology or Ecology's Representative. The Contractor shall excavate any cross-contaminated material at the Contractor's expense and as directed by Ecology's Representative.
10. Be responsible for coordination associated with off-site transportation and disposal. Transport and disposal of impacted material in accordance with applicable local, state and federal regulations shall be the responsibility of the Contractor. The Contractor shall visually inspect and decontaminate the exterior of all vehicles or containers in compliance with all applicable regulations. The Contractor shall have the sole responsibility of coordinating the number of trucks, loading operations and hours of loading and hauling with the disposal facility. The Contractor shall coordinate transportation of impacted material with excavation work to maintain project schedule. Contractor's operations shall be coordinated to minimize standby time, truck-waiting time, and to maximize excavation and hauling production.
11. Contaminated material shall be delivered by the Contractor to an approved disposal facility licensed in accordance with federal, state and/or local regulations, laws and zoning. The Contractor shall be responsible to pay for all fees for waste disposal. Contaminated soil is expected to be able to be disposed at a Subtitle D landfill as contaminated but non-hazardous soil. Transportation and disposal as Washington state dangerous waste may be required if benzene concentrations exceed applicable limits.
12. Material identified by Ecology as non-contaminated will be segregated and stockpiled on site for future use as trench backfill material. No excavated material removed from the trenches will be re-used as backfill without authorization from Ecology. Ecology will determine suitability of on-site non-contaminated soil for reuse as trench backfill. Non-contaminated material which is determined by Ecology to be unsuitable shall be disposed of at an approved disposal facility licensed in accordance with federal, state and/or local regulations, laws and zoning. The Contractor shall be responsible to pay for all fees for disposal.
13. All completed waste disposal records shall be submitted to Ecology or Ecology's Representative as part of the paperwork necessary for closeout and payment for work done under this contract.

14. Loaded haul trucks shall follow the approved haul route to the disposal facility and return to the Site. The truck driver shall document the stops, other than traffic controls, in the vehicle logs prepared by the Contractor.
15. Promptly clean up any spills on haul routes, if they occur, with suitable equipment at the Contractor's expense. Keep all routes, public-rights of way and private property free of any Site materials due to the Contractor's operations. All Contractor haul trucks shall be covered per regulation. Decontaminate haul trucks or containers as necessary at an appropriate off-site facility. Costs for decontaminating haul trucks will be at the Contractor's expense.

7.4. Piping, Wellheads and Manifolds, and Backfill

The Contractor shall supply all materials, equipment and labor necessary to construct AS well-head connections, conveyance piping, and manifold. All material (pipes, valves, gauges, and fittings) shall be new, off-the-shelf, and standardized. After completing trenching, installation of piping and well connections the Contractor shall set new well monuments at each of the four AS wells and backfill trenches in accordance with the Plans and Specifications. The contractor shall:

1. Remove existing monuments at remediation wells AS-1 through AS-4. The monuments will be set by others in gravel. The Contractor shall protect and save the existing monuments for reuse.
2. Construct a piping manifold in the remediation component to connect the remediation wells to the compressor. The manifold will be constructed using 2-inch-diameter schedule 40 steel pipes conforming to ASTM A53 specifications. A construction schematic of the AS manifold is shown in Sheet D1.0 of the Plans.
3. Configure the AS manifold with valves/fittings so that treatment wells can be easily connected or disconnected to the treatment systems.
4. Install airtight, locking well cap assemblies on each treatment well.
5. Connect the AS lines to the treatment wells as shown on Sheet D1.0. The piping shall be connected to the wells below the ground surface using T-couplers. The depths of the connections will depend on the requirement for maintaining a minimum cover of 24 inches over the top of the piping.
6. Set new 12-inch diameter steel monuments for the remediation wells AS-1 through AS-4 in concrete after completing the wellhead connections.
7. The Contractor shall construct piping intersections within the trenches using sweeps with a minimum 2-foot radius as depicted on Sheet C1.0.
8. The four remediation wells (AS-1 through AS-4) will be connected to the AS injection points using 2-inch-diameter Schedule 80 PVC piping. The PVC piping will be placed directly in the trenches (no conduit).
9. The manifold and injection points will be connected using 1-inch rubber hose rated for the pressure and temperature applied by the compressor.
10. All AS manifold system valves shall consist of steel ball valves rated to handle the pressure and temperature generated by the compressor.

11. The Contractor shall purchase and install all pressure gauges, flow indicators, and valves as indicated on Sheet C1.1 on the manifold. The Contractor shall install commercially available and new gauges and indicators appropriate for the specified air flow characteristics.
12. Typical placement of the PVC remediation piping is shown in Sheet D1.0.
13. Each PVC airline will be tested for tightness after placement in the trench (and before connecting to the well) by applying 10 psi air for 20 minutes. If leaks are detected, the leaks will be located and repaired by the Contractor to Ecology's satisfaction at no additional cost to Ecology.
14. Each PVC line also will be tested for tightness after backfilling and connecting to the well by applying 10 psi air for 20 minutes (See No. 13).
15. Remediation piping will be labeled at the manifold with the corresponding well number.
16. All remediation and utility piping shall be installed per applicable code.
17. Pipes shall be surrounded with at least 6 inches of pipe bedding material meeting WSDOT standard specification 9-03.12 (3) "Gravel Backfill for Pipe Zone Bedding". Trenches shall be backfilled with either suitable on-site soil or imported structural fill. Imported structural fill shall consist of material meeting WSDOT standard specification 9-03.14(3) for "Common Borrow". Pipe zone bedding and trench backfill shall be compacted to at least 95 percent of maximum dry density based on the ASTM D1557 laboratory procedure.
18. Certification shall be provided by the Contractor from the borrow source that the imported backfill is not contaminated. If acceptable certification is not provided, proposed borrow sources may be sampled by Ecology's Representative and tested for potential contaminants at the Contractor's expense. Backfill material sources shall be approved by Ecology prior to transport to the site. Backfill shall be from local commercial pits with current WSDOT approval as indicated in the WSDOT Aggregate Source Approval List.
19. Trenches that are completed in paved areas will be surfaced with 4 inches of compacted 5/8-inch-minus crushed rock meeting criteria in Section 9-03.9(3) of WSDOT Standard Specifications prior to pouring new concrete to match the existing pavement thickness. Backfill shall be imported from a commercially available source with current WSDOT source approval. The new concrete will have minimum 28-day strength of 4,000 psi.

7.5. Treatment System Compound

The Contractor shall provide all the labor, equipment, and materials to construct a treatment compound to enclose the remediation system. The compound will be located on the south side of the Gold Nugget Market building as depicted in Sheet C1.0. The Contractor shall:

1. Construct the compound to accommodate the compressor, heat exchanger, control systems, and piping manifold. The compound shall be large enough and the equipment shall be spaced to provide adequate room for monitoring and maintenance activities. A minimum clearance distance of 3 feet shall be maintained between equipment staged in the compound.

Install or construct an enclosed space for the air compressor such that the maximum decibel level during operation measured at the nearest exterior point of the Gold Nugget building is 85 decibels. Provide suitable airflow for the compressor unit such that temperatures inside the enclosure do not exceed operational tolerances of the equipment or cause a fire hazard.

2. Clear and remove any weeds and vegetation in the area of the treatment compound.
3. The Contractor shall purchase and install all pressure gauges, flow indicators, temperature gauges, switches, filters, and valves as indicated on Sheet C1.1 on the compound piping. The Contractor shall install gauges, indicators, and switches appropriate for the specified air flow characteristics.
4. Place, grade, and compact a 5/8-inch-minus crushed rock pad in at least a 4-inch lift to provide a level pad to place the treatment equipment.
5. The compound will be enclosed with a 6-foot tall chain link fence. The fence will include a lockable gate large enough to provide access to remove and replace equipment and will be fitted with black slats that fade to grey to provide a visual screen for the equipment enclosures.

7.6. Remediation Equipment

The Contractor shall supply all labor, materials and equipment to provide and install the required remediation equipment. Details of the remediation operation are described below and shown graphically on Sheet C1.1.

7.6.1. AS Remediation System

- The contractor shall deliver and install the AS system and connect it directly to the connections on the manifold. Major components of the AS system shall include:
 - AS rotary vane compressor with a particulate filter capable of supplying 15 SCFM to each AS well @ a maximum of 15 psi.
 - Pressure relief valve located after the compressor outlet. If pressure nears the maximum rated pressure of the compressor, the relief valve will be set to activate. A pressure gauge will be installed at the pressure relief valve. A high pressure shutoff switch shall be installed to activate when the pressure relief valve activates.
 - Heat exchanger to cool the air after the compressor. The heat exchanger shall have sufficient capacity to handle the flow, pressure, and temperature generated by the air compressor.
 - Temperature gauge, pressure gauges, and system shutoff controls.
- The Contractor shall connect AS system to electrical service and conduct startup and initial troubleshooting.
- Achieving successful continuous unattended operation of AS system for one week will constitute substantial completion of Contract. Continued operation and maintenance of system shall be performed by Ecology.

7.7. Electrical Power

The Contractor shall be responsible for coordinating permitting, installation, inspection and final energizing of a new 3-phase (if needed) electrical service to be installed at the location of the system compound. The new electrical service will be metered and setup as a separate utility account with Ecology being the account holder. The Contractor shall subcontract a qualified electrician to perform installation of electrical service and to connect remediation equipment to the new service. The electrical connections will be made in accordance with local code. The Contractor shall be responsible for coordinating an electrical inspection by the appropriate local agency prior to startup of the blower. All

electrical equipment required to complete remediation construction and operation will be connected to the new 3-phase power supply, including the following major components:

- Sparge compressor,
- Heat exchanger/air cooler,
- Control panel.

The subcontracted electrician shall also be responsible for wiring the control systems for the remediation system. The control panel shall be a NEMA 4 rated enclosure. The control panel shall include equipment on/off switches and an emergency shutoff. The electrician shall also install a 110-volt outlet near the control panel for use by Ecology’s Representative during operation and maintenance visits. A high pressure shutoff switch shall be connected to the air compressor. The Contractor shall provide Ecology a wiring diagram and troubleshooting guide before Ecology will accept the work and submit payment,

8.0 SUBMITTALS

8.1. General

The Contractor shall be responsible for providing the required pre-work submittals and post-work submittals as outlined in this section. Health and Safety Plan and Work Plan submittals shall be considered incidental to mobilization/demobilization. Backfill material source identification submittals shall be considered incidental to backfilling.

8.2. Pre-Work Submittals

Before any work has begun on the Site, the Contractor shall submit the following documents listed in Table 1 to Ecology’s Representative: Contractor’s Health and Safety Plan (HASP) and Contractor’s Work Plan. The Work Plan will include a Spill Prevention, Control and Countermeasure Plan (SPCC Plan) for responding to and managing spills and releases of fluids on the site. Compliance with specified work plan submittals is the Contractor’s responsibility. Approval of submittals does not release the Contractor from proper installation, compliance with applicable codes and regulations or coordination of work. Ecology’s Representative shall review submittals, mark to indicate action taken, and return promptly to the Contractor.

TABLE 1. CONTRACTOR PRE-WORK SUBMITTALS

Submittal	Delivery Schedule
Contractor HASP	10 days before commencing work
Work Plan, including Work Zone Plan	10 days before commencing work
Backfill Material Source Identification	10 days before material delivery

The Contractor shall submit the following Site work related documents during the entire course of the contract work:

1. Contractor Health and Safety Plan: Submit to Ecology’s Representative the Contractor’s proposed health and safety plan at least ten (10) calendar days before commencement of work. The plan shall

include, at a minimum, the necessary components of the Contractor's HASP as outlined in **Section 10.3** of these specifications.

2. Work Plan: Submit to Ecology's Representative a work plan at least ten (10) calendar days before commencement of work. The Work Plan shall cover means and methods for the proposed work. Detailed work plan shall be Site specific. Incomplete plans will not be approved. All construction delay costs related to an incomplete work plan will be at the Contractor's expense. The work plan shall include, at a minimum, the following information for excavation and contaminated materials handling:
 - a. Proof that all personnel have completed OSHA 40-hour hazardous waste operations training and have current 8-hour refresher training.
 - b. Proof that the Contractor's superintendent has completed 8-hour OSHA hazardous waste operations supervisor training.
 - c. Proof shall be submitted that all required permits and arrangements for transport and disposal of impacted materials at an approved site have been obtained, including proposed haul route, list of proposed waste haulers and vehicles, certifications of waste haulers, and copies of permits or approvals from regulatory agencies, state and local governments.
 - d. A SPCC Plan.
 - e. The sequence and schedule of the entire project.
 - f. Waste manifest forms or permits for transport and disposal impacted materials.
 - g. Revisions to Work Zone Plan as outlined in **Section 11.4** of these specifications, as necessary.
 - h. Submittal of the specifications for the proposed remediation equipment including: AS compressors, pipes, valves, fittings, control systems, and heat exchanger.
3. Backfill Material Source Identification: Provide information regarding the source of proposed imported backfill materials. Provide documentation/certification that proposed backfill is not contaminated. Suitable documentation includes results of analytical testing of backfill material for U.S. EPA Priority Pollutants to demonstrate that the backfill is free from contamination. Chemical testing on fill shall be performed at a frequency of one sample per every 1,000 tons of backfill material. The sample of material shall be collected at the source of the backfill material and the chemical analysis shall be completed before any material is brought on Site. Alternatively, Ecology's Representative may complete chemical testing at the Contractor's expense. Alternatively, a non-impacted certification may be obtained from the source and provided to Ecology's Representative at least fourteen (14) calendar days before scheduled delivery to the Site. The Contractor also shall provide adequate samples of the proposed materials for laboratory tests (grain-size analysis and compaction) to Ecology's Representative at this time. Ecology's Representative will complete grain-size analysis in accordance with ASTM C 136 and compaction testing in accordance with ASTM D 1557.

8.3. Contractor's Health and Safety Plan

The work includes the requirements for personnel health and safety to ensure adequate worker protection. The Contractor shall, at a minimum, meet all requirements of WAC 296-155, Safety Standards for Construction. Contractor shall also comply with WAC 296-843, which governs hazardous

waste operations in Washington State. Hazardous waste operations regulations (including a requirement for 40-hour or 80-hour OSHA hazardous waste training) will apply whenever exposure to hazardous materials is possible. Contractor shall provide the following health and safety documents to Ecology's Representative before the pre-construction conference at least ten (10) days before any equipment, supplies, or staff are mobilized to the Site. The plan must be Site specific, addressing hazards at the Site. A generic plan or corporate-wide plan is not acceptable. Ecology's Representative may halt or delay operations if Contractor does not provide an acceptable plan before the scheduled start date. An acceptable plan is a plan that meets the local, state, and federal requirements in both the opinion of Ecology's Representative's safety staff, and applicable local state or federal authority. Ecology's Representative reserves the right to require future modifications to the plan to meet requirements of local, state and federal regulations.

The Contractor shall submit the Health and Safety Plan to Ecology's Representative. Ecology's Representative will review the Health and Safety Plan and if any modifications are requested, the Contractor shall submit copies of the modified Health and Safety Plan to Ecology's Representative before beginning Site work.

Contractor shall ensure subcontractors perform their work in accordance with the HASP and all local, state and federal regulations. Ecology's Representative reserves the right to exclude subcontractors, or subcontractor employees who perform work in an unsafe manner or who do not comply with the project health and safety plan. Contractor shall supervise work of subcontractors at all times. Subcontractors shall never perform work without Contractor supervision. Exceptions to this requirement will be considered on a case-by-case basis. At least one Contractor employee shall have current first aid and CPR training while Contractor is on Site.

8.3.1. Contractor's Responsibility for Health and Safety

1. Contractor shall comply with any and all state and local ordinances and regulations.
2. Contractor shall have a duty of responsibility for the health and safety of Contractor's employees, its subcontractors, suppliers, agents, inspectors, visitors, the general public, and any others associated with or interacting with Contractor to provide labor, goods, or other services on the Site.
3. Contractor shall be responsible for emergency response planning and notification, and for actual response to any and all emergencies that may occur during the course of the work.
4. Contractor will convene and lead a safety meeting for all personnel prior to the start of each work day. Topics will include a summary of that day's activities and safety protocol to address site safety issues. Safety meeting topics and attendees will be documented and provided to Ecology's Representative.
5. Contractor is responsible for communicating daily with Ecology's Representative regarding health and safety issues applicable to Ecology's Representative's safe conduct of his duties. Such communication shall not imply any duty or responsibility on the part of Ecology's Representative with regard to health and safety of Contractor's employees, its subcontractors, suppliers, the general public or others. Ecology's Representative's responsibility and duty with regard to health and safety shall be limited to Ecology's Representative's employees. Contractor shall have responsibility and duty to Ecology's Representative to communicate health and safety issues

accurately and in a timely manner to allow Ecology's Representative to take appropriate actions to protect Ecology's Representative's employees.

6. Contractor is responsible for understanding and acting in accordance with all requirements of this section and the HASP for the Project.
7. Contractor shall designate a dedicated Contractor's Site Safety and Health Officer (SSHO) on the Site during the work who shall, at a minimum, have at least 3 years of experience as a SSHO on projects similar to the Site, and have 40-hour OSHA Hazardous Waste Operations training and 8-hour OSHA Supervisor training. Tenure of Contractor's SSHO shall be subject to approval by Ecology's Representative, such approval not to be unreasonably withheld.
8. The SSHO shall be present at the Site during all Contractor activities and working hours and shall enforce the requirements of safety for all Contractor personnel on Site at all times. The SSHO shall ensure that all Contractor and its sub-contractor personnel working at the Site, and Contractor visitors, follow the HASP, including wearing the designated level of personal protection equipment (PPE). If the SSHO elects to require a higher level of protection than that specified in the HASP, the extra costs associated with such higher level shall be borne by Contractor, unless such extra costs are approved in advance in writing by Ecology's Representative.
9. Prior to mobilization and continually through the duration of the work, the SSHO shall inspect the Site and document area-specific and worker-specific protection requirements.
10. After mobilization, the SSHO shall monitor activities and shall document the need for additional worker protection as required, based on activities performed and action levels specified in the HASP.
11. The SSHO shall verify that all activities are performed in accordance with the HASP and all federal, state, local, and health and safety standards, regulations, and guidelines.
12. In the event of a health and/or safety risk as determined by the SSHO or other Contractor personnel, or as determined by Ecology's Representative, Contractor shall not proceed with the work until a method for handling the risk has been determined in consultation with Ecology's Representative and implemented. Any health or safety risk resulting in a stoppage of work shall be reported immediately to Ecology's Representative.
13. Contractor shall be responsible for implementing a "Behavior Based Safety" process and provide Site training, observation, and feedback for Contractor personnel employed at the Site.

8.3.2. Contractor's Health and Safety Submittals

Contractor shall prepare and submit a HASP to Ecology's Representative. The Contractor shall follow all applicable local, state, and federal health and safety standards and guidelines implemented through, but not limited to, the DOSH, OSHA, NIOSH, ACGIH, and EPA. Where these are in conflict, the most stringent requirement shall be followed. The following points shall be addressed in the Contractor's HASP:

- Names of key personnel with contact numbers and alternates responsible for health and safety, including a Contractor Health and Safety Representative and SSHO. Ecology's Representative must approve the SSHO.
- A Safety Task Analysis Review (STAR) or Job Safety and Hazard Analysis (JSHA) associated with each portion of the Work (i.e., list potential chemical and physical hazards).

- Employee and sub-contractor training assignments to assure compliance with 29 CFR 1910.120.
- A requirement that Contractor locate underground utilities (if any) by using “Safe Dig” procedures prior to the start of the work.
- PPE to be used for each of the Site tasks and operations being conducted, as required by the personal protective equipment program in 29 CFR 1910.120 and 29 CFR 1926.
- Medical surveillance requirements in accordance with the program in 29 CFR 1910.120.
- Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used by the Contractor, including methods of maintenance and calibration of monitoring and sampling equipment.
- Corrective actions and up grading of personnel protection based on monitoring of air, personnel, and environmental sampling, with specific action levels identified.
- The Site control measures in accordance with the control program required in 29 CFR 1910.120 and 29 CFR 1926.
- Decontamination procedures in accordance with 29 CFR 1910.120.
- An emergency response plan meeting federal, state, and local requirements for safe and effective responses to emergencies, including the necessary PPE and other equipment.
- Explanation of potential emergencies and contingency plan of action, including description of the route to the nearest appropriate hospital, hospital route map, and posting of emergency telephone numbers at the Site.
- A list of health and safety and emergency equipment available on the Site.
- A description of engineering controls used to reduce the hazards of equipment operation and exposure to Site hazardous chemicals.
- Lockout/Tag out where the operation of machinery and/or equipment in which the unexpected energizing on start up or the release of stored energy could cause injury to personnel.
- Response to vehicular accidents and the possible release of transported materials.

8.3.3. Notifications

Contractor shall notify Ecology’s Representative under the following circumstances:

- Contractor shall immediately verbally report (within 30 minutes) to Ecology’s Representative and Ecology the occurrence of any and all health and safety incidents. An Incident Report form or Near Miss Report form, as appropriate, shall be submitted within 48 hours of occurrence of the incident or issue.
- Contractor shall immediately and fully investigate any such incident or near miss and conduct a root cause analysis, and shall provide to Ecology’s Representative, the Contractor’s written corrective action plan for such incident within 1 day after the incident occurs.
- Contractor shall notify Ecology’s Representative in writing at least 5 days prior to bringing any hazardous material, equipment, or process to the Site, or using the same on the Site. Contractor shall provide Ecology’s Representative with a MSDS for all chemicals brought on to the Site.

- Contractor shall immediately notify Ecology's Representative in writing of any hazard that Contractor discovers or observes on the Site and corrective measures planned or taken to eliminate or minimize such hazard. Hazard reporting will be completed as a Near Miss Report.

8.3.4. Training Requirements

Contractor shall provide the following training to each worker:

- Initial 40-hour (or 80-hour where appropriate) OSHA Hazardous Waste Health and Safety training and current annual 8-hour refresher training.
- Eight-hour OSHA Hazardous Waste Supervisory Training (required for the Contractor's Superintendent or SSHO).
- Current respiratory fit testing certification.
- Current CPR and first aid certification for at least one worker assigned to work on the Site.

8.3.5. Work Planning and Meetings

Contractor shall conduct a Daily Health and Safety Meeting prior to beginning work for that day, to address health and safety issues, changing Site conditions, activities and personnel. All Contractor and subcontractor employees working on the Site on that day shall attend the meeting. All meetings shall be documented and attendees shall sign acknowledgement of their presence at the meeting. Daily meetings will include a STAR evaluation of the work to be conducted and to document meeting attendance and discussion points.

Subcontractor personnel who are not in attendance for the Daily Health and Safety Meeting shall be briefed on the meeting notes upon arrival at the Site and prior to commencing their work activities. Employees shall sign acknowledgement of briefings prior to commencing work.

Contractor shall hold and document additional safety meetings at the start of each major task and whenever Site conditions affecting personnel safety change. Any major task undertaken will require the completion of a JSHA.

8.3.6. Engineering Controls

Contractor shall, at a minimum, provide the following engineering controls to reduce the hazards of equipment operation and exposure to Site hazardous materials:

1. Roll over cages for bulldozers, backhoes, loaders, and tractors.
2. Air-conditioned enclosed cabs with air filtering equipment.
3. Back-up alarms for all trucks and moving equipment.
4. Wetting of soil or other means to control dust during the work as described in these specifications, required by applicable regulations, and as indicated in the Contractor's work plans.
5. Decontamination of personnel and equipment in accordance with this Specification.
6. Others as determined to be necessary or prudent by Contractor or as directed by Ecology's Representative.

8.3.7. Monitoring

Contractor shall maintain an air monitoring program and an industrial hygiene program, including the use of proper equipment for air monitoring, calibration records, air monitoring results, and training personnel to assist the SSHO in these duties. The Contractor should review their industrial hygiene program to insure that site-specific air monitoring procedures are adequate.

Contractor shall perform heat exposure and cold exposure monitoring activities as required by weather conditions.

8.3.8. Personal Protective Equipment (PPE)

The appropriate level of PPE shall be determined by the Contractor for specific tasks as described in the Contractor's HASP. If hazards are identified that require a level of protection greater than Level C, work shall be suspended and Ecology's Representative notified. The Contractor's SSHO, in consultation with Ecology's Representative, shall determine what actions are required prior to restarting work. Contractor shall determine and document the appropriateness of suggested minimum PPE requirements for Contractor's employees and others at the Site.

The following PPE requirements pertain to general site work.

- At a minimum, all personnel and visitors on the Site shall wear Level D PPE, except in Support Zone areas. Level D PPE consists of:
 - Hard hat;
 - Steel-toed boots;
 - Safety glasses with permanent side shields;
 - Work clothes (long pants, shirts with sleeves);
 - Orange reflective safety vests;
 - Work gloves (as required); and
 - Hearing protection (as required to prevent exposure to noise exceeding 85 dB).

Contractor shall furnish and maintain materials and equipment for the health and safety of Contractor employees, its subcontractors, suppliers, and visitor personnel. Contractor shall provide all required Health and Safety equipment, first aid equipment, tools, monitoring equipment, PPE and ancillary equipment and methods required to ensure workers health and safety and to comply with the HASP. Ecology's Representative will furnish PPE and monitoring for Ecology's Representative's employees.

- If additional protection consisting of Level C PPE is required during work, Level C PPE will include protection from organic compounds and consist of Level D protection with the following additions:
 - Air purifying respirator, half-face or full-face (depending on required protection factor) with organic vapor/High Efficiency Particulate Air Cartridges meeting NIOSH/Mine Safety and Health Administration Specifications;
 - Disposable poly-coated chemically protective coveralls;
 - Disposable chemically resistant outer gloves (nitrile);
 - Disposable chemically resistant inner gloves (nitrile); and

- Chemically resistant, steel-toed, and steel-shanked boots (PVC, neoprene, or nitrile), or outer booties.

In most cases, Level C will be the maximum allowed level of PPE; however, Level B may be allowed provided that personnel are properly trained/certified and exposure levels are below IDLH conditions. The criteria that determine the required level of PPE are outlined in Ecology's Representative's HASP.

8.3.9. Other Health and Safety Equipment

The Contractor is required to have the following equipment available on the Site for the health and safety of subcontractors, sub-subcontractors, suppliers and visitors:

4. Air monitoring instruments, including (but not limited to):
 - a. Dust particulate meter.
5. First aid kits.
 - a. Fire suppression equipment (appropriate to location and type of flammable materials present).
 - b. OSHA-approved emergency eyewash facilities.
 - c. Personnel decontamination facilities and equipment.
 - d. Other equipment or supplies as determined to be necessary or prudent by subcontractor or Ecology's Representative.
 - e. Flammable liquids storage cabinet.
 - f. Fall protection equipment, as necessary.

8.4. Work Zone Plan

The Contractor shall prepare a project-specific Work Zone Plan. The plan shall locate an Exclusion Zone, a Decontamination Zone and a Support Zone, as applicable. The Exclusion Zone shall contain only the activities necessary for the completion of hazardous work. The plan shall document decontamination procedures containing, at a minimum, the following information:

- Decontamination methods and equipment that will be used.
- Procedures to prevent contamination of clean areas.
- Methods and procedures to minimize worker contact with contaminants during removal of personal protective clothing and equipment.
- Procedures for decontamination of vehicles leaving the Site.
- Procedures for disposal of clothing and equipment that is not completely decontaminated.
- Procedures for the collection, treatment, and disposal of all decontamination water, sludge and wastes.

A proposed Site layout plan is provided in the Plans (Sheet G1.1). Access to the Exclusion Zone during working hours shall be controlled by the Contractor through a designated access point.

The Contractor shall submit the Work Zone Plan as part of the submittals for the other work plans, as necessary.

8.5. Post-Work Submittals

The contractor shall submit the following documents during, and/or following the course of the work. These submittals will be part of the paperwork necessary for closeout and payment for work done under this contract.

1. Wastewater Disposal Manifest: Submit to Ecology's Representative two (2) written copies of the wastewater disposal manifest obtained from the receiving treatment facility within thirty (30) days after disposal at that facility.
2. Disposal Records: Submit to Ecology's Representative two (2) written copies of waste disposal records, including all manifests (or bills of lading) for any materials transported off site; weigh scale tickets for disposed materials and/or for imported material; and any permits that required signoff by appropriate agency officials within thirty (30) days after disposal.
3. Backfill Material Weight Tickets: Submit to Ecology's Representative (2) written copies of backfill material weigh scale tickets within thirty (30) days of material delivery.
4. An Operation and Maintenance (O&M) Plan for the AS system shall be provided by the Contractor for review by Ecology. The O&M Manual shall be site and equipment specific. The Contractor shall make necessary revisions to the Plan within 14 days following Ecology review.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

GOLD NUGGET INTERIM CLEANUP ACTION

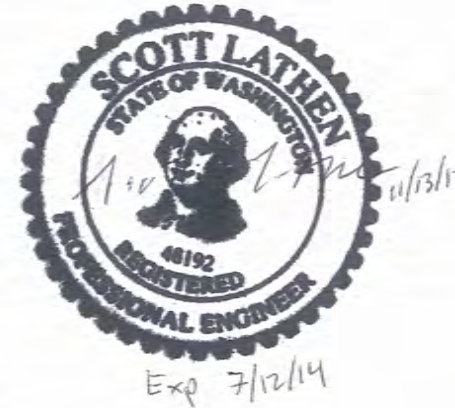
SECTION 22, TOWNSHIP 11N, RANGE 20E



VICINITY MAP

SCALE: 1"=400'

GRAPHIC SCALE



No.	SHEET TITLE
G1.0	COVER SHEET
G1.1	PROJECT OVERVIEW
C1.0	REMEDIATION SYSTEM LAYOUT
C1.1	AIR SPARGE SYSTEM PIPING AND INSTRUMENTATION DIAGRAM
D1.0	AIR SPARGE SYSTEM DETAILS
D1.1	CONSTRUCTION DETAILS



LOCATION MAP

SCALE: N.T.S.

BUENA, WASHINGTON
(LAT. 46° 25' 37"N LONG. 120° 18' 47"W)

NOTES:

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE.
2. THIS DRAWING IS FOR INFORMATION PURPOSES. IT IS INTENDED TO ASSIST IN SHOWING FEATURES DISCUSSED IN AN ATTACHED DOCUMENT. GEOENGINEERS, INC. CANNOT GUARANTEE THE ACCURACY AND CONTENT OF ELECTRONIC FILES. THE MASTER FILE IS STORED BY GEOENGINEERS, INC. AND WILL SERVE AS THE OFFICIAL RECORD OF THIS COMMUNICATION.

REFERENCE:

Reference: ESRI Data & Maps, Street Maps 2008.



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NO.	DATE	BY	REVISION



Gold Nugget Interim Cleanup Action

Washington State Department of Ecology

COVER SHEET

DRAWN: MGF	PROJECT NO.: 50406002
DESIGN: SHL	SCALE: AS NOTED
CHECKED: DRL	DATE: 9/13/12
SHEET NO.	

G1.0

CONTRACT DRAWINGS



PROJECT SUMMARY

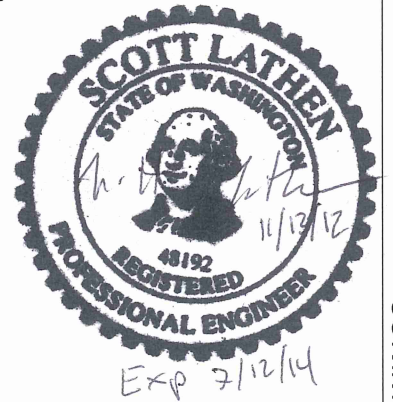
- INSTALL NECESSARY TEMPORARY CONTROLS AND FEATURES FOR HEALTH AND SAFETY, EROSION CONTROL, SITE SECURITY, AND TO MEET PERMIT REQUIREMENTS.
- INSTALL AIR SPARGE CONVEYANCE PIPING FROM NEW WELLS TO THE REMEDIATION SYSTEM COMPOUND LOCATION AT SOUTH SIDE OF GOLD NUGGET BUILDING. NEW WELLS TO BE INSTALLED BY OTHERS PRIOR TO CONTRACTOR MOBILIZATION.
- INSTALLATION OF CONVEYANCE PIPING WILL REQUIRE DISPOSAL OF CONTAMINATED SOIL REMOVED DURING TRENCHING.
- INSTALL NEW 3-PHASE ELECTRICAL SERVICE FOR PROPOSED TREATMENT SYSTEM.
- CONSTRUCT, TRANSPORT TO SITE, AND INSTALL AIR SPARGE REMEDIATION SYSTEM DESIGNED TO PROVIDE A TOTAL FLOW OF 15 SCFM AT 6 PSI PER WELL.
- CONSTRUCT A MANIFOLD TO CONNECT EACH CONVEYANCE PIPE FROM THE AIR SPARGE WELLS.
- CONSTRUCT FENCED, LOCKABLE TREATMENT COMPOUND TO ENCLOSE ALL ABOVE-GROUND TREATMENT COMPONENTS.

NOTES

1. THE CONTRACTOR SHALL RELOCATE THE TEMPORARY SECURITY FENCE TO NOT OBSTRUCT THE GOLD NUGGET PARKING AREA AFTER COMPLETING TRENCHING, PIPING, AND BACKFILL TO AS-1.

LEGEND

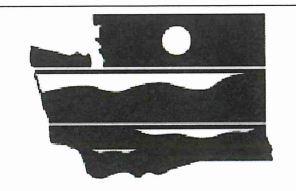
- DP-15 Direct-Push Boring Number and Approximate Location (GeoEngineers, 2011)
- DP-5 Previous Direct-Push Boring Number and Approximate Location (GeoEngineers, 2010)
- MW-16 Existing Monitoring Well Number and Approximate Location
- AS-1 Approximate Location of Proposed Air Sparge Well
- MW-19 Approximate Location of Proposed Monitoring Well
- Approximate Location of Former USTs
- Approximate Area of Previous Remedial Excavation
- Approximate Location of Proposed Remedial Treatment System
- Approximate Location of Temporary Security Fence
- Approximate Location of Existing Property Boundaries



OVERVIEW PLAN

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Gold Nugget Interim Cleanup Action
 Washington State Department of Ecology
PROJECT OVERVIEW

DRAWN: MGF	PROJECT NO.: 50406002
DESIGN: SHL	SCALE: AS NOTED
CHECKED: DRL	DATE: 9/13/12
SHEET NO.	G1.1

CONTRACT DRAWINGS



NOTES

1. TRENCHES WILL BE SLOPED DOWN (0.5 % HORIZONTAL TO VERTICAL) TOWARD THE WELLS TO DRAIN CONDENSATION AWAY FROM THE REMEDIATION EQUIPMENT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MARKING, AND PROTECTING UNDERGROUND UTILITIES.
3. THE CONTRACTOR SHALL INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS AS NECESSARY AND AS DIRECTED BY ECOLOGY'S.
4. THE CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL IN ACCORDANCE WITH APPLICABLE PERMITS.
5. THE CONTRACTOR SHALL MAINTAIN AND PROTECT AIR SPARGE WELLS AND MONITORING WELLS FROM DAMAGE. REPAIR OF DAMAGE WILL BE PAID FOR SOLELY AT THE CONTRACTOR'S EXPENSE AS DETERMINED BY ECOLOGY.
6. THE CONTRACTOR SHALL NOT CONDUCT WORK ACTIVITY OR STAGE EQUIPMENT IN ADJACENT RIGHT-OF-WAYS.
7. THE CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT PRIOR TO EXCAVATION.
8. THE CONTRACTOR SHALL TAKE DOWN EXISTING CHAIN LINK FENCE AND RECONSTRUCT TO PREEXISTING CONDITIONS.
9. THE CONTRACTOR SHALL REMOVE EXISTING MONUMENTS ON WELLS AND CONNECT AIR SPARGE WELLS TO AIR SPARGE SYSTEM PIPING (SEE DETAILS 1, SHEET D1.0).
10. CONTRACTOR SHALL INSTALL AIR SPARGE CONVEYANCE PIPING TO CONNECT SPARGE WELLS TO REMEDIATION SYSTEM COMPOUND (SEE DETAIL 3, SHEET D1.0).
11. CONTRACTOR SHALL CONSTRUCT AIR SPARGING SYSTEM AND TREATMENT COMPOUND (SEE DETAIL, SHEET C1.1 AND DETAIL 4, SHEET D1.0).

LEGEND

- DP-15 Direct-Push Boring Number and Approximate Location (GeoEngineers, 2011)
- DP-5 Previous Direct-Push Boring Number and Approximate Location (GeoEngineers, 2010)
- MW-16 Existing Monitoring Well Number and Approximate Location
- AS-1 Approximate Location of Proposed Air Sparge Well
- MW-19 Approximate Location of Proposed Monitoring Well
- Approximate Location of Former USTs
- Approximate Area of Previous Remedial Excavation
- Approximate Location of Proposed Compound
- Approximate Location of Temporary Security Fence
- Proposed Air Sparge Pipe Trenches with 2' Radius Sweeps



OVERVIEW PLAN

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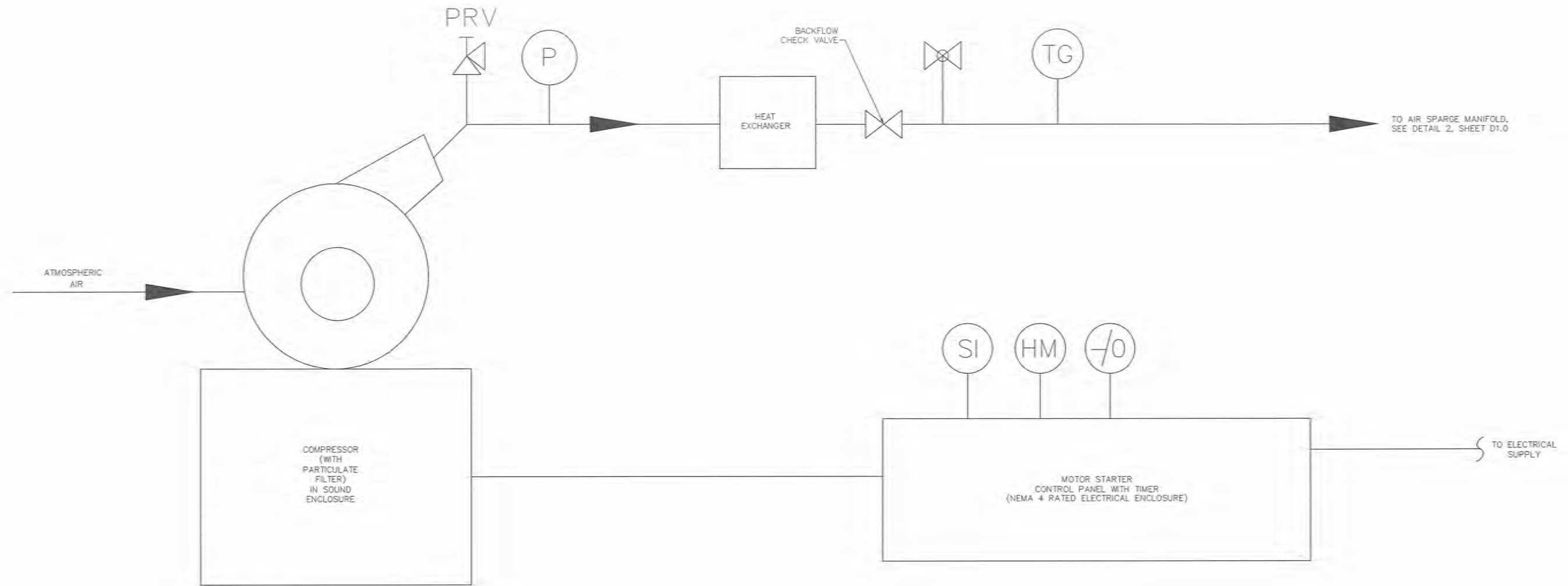
Washington State Department of Ecology

REMEDIATION SYSTEM LAYOUT

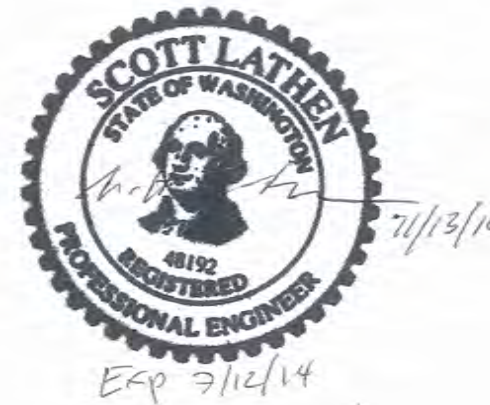
DRAWN: MGF	PROJECT NO.: 50406002
DESIGN: SHL	SCALE: AS NOTED
CHECKED: DRL	DATE: 9/13/12
SHEET NO.	C1.0

CONTRACT DRAWINGS

D:\Projects\2012\Gold Nugget Interim Cleanup Action\Drawings\Sheet\Remediation System Layout\C1.0.dwg 8/14/2012 8:05 AM By: vjt



AIR SPARGING SYSTEM
NOT TO SCALE



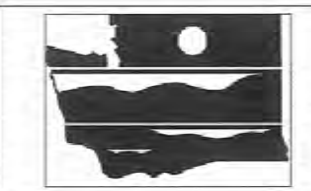
- LEGEND**
- SI = SERVICE INDICATOR GAUGE
 - HM = HOUR METER
 - H/O = ON/OFF LIGHT/ HAND/OFF/AUTO
 - TG = TEMPERATURE GAUGE
 - P = PRESSURE GAUGE
 - PRV = PRESSURE RELIEF VALVE
 - AFG = AIR FLOW GAUGE
 - GV = GATE VALVE
 - BM = BRASS GLOBE VALVE
 - TS = 1/4" TAPPED SAMPLE PORT

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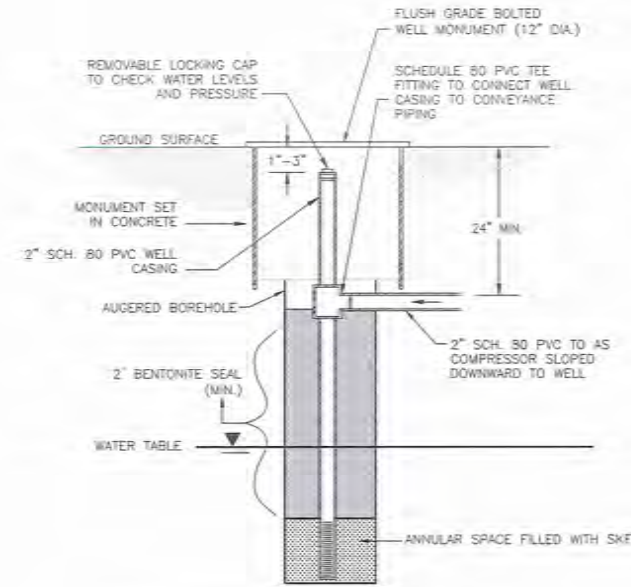
Gold Nugget Interim Cleanup Action

Washington State Department of Ecology

AIR SPARGE SYSTEM PIPING AND INSTRUMENTATION DIAGRAM

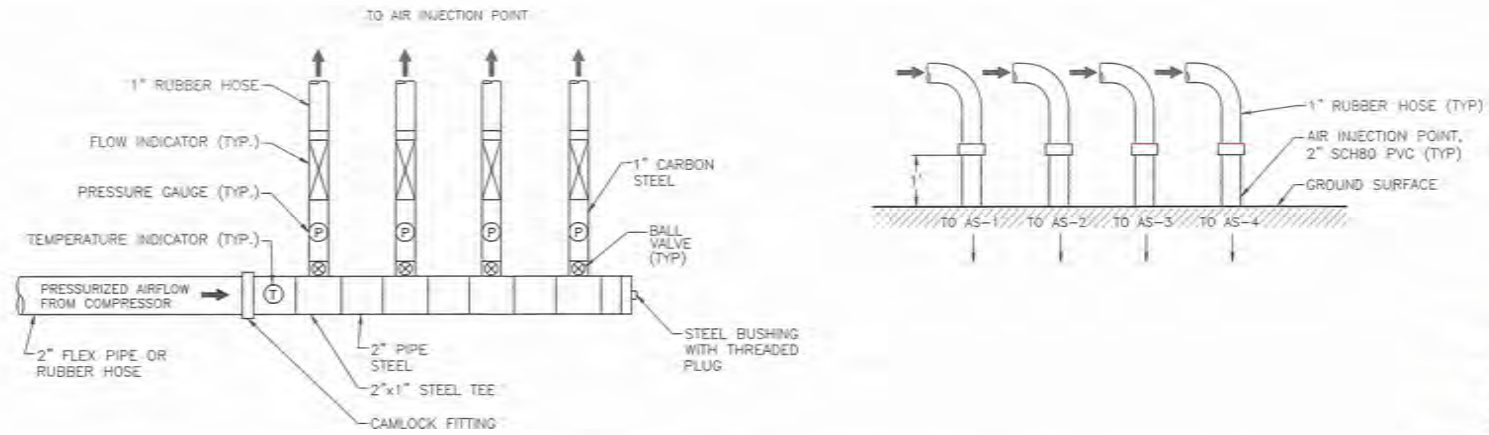
DRAWN: MGF	PROJECT NO.: 50406002
DESIGN: SHL	SCALE: N.T.S.
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SHEET NO.	
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CONTRACT DRAWINGS



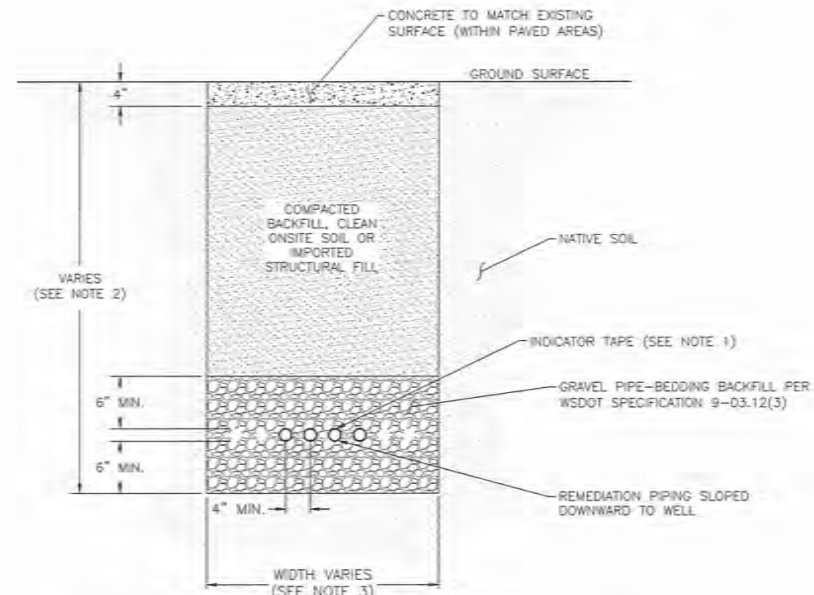
**DETAIL 1: AIR SPARGE WELLS
TYPICAL CROSS-SECTION**
NOT TO SCALE

NOTES:
1. THE CONTRACTOR SHALL CONSTRUCT AIR SPARGE WELL CONNECTIONS WITH MATERIALS AND FITTINGS RATED FOR THE EXPECTED PRESSURE.



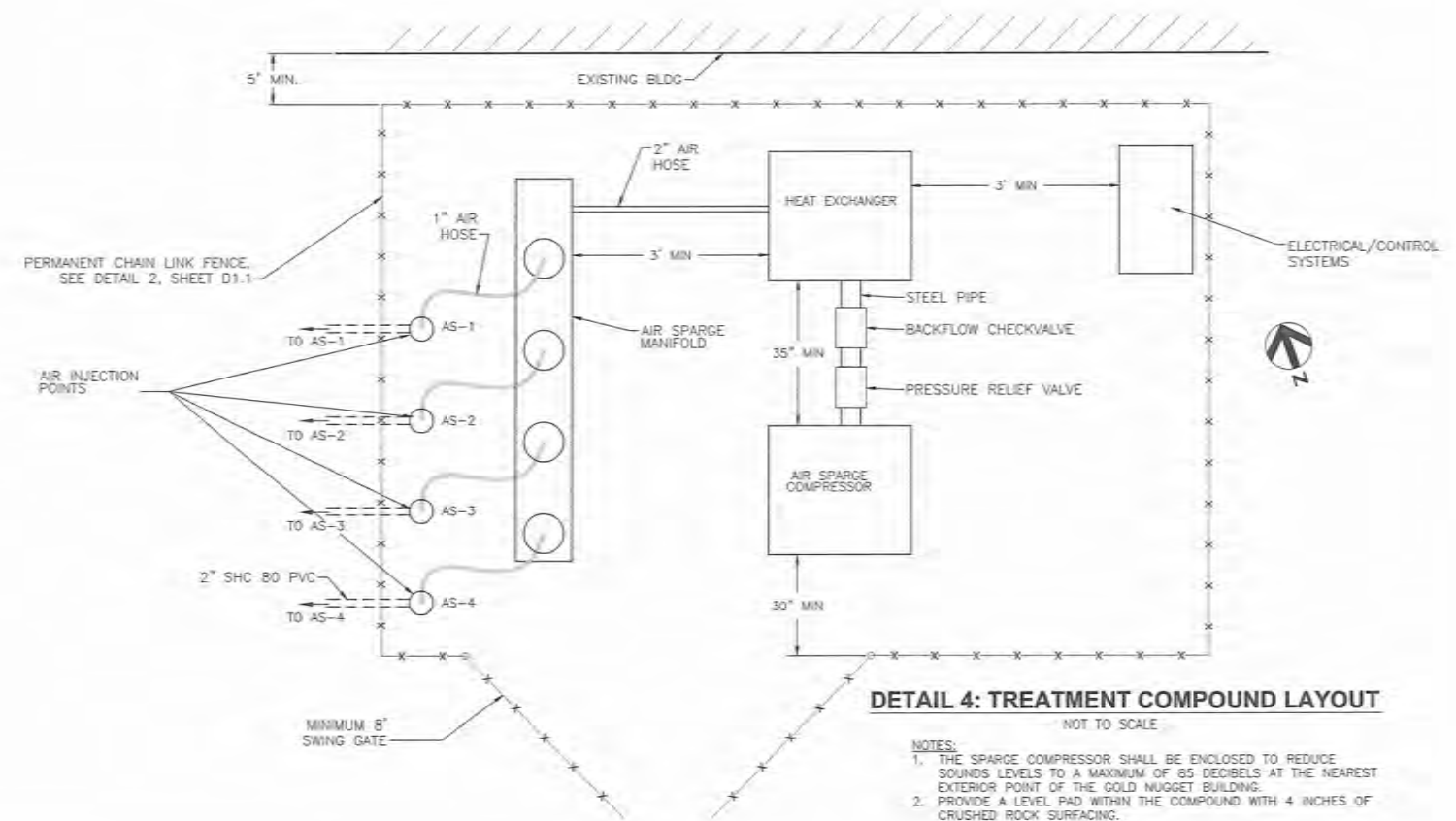
**DETAIL 2: AIR SPARGE SYSTEM
SCHEMATIC MANIFOLD DETAILS**
NOT TO SCALE

NOTE:
1. ALL AS MANIFOLD COMPONENTS (PIPES, VALVES, AND FITTINGS) SHALL BE CONSTRUCTED USING 1-INCH AS 2-INCH SCHEDULE 40 DIAMETER STEEL MEETING ASTM A53 SPECIFICATIONS.
2. ALL PIPES, VALVES, AND FITTINGS SHALL BE RATED FOR THE EXPECTED FLOW AND PRESSURE OF THE AIR SPARGE SYSTEM.



DETAIL 3: TRENCH CROSS-SECTION (TYPICAL)
NOT TO SCALE

NOTES:
1. THE CONTRACTOR SHALL LAY INDICATOR TAPE ALONG THE AIR SPARGE PIPING TO ALLOW FUTURE UTILITY LOCATES.
2. EXCAVATION DEPTH WILL VARY DEPENDING ON LENGTH OF PIPING BETWEEN MANIFOLD AND WELLS AND ELEVATIONS OF WELLS AND COMPOUND. MAINTAIN MINIMUM OF 24 INCHES OF COVE OVER TOP OF PIPING.
3. FOR TRENCHES CARRYING SINGLE PIPES, TRENCH WIDTH SHALL BE 18 INCHES ± 6 INCHES. FOR TRENCHES CARRYING MULTIPLE PIPES, TRENCH WIDTH SHALL BE 2.5 FEET ± 6 INCHES.



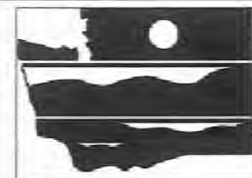
DETAIL 4: TREATMENT COMPOUND LAYOUT
NOT TO SCALE

NOTES:
1. THE SPARGE COMPRESSOR SHALL BE ENCLOSED TO REDUCE SOUNDS LEVELS TO A MAXIMUM OF 85 DECIBELS AT THE NEAREST EXTERIOR POINT OF THE GOLD NUGGET BUILDING.
2. PROVIDE A LEVEL PAD WITHIN THE COMPOUND WITH 4 INCHES OF CRUSHED ROCK SURFACING.

GEOENGINEERS

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Gold Nugget Interim Cleanup Action

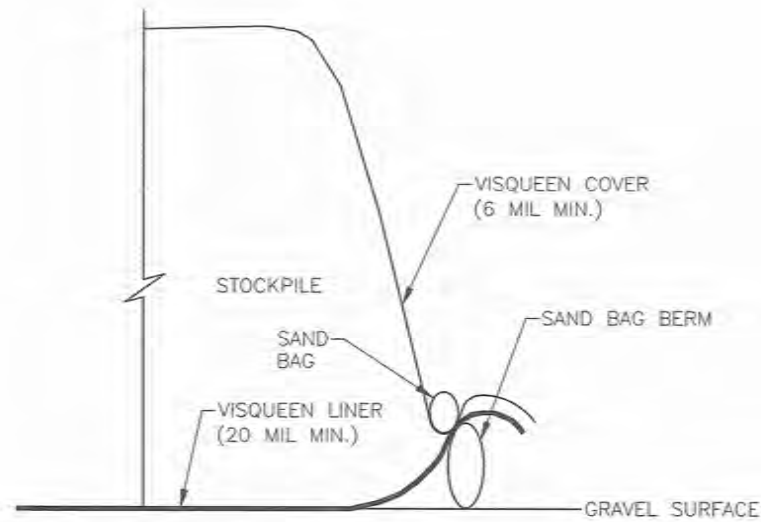
Washington State Department of Ecology

AIR SPARGE SYSTEM DETAILS

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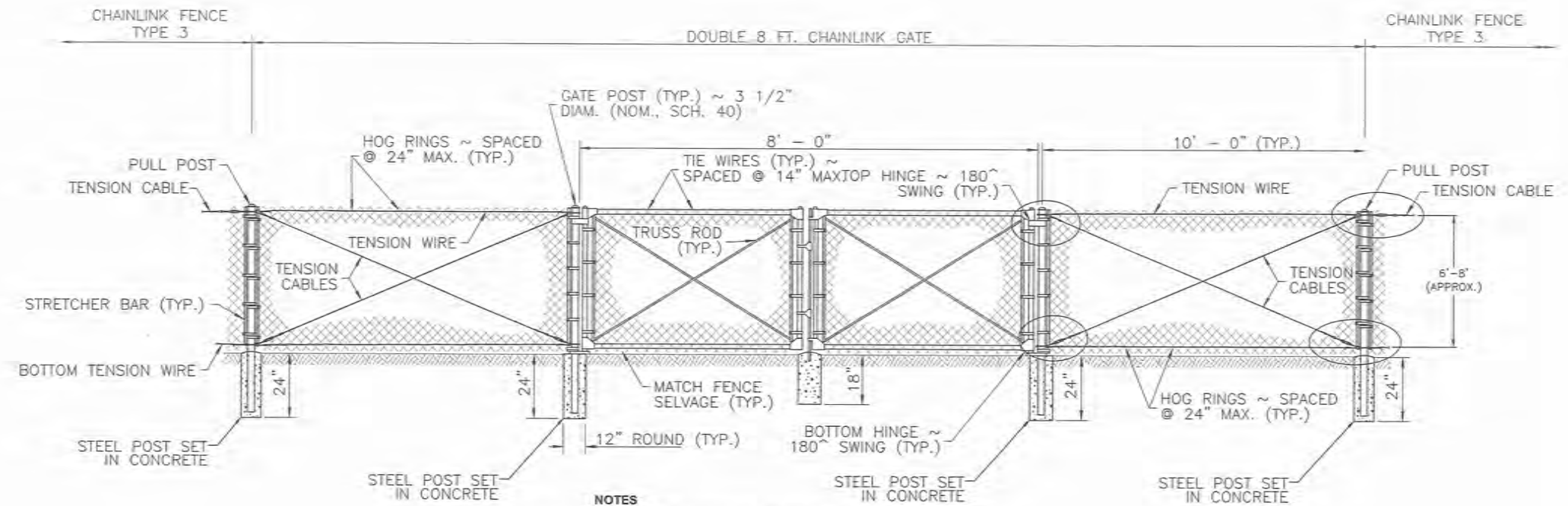


STOCKPILE DETAIL NOTE

- IF CONTRACTOR OPERATIONS INCLUDE STOCKPILING OF CLEAN OR CONTAMINATED MATERIAL, THE MATERIAL SHALL BE PLACED ON A MINIMUM 20 MIL LINER AND COVERED WITH A MINIMUM 6 MIL COVER.

DETAIL 1: STOCKPILE

NOT TO SCALE

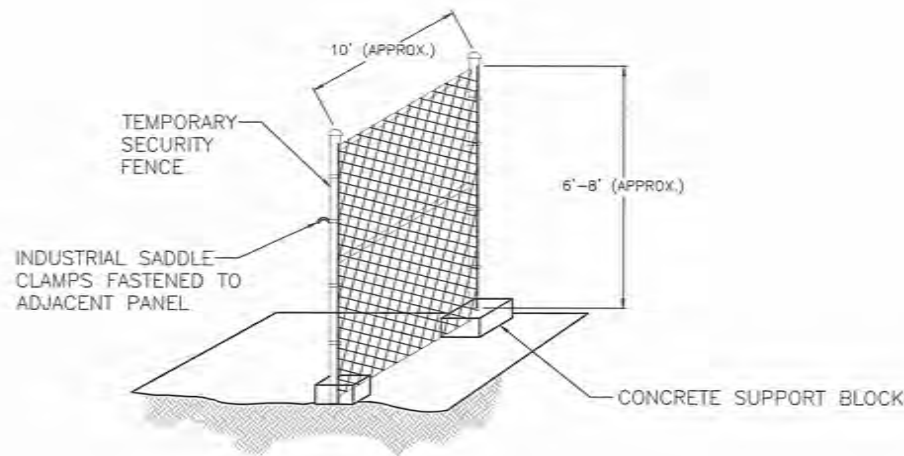


NOTES

- REFER TO WSDOT STANDARD SPECIFICATION 8-12.3(1)E FOR CONSTRUCTION DETAILS.
- NO PAINTING OR PROTECTIVE COATING WILL BE REQUIRED FOR FENCING INSTALLATION.

DETAIL 2: TREATMENT COMPOUND CHAINLINK FENCE AND DOUBLE SWING GATE

NOT TO SCALE



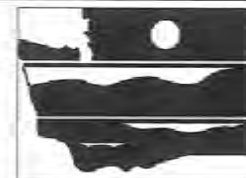
DETAIL 3: TEMPORARY SECURITY CHAIN LINK FENCE (DURING CONSTRUCTION ONLY)

NOT TO SCALE



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CONSTRUCTION DETAILS

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