ATTACHMENT I

AA SYDCOL, LLC
CLOSURE PLAN
[40 CFR 270.14(b)(13)]

November 8, 2021

TABLE OF CONTENTS

1.0 INTRODUCTION 1
- 1.1 Background 1
- 1.2 Closure Performance Standard 1
- 1.3 Schedule for Final Closure of the Facility 2

2.0 HAZARDOUS WASTE MANAGEMENT UNITS 3

3.0 CLOSURE PROCEDURES 5
- 3.1 Health and Safety Plan 5
- 3.2 Initial Closure Assessment 5
- 3.3 Inventory Removal 6
- 3.4 Non-inventory Waste Management 6
- 3.5 Decontamination 8
- 3.6 Demolition of Structures 9
- 3.7 Closure Certification 9

4.0 CLOSURE SAMPLING AND ANALYSIS PLAN 11
- 4.1 Inspection of Concrete Pad Areas 11
- 4.2 Inspection of Exposed Soil Areas 12
- 4.3 Stormwater Basin and Septic Line Samples 13
- 4.4 Sampling Methodology 13
- 4.5 Analytical Methods 15
- 4.6 Data Validation 16
- 4.7 Data Analysis 17
- 4.8 Additional Sampling 18

5.0 FINANCIAL ASSURANCE 19
- 5.1 Closure Cost Estimate 19
- 5.2 Financial Assurance Mechanism for Closure 20
- 5.3 Post Closure Care 20

6.0 MISCELLANEOUS PROVISIONS 21
- 6.1 Notice in Deed 21
- 6.2 Liability Insurance 21
- 6.3 Amending the Closure Plan 21
- 6.4 Pre-Closure Corrective Action 21

TABLES

1. Hazardous Waste Codes

2. Maximum Waste Inventory
3. Sample Locations
4. Analytical Parameters

FIGURES

1. Site Location Map
2. Site Plan

APPENDICES

A. Closure Cost Estimate
B. Cost Estimate References
C. Proof of Liability Insurance

1.0 INTRODUCTION

1.1 Background

This Closure Plan (Plan) to assess closure costs at the AA Sydcol, LLC Facility has been prepared to address closure requirements applicable to the AA Sydcol, LLC facility (Facility) detailed in 40 CFR 264, Subparts G and financial assurance requirements detailed in 40 CFR 264, Subpart H, and A.A.C. R18-8-264.A.in support of the AA Sydcol RCRA Part B permit application. A list of all acronyms and a definition of key terms used in this Plan is provided with General Information provided in Appendix A of Attachment A of the RCRA Part B permit application.

The Facility operates as a waste transfer station where hazardous wastes and non-hazardous wastes are separately accumulated, bulked, and transferred off site for treatment or disposal at permitted facilities. Universal wastes are also received at the Facility for bulking, treating/recycling, and transfer to a universal waste destination facility. Figure 1 illustrates the location of the Facility.

The design and planned operation of the Facility is for the storage and consolidation of solid and liquid hazardous wastes in three hazardous waste management units (HWMUs) as described in this Plan. Non-hazardous solid wastes are received at the Facility and stored and consolidated in a solid waste management unit (SWMU). A site plan illustrating the location of HWMUs and SWMUs is provided in Figure 2.

1.2 Closure Performance Standard

The intent of this Plan is to provide a clean closure to all hazardous waste operations such that all hazardous wastes and hazardous waste residues are removed from the facility without imposing restrictions on post-closure use. This Plan provides the steps necessary to close out all hazardous waste operations at the facility at any point during or at the completion of its operating life.

The objectives of Facility closure are to:

- Minimize the need for post closure maintenance
- To the extent necessary to protect human health and the environment, minimize or eliminate the post-closure escape of hazardous waste, hazardous constituents, leachate or contaminated run-off, or hazardous waste decomposition products to the environment, and,
- Comply with all applicable partial closure and final closure requirements.

All work under this Plan will be conducted in accordance with applicable local, state, and federal regulations. Partial closure of the Facility is not anticipated in this Plan.

1.3 Schedule for Final Closure of the Facility

The intended life of the Facility for hazardous waste activities is estimated to be 30 years, however the actual operational life will be dependent on the local and regional solid and hazardous waste market and not on-site constraints. Closure is therefore projected to occur in or after 2051, depending on market conditions.

Closure activities will begin by submitting notice to the ADEQ Hazardous Waste Program of intent to close hazardous waste activities at the Facility. The notice to ADEQ will be provided at least 45 days prior to the date Sydcol expects to begin final closure. A health and safety plan (HASP) will be prepared and submitted to ADEQ Hazardous Waste Program at least 30 days prior to the date Sydcol expects to begin final closure. Closure activities will begin on or prior to the final day of hazardous waste receipt at the Facility. Hazardous waste management units (HWMUs) HWMU1, HWMU2, and HWMU3 will be closed concurrently. The estimated schedule for conducting all closure activities under this Plan is as follows:

- Initial closure assessment: 5 weeks/35 days
- Inventory removal (HWMU1, 2, and 3): 6 weeks/42 days
- Facility decontamination (HWMU1, 2, and 3): 8 weeks/56 days
- Confirmation sampling: 2 weeks/14 days
- Closure certification: 2 weeks/14 days
- Total: 23 weeks/161 days

All treatment, removal and disposal of hazardous waste is anticipated to be completed within 90 days of receipt of the last shipment of waste. Decontamination of removal the Facility inventory is anticipated to be completed within 150 days of receipt of the last shipment of waste. The completion of closure on the site is expected to be completed within 180 days of the final receipt of hazardous waste at the Facility.

As closure of the Facility is anticipated to be complete within 180 days of commencing closure activities, there are no requests for extension of the closure time is anticipated in this Plan. Should additional time be required for completion of closure, a request for an extension will be made through the permit modification process with ADEQ.

2.0 HAZARDOUS WASTE MANAGEMENT UNITS

Sydcol will receive both listed and characteristic hazardous wastes, such as solvent wastes, corrosive wastes, and treated effluent wastes. Hazardous waste codes that may be handled at the Facility are listed in Table 1. All hazardous wastes will be stored in one of three HWMUs. HWMU1 is a sloped concrete pad located adjacent to the warehouse building, HWMU2 is a sloped concrete pad located adjacent to and north of HWMU1, and HWMU3 is a sloped concrete pad located north of the warehouse building. HWMU2 measures 50 feet by 100 feet, HWMU3 measures 85 feet by 100 feet, and HWMU measures 50 feet by 200 feet. Hazardous wastes that are solid and have been confirmed to be free of liquids can be stored in any of the HWMUs. Containers of liquid hazardous wastes can be stored within HWMU1, HWMU2, and on containment pallets within HWMU3. The three HWMUs are shown in Figure 2.

All HWMUs are located outside, each with a sloped 6-inch fibermesh-reinforced concrete slab on a compacted 4-inch layer of ABC. A concrete lip berm is provided along three sides for each of the sloped HWMUs to provide secondary containment for the HWMU. HWMU1 and HWMU2 are underlain by a 60-mil HDPE geomembrane liner formed and sealed to the concrete pad to render the containment sufficiently impermeable to any spills or leaks in the HWMU. HWMU3 is underlain by a 10-mil polyethene liner but not formed and sealed to the concrete pad. Liquid hazardous waste containers stored in HWMU3 will be stored on containment pallets with adequate secondary containment for the stored containers. Any leaks or spills of hazardous waste are promptly cleaned up using absorbent (if necessary) and placed in a container for storage and off-site disposal as hazardous waste. Additional detail on the HWMUs is provided in Attachment D to the application, Process Information: Containers.

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3.0 CLOSURE PROCEDURES

Closure of the Facility HWMU will consist of the following steps:

1. Health and Safety Plan (pre-closure)
2. Initial Closure Assessment
3. Inventory Removal
4. Facility Decontamination
5. Confirmation Sampling
6. Demolition of Structures
7. Closure Certification

3.1 Health and Safety Plan

Sydcol will prepare a HASP to address workplace hazards associated with implementing this Plan. Personnel will be equipped with appropriate health and safety equipment as identified in the HASP. This equipment is anticipated to include, but will not be limited to, acid and solvent resistant protective clothing, head protection, and full-face respirators with organic vapor and acid gas filter cartridges or equivalent consistent with personnel protective equipment designated for OSHA Level C hazardous waste operations. Chemical neutralizers and spill control pads will be available to personnel in the event spills occur during periods of pipe drainage, disconnection, or dismantling processes. All Occupational Health and Safety Administration (OSHA) requirements for personal protection and monitoring will be adhered to at all times. The HASP will be submitted to ADEQ Hazardous Waste Program at least 30 days prior to initiating closure activities.

An estimated 60 hours for a Field Engineer, 60 hours for a Health and Safety Specialist, 40 hours of clerical time and 20 hours of a Project Manager's time are anticipated in preparing the HASP including a visit to the site by professional staff preparing the HASP.

3.2 Initial Closure Assessment

Upon initiating closure and prior to removal of inventory, Sydcol will review Facility history and operational records to identify and categorize waste types stored in the HWMUs. The Project Manager and the Field Engineer implementing the closure will perform the initial closure assessment. Sydcol's Facility Manager and/or Compliance Officer will assist in assessment. Unless the operating records indicate otherwise, it will be presumed that all waste types have been stored in each HWMU.

All HWMU areas will be inspected to look for potential hazards such as visible contamination, chemical hazards and/or physical hazards following removal of all hazardous wastes from the

HWMU. A photographic log of each HWMU inspection will be maintained for a summary report of the initial closure assessment. Any potential safety hazard identified in the inspection will be addressed in the HASP before closure begins. Based on the potential wastes stored in these areas, sampling to verify areas have been decontaminated will be analyzed for a variety of parameters as identified in Section 4 of this Plan.

It is anticipated that it will take approximately 2 weeks to review operational records and prepare for the initial closure assessment, one day to inspect the condition of all HWMUs, and approximately 2 weeks to prepare an initial closure assessment report, to be included in the final closure report.

3.3 Inventory Removal

The projected inventory to be managed during the closure includes hazardous waste from operations that remains on-site. All hazardous wastes and hazardous waste containers will be removed from the Facility and transported under hazardous waste manifest for off-site treatment and disposal at a licensed recycling, treatment or disposal facility prior to closure.

For cost estimating purposes, Sydcol conservatively assumes that each HWMU will be at capacity and storing all wastes in drums. The total inventory is 600 drum-equivalents in HWMU1, 1,100 drum-equivalents in HWMU2, and 1,512 drum-equivalents in HWMU3, for a total inventory of 3,212 drum-equivalents. Removal crews will bulk compatible liquids into waste hauling trucks by transferring the waste from drums into the tanker truck hold at a rate estimated of 30 drums per hour. Empty drums will be disposed of as scrap. Drums of P-listed wastes will not be bulked but will be transferred directly to a hazardous waste disposal facility. Sydcol estimates that it will take removal crews one week to remove containers from HWMU1, two weeks to remove containers from HWMU2, and three weeks to remove containers from HWMU3 for a total of six weeks of inventory removal. A Health and Safety Specialist has been included for oversight of the inventory removal while removal activities are being conducted at the Field Engineer level. A detailed summary of maximum waste inventory for the Facility is provided in Table 2.

3.4 Non-inventory Waste Management

Following the removal of all stored hazardous wastes from the Facility, Facility equipment will be either disposed of as bulk solid waste, bulk hazardous waste, or decontaminated by pressure washing to remove hazardous waste residues that may negatively impact their future use. Each HWMU will be decontaminated by pressure washing exposed surfaces. This section details the disposal of non-inventory items and steps necessary to decontaminate structures, equipment, and soils at the Facility as a component of Facility closure.

Non-hazardous bulk solid wastes will be disposed of in rented roll off containers. An estimated 15 tons in three 20-yard roll off containers are included for cost estimating purposes. Any hazardous wastes generated during closure, which may include washwater, rinsate, disposable clothing, contaminated tools and equipment, contaminated soils, and other miscellaneous closure wastes are included in the cost estimate as a separate item from the stored hazardous waste inventory. Wastes generated during closure will be assessed to determine if they are mixtures that include a listed hazardous waste or whether they exhibit a hazardous waste characteristic.

An estimated two tons of miscellaneous equipment (tools, tool cabinets, containers, etc.) will be disposed of as bulk hazardous waste solids. An estimated one ton of bulk hazardous waste solids will also be generated from cleaning equipment used during the decontamination of all HWMUs (absorbent, brushes, brooms, rags, etc). For disposal of containment pallets used for receiving liquid hazardous wastes in HWMU3, this Plan conservatively accounts for up to 189 containment pallets for totes at 400 pounds each for a total of 37.8 tons of bulk solids to be disposed of as hazardous waste. A total of 40.8 tons of bulk hazardous waste solids will be generated during site closure and will require an estimated eight 20-cyd rolloffs for storage and transport to the disposal facility.

Any metal items and equipment that are destined for reuse or to be recycled as scrap metal will be cleaned within the secondary containment area of one of the HWMUs along with containment structures and other equipment described below in Facility Decontamination. An estimated 15 tons of metal tools and equipment will be cleaned and disposed of as scrap, requiring an estimated three 20-cyd rolloff containers. An estimated 14 20-cyd rolloff containers will be required to containerize bulk solids, including recyclable materials, hazardous waste and non-hazardous waste solids. An estimated 3,212 steel drums to be disposed of as scrap are assumed as the maximum drum capacity of the facility. Assuming 80 pounds per drum, an estimated 128 tons of drums will be bulk shipped to the recycling facility.

Non-hazardous solid wastes will be sent to a local or regional solid waste landfill. South Yuma County Landfill located approximately 15 miles south of the Facility was used for the purposes of this cost estimate. Recyclable scrap will be sent to a local recycling facility that will accept the type of scrap anticipated in this closure plan. The Republic Services Waste Transfer Facility located approximately 5 miles south of the Facility was used for the purposes of this cost estimate. Bulk solid wastes and recyclable scrap were both assumed to cost an estimated $30 per ton for disposal. Hazardous solid wastes will be sent to a regional hazardous waste facility permitted to accept bulk solid hazardous wastes. The US Ecology-Nevada facility located approximately 398 miles north of the Facility was used for the purposes of this cost estimate at $140 per ton to dispose of listed hazardous waste bulk solids.

3.5 Decontamination

All equipment and HWMU surfaces will be decontaminated using a high-pressure detergent wash and rinse. A commercial medium-duty pressure washer at 5 gallons per minute will be used for the pressure wash. Other decontamination equipment is anticipated to include a 5,000-gallon trailer-mounted water tank with tractor, two 50-foot long and 3-inch diameter discharge hoses, two laborers and a truck driver to operate the water tank tractor. Any operating equipment at the Facility that is intended for reuse will be thoroughly cleaned with a high-pressure wash system with detergent to remove any loose debris or surface stains prior to reuse. Decontamination of operating equipment will be conducted within a contained HWMU, either HWMU1 or HWMU2. Pumps and transfer lines used to transfer hazardous waste are to be flushed using water from containment area and equipment decontamination.

Reusable equipment is anticipated to consist of three forklifts and six forklift attachments, six pallet jacks and 10 drum dollies, and a variety of miscellaneous tools and pumps that will be suitable for reuse. A commercial medium-duty pressure washer at 5 gallons per minute will be used to pressure wash equipment and concrete pad surfaces. Each forklift is estimated to require 10 minutes of detergent pressure washing and 2 minutes to rinse, or 36 minutes total of washing and rinsing. The forklift attachments are estimated to require a combined 10 minutes of detergent pressure washing and 2 minutes of rinsing. The remaining tools and equipment are estimated to require 30 minutes of detergent pressure washing and 10 minutes of rinsing. It is estimated that a total of 88 minutes of washing and rinsing is required which will generate approximately 440 gallons or 8 drum-equivalents of wash water will be generated in cleaning miscellaneous tools and pumps.

Concrete surfaces in all will be thoroughly cleaned using a high-pressure detergent wash system followed by a high-pressure rinse once all hazardous waste inventory has been removed from the Facility. Any areas which appear to have a buildup of material will be more aggressively cleaned using a suitable solvent or cleanser in combination with high pressure washing. Wash water from the concrete cleaning operation will be collected concurrent with the washing using a portable vacuum pump to collect waste wash water as it is being generated and stored in drums, totes, or portable containers in sufficient size and number to contain all washwater. It is estimated that rate of washing concrete pad surfaces is 200 square feet (sft) per minute. The washwater generation for decontaminating each of the HWMUs is as follows:

- HWMU1 (5,000 sft): 125 gallons or 3 drum-equivalents
- HWMU2 (8,500 sft): 213 gallons/4 drum-equivalents
- HWMU3 (10,000 sft): 250 gallons/6 drum-equivalents

The estimated total washwater generated in decontaminating equipment and structures is 1,028 gallons or 21 drum equivalents. All washwater will be stored in portable tanks, totes, or drums within HWMU1 or HWMU2 pending profiling and off-site disposal. For the purposes of this cost estimate, all washwater will be stored in drums.

All pressure washing wastewater will be profiled for off-site disposal at a licensed hazardous waste facility. Analytical data from a representative sample of the washwater from each of the HWMUs and the washwater for equipment and miscellaneous tools will be included in support of the profile. Samples will be analyzed for parameters required by the receiving facility and is anticipated to include one sample from each HWMU and one sample from the equipment washwater for total metals, pesticides and herbicides, VOCs, SVOCs, pH and flashpoint.

All expendable items used in cleaning concrete surfaces and equipment will be treated as hazardous waste and disposed of off-site as bulk hazardous waste solids as described above in Section 3.3. An estimated 21 drum-equivalents of washwater and expendable materials will be generated following inventory removal. For the purposes of this cost estimate, all bulk hazardous waste washwater will be sent to Pacific Resource Recovery Services (PRR) located approximately 269 miles west of the Facility.

Each HWMU will be visually inspected after decontamination to ensure all surfaces are free of debris, soil and staining. Areas with sampling results indicating actionable levels of contamination will be cleaned again with additional confirmation testing or, at Sydcol's discretion, the structure will be removed and disposed at a permitted oft-site facility subject to the appropriate treatment standards.

Following decontamination, the suitability of the Facility for clean closure will be evaluated through environmental sampling consistent with Section 4 of this Plan.

3.6 Demolition of Structures

Sydcol intends to leave the existing warehouse, storage pads, and associated structures intact for post-closure operations at the site. No demolition of structures is anticipated under this Plan.

3.7 Closure Certification

To certify that final closure activities at the facility have been completed under the approved plan, Sydcol will submit a closure certification report to ADEQ documenting all closure activities and sampling results. Within 60 days of completion of closure, a closure certification report will be

submitted by registered mail, verifying the facility has been closed in accordance with the specifications and procedures in the approved closure plan. This certification will be signed by Sydcol and by an independent registered professional engineer in accordance with 40 CFR 270.A 270.11(b) and (d)).

4.0 CLOSURE SAMPLING AND ANALYSIS PLAN

The purpose of the CSAP is to verify and document clean closure of the HWMUs such that all residues from hazardous waste operations have been sufficiently removed through the process of inventory removal and decontamination to render the Facility suitable for post-closure use. All sampling will be performed by properly trained and qualified personnel at the Field Engineer level with experience collecting environmental samples. Sampling personnel will be required to have active OSHA hazardous waste operations and emergency response certification. All samples will be analyzed by an Arizona certified laboratory using certified QA/QC procedures.

This CSAP provides a sampling plan, sample collection and analytical methodologies, and data validation requirements in sufficient detail to meet sampling and analysis quality assurance requirements necessary for site closure. The closure cost estimate includes professional time in the event a more detailed project-specific quality assurance project plan (QAPP) is required under federal or state project funding requirements.

Samples will be collected from 10 background locations, from each HWMU concrete slab, from soils underlying each concrete slab, and from selected locations adjacent to the HWMU concrete slabs in areas of exposed soil. Judgmental sampling based on inspections consistent with this CSAP will be used to determine sample locations unless otherwise described in this section. A total of 20 background soil samples, 42 concrete samples, 76 soil samples for detection of contamination, and 152 contingent soil samples dependent on results of detection soil samples are anticipated under this CSAP. A summary of the samples to be collected under this CSAP and their general location is provided in Table 3. Specific sample locations will be determined from the Initial Closure Assessment consistent with this CSAP.

In the event the visual inspection does not identify a sufficient number of areas with suspect contamination for judgmental sampling, samples will be collected at randomly determined locations in or adjacent to the HWMU.

4.1 Inspection of Concrete Pad Areas

Clean concrete surfaces in the HWMUs will be inspected for cracks by a licensed civil or structural engineer knowledgeable about concrete and damage to concrete structures. The inspector will use the American Concrete Institute's Guide for Conduction Visual Inspections of Concrete in Service or other industry-standard method for evaluating the condition of concrete floor slabs. All areas where the floor slab meets the sidewall foundations and the locations of known saw cuts in the floor slab will be included in the inspection. Locations where significant cracking that could potentially penetrate the slab is identified will be visually examined using penetrant dyes and

removing the surficial concrete layer near the crack to determine if the crack penetrates into the interior of the slab. The inspecting engineer will document the inspection with a technical memorandum report including photographic record of observations made during the inspection.

If necessary, the civil engineer will develop a concrete integrity assessment plan using destructive or non-destructive concrete test methods to determine the location of any cracks that penetrate the entire thickness of the concrete slab. These areas will be further evaluated by coring the concrete slab for subsurface soil sampling using the sampling and analysis methods identified in this Plan.

Samples will also be collected at the low point in each of the four loading dock bays accessing the warehouse building.

4.2 Inspection of Exposed Soil Areas

All hazardous waste storage and processing at the Facility occurs on concrete surfaces to minimize the potential for contamination of soils at the Facility. Nonhazardous solid waste storage and processing occur both on concrete pads as well as in areas of exposed soil in the SWMU. A visual inspection of areas at the Facility where hazardous waste transport vehicles were known to have been present will be performed by a Field Engineer properly trained to identify areas suspected of soil contamination that may be the result of leaked or spilled hazardous waste, in addition to the sampling locations used on the known areas of hazardous waste management. The inspector will prepare a technical memorandum report with recommendations on soil sampling locations that includes a photographic record of observations made during the inspection.

In particular, exposed soils near the loading/unloading bay doors in the warehouse building and the soils adjacent to the concrete storage surfaces in HWMU1, HWMU2, and HWMU3 will be inspected for suspect contamination. Indicators of soil that may require further investigation include:

- Visible discoloration or abnormally wet soils.
- Any areas which soil exhibits a chemical odor.
- Adjacent to stained areas of the concrete pad, particularly areas where the concrete containment curb is stained.
- Areas adjacent to the concrete slab where large spills of liquid hazardous waste are known to have occurred.

A PID instrument will be used to screen shallow soils for VOC contamination. Ambient concentrations of VOCs will be determined using a calibrated PID in ambient air at a location upwind of the Facility and recorded. Any exposed soils designated for further investigation will be first screened for organic compounds using a PID and the total VOC above background content

noted. For screening in exposed soil areas, a surface sample and a sample at one-foot depth will be collected consistent with this CSAP. If the soil to be sampled is beneath a concrete slab, the concrete will be cored and screening samples collected consistent with this CSAP. The top of the soil underneath the concrete slab will be screened for VOCs no more than 6 inches below the concrete slab and any underlying base course gravel.

A screening threshold of 100 ppm VOC content above background will be indicative of soil contamination in determining the depth of soil samples subject to laboratory analysis consistent with this CSAP.

4.3 Stormwater Basin and Septic Line Samples

In addition to soil sample locations determined from the visible inspection, soil samples will be collected within each of the three stormwater runoff basins and near the septic line feeding the septic tank and from the primary leach field area of the septic system. Six sample locations are anticipated for detection sampling in the large linear basin along the northern perimeter of the site and two sample locations are anticipated in each of the smaller retention basins on the east and south property boundaries. Two sample locations are anticipated along the septic line.

4.4 Sampling Methodology

Samples of concrete will be collected from concrete cores produced when drilling the concrete slab with a core barrel drill. Concrete core sample locations must include expansion joins and cold joints where the slab joins the concrete containment berm for each HWMU. Each concrete sample shall be placed in a ziplock bag after coring, labelled, and stored on ice in a cooler pending transport to the analytical laboratory. A complete core of the concrete slab will be considered a representative sample of the concrete slab.

Soils underlying concrete slabs will be accessed for sampling through core holes drilled through the concrete slab. Samples will be collected from the top 6 inches of native soil beneath the concrete core and any base course aggregate as well as at depths of 1 and 5 feet below the top of native soil. Similarly, at sample locations in exposed soil areas, samples will be collected from the surface soil material and at depths of 1 and 5 feet below the ground surface. The soil core will be examined for staining or odors being emitted. A hand auger, hollow-stem auguer, or direct-push soil sampler will be used to collect soil below the concrete and aggregate base course material. A hollow-stem auger rig is assumed for the purposes of this cost estimate.

Collected samples will be placed in laboratory-supplied containers immediately upon collection. Samples for VOCs will be collected using a field extraction sample container such as En Core®

samplers or equivalent volumetric sampling device. For both soil samples underneath concrete slabs and soil samples in uncovered areas, the sample taken at the soil surface will be analyzed for all parameters listed Table 4. If analytical results for all parameters are non-detect or below RSRLs and VOCs were not detected above PID screening levels, no further action will be taken. If one of these parameters is above the RSRL or VOCs were detected above screening levels, additional analysis for the respective parameters will be analyzed for each of the deeper samples. This will be repeated until the extent of contamination has been defined. If necessary, additional samples will be collected from depths greater than 5 feet below the top of native soil.

Sampling boreholes will be backfilled with clean soil. A concrete fill patch installed to repair the concrete slab for sample locations within the HWMUs. The repair will be epoxy-sealed consistent with the concrete slab surface.

All samples will be labelled to include, at a minimum, the following information.

- Sample Identification Number
- Date
- Time
- Sampling Personnel
- Matrix

As each sample is collected, a record will be made in the field notebook which further identifies the sample. All samples will be taken to a central staging area where they will be checked and recorded on a chain-of-custody form. Chain-of-custody procedures provide documentation of the handling of each sample from the time it is collected until it is destroyed. To maintain a record of sample collection, transfer between personnel, shipment, and receipt and handling by the laboratory, a "Chain-of-Custody Record" will be included with each sample shipment. This document will record pertinent information about each sample included in that shipment. Each time the samples are transferred to another custodian, signatures of the person relinquishing the sample and receiving the sample, as well as the time and date, will document the transfer.

Chain-of-custody records will have each sample identified with the station number, date and time of collection, matrix, number of containers per station, analytical constituents, and any special instructions for the analytical laboratory. A copy of the chain-of custody will be retained by the sampler while the original is shipped with the samples.

The Chain-of-custody record will be placed inside the shipping container. A sealable plastic bag or other sheet protector will be used to protect the chain-of-custody form during shipment. All samples will be delivered directly to or shipped by the most expedient method to the analytical

laboratory. Samples will be packed to prevent container breakage. The shipping container will be sealed with evidence tape to provide evidence of any tampering with samples during transport.

Sampling personnel will be properly trained and experienced in environmental sample collection consistent with sampling methodologies. Sampling personnel will also be trained consistent with OSHA HAZWOPER requirements for work at a hazardous waste management facility with current HAZWOPER certification. The HASP will be followed by all contractors working onsite.

All sample bottle preparation, sample preservation, sample size and maximum holding times shall conform to the procedures described in the analytical method. Sample containers will be prepared by the analytical laboratory and will be used as received. The analytical laboratory will be responsible for disposing of all samples in accordance with local, state and federal regulations. Soil samples collected for VOC will be appropriately collected and either sub-sampled or field extracted in accordance with EPA Method 5035. Liquid samples will be collected directly into the sample container, collected and transferred to the sample container using a pond sampler, or collected through a peristaltic pump with Teflon tubing.

Sampling equipment will be decontaminated after each use and before reusing by the following steps:

- Detergent wash followed by a clean water rinse
- Isopropyl alcohol rinse
- Triple rinse with deionized water and air dry
- Covered to minimize open exposure

Cleaning solutions and rinses will be collected into drums, totes or a portable tank and characterized for off-site disposal at an approved disposal facility.

4.5 Analytical Methods

Heavy metals, VOCs, SVOCs, and to a lesser extent pesticides and herbicides are present in a wide variety of waste streams accepted at the Facility. The analysis procedures listed below are expected to provide a good indication of the possible contaminants that could be present at the time of closure. Analytical procedures and detection limits of the most recent version of each of the following methods published in EPA Hazardous Waste Test Methods/SW-846 are to be used in analyzing for specific compounds in closure samples:

- Method 6010 (metals: As, Ba, Cd, Cr, Pb, Hg, Se, Ag, Be, Ni, Tl and Zn)
- Method 8260 (VOCs)
- Method 8270 (SVOCs)

- Method 8082 (organochlorine pesticides)
- Method 8141 (organophosphorous pesticides)
- Method 8151 (chlorinated herbicides)

Sixteen background samples will be collected at 8 locations depicted in Figure 2. Background samples will be collected at the surface and at one (1) foot depth for the same constituents as soil samples collected under this CSAP. The background concentration will be established as the upper confidence limit of the mean (UCL) with 95 percent confidence. The background distribution will be established as a tolerance interval with a 95 percent confidence and 90 percent coverage, with the upper tolerance limit (UTL) established as a screening level. Additional background samples will be collected if distributional assumptions necessary to establish a UCL or a tolerance interval are not satisfied with eight background samples using standard statistical tests for data normality as detailed by EPA in "Data Quality Assessment: Statistical Methods for Practitioners," EPA QA/G-9S, February 2006 (EPA Guidance). Non-detect data will be handled consistent with EPA Guidance.

Soil samples will be analyzed for total concentrations for each of 12 heavy metals. The soil concentrations for total metals will be compared statistically to the background data set. Statistical comparison of analytical results in soil samples collected from operational areas will be compared to those of uncontaminated background samples using a student's t-test or other appropriate statistical test for each distribution. Sydcol may propose an alternate statistical procedure with ADEQ approval of an amendment to this Plan if determined to be necessary or appropriate.

4.6 Data Validation

Analytical laboratory data will be validated by reviewing the precision and accuracy of the data. The precision, or degree of agreement between measurements, is determined by the standard deviation of a single measurement from the mean of the data set. Duplicates of the same sample will be analyzed by the laboratory as a routine precision check consistent with the laboratory's QA/QC plan. Field duplicates will be collected at a rate of ten percent (10 %) of samples for each sampling media, selected at random, to be analyzed as a check on sampling and analytical technique.

The accuracy of a sample measurement is reported as percent spike recovery which represents the percentage recovery of a known quantity of compound which is added to the original sample and subsequently analyzed. The methods used in sample analyses will contain quality control audit standards, including sample spiking, to be implemented to ensure data reliability.

The analytical laboratory will prepare quality assurance documentation for all samples analyzed for each sampling event. The level of detail will be sufficient to document all quality assurance activities specified by the method and shall include periodic assessment of measurement data accuracy, precision, and completeness, results of performance audits, results of systems audits, and significant quality assurance problems and resolutions.

The analytical laboratory will analyze the samples using the procedures outlined in EPA guidance publication SW 846 for all analyzed compounds. All analytical reports received from the laboratory will be included in the closure certification report and will include quality assurance test results, analytical methods, detection limits and dates. Analytical data will be summarized in tabular form for ease of presentation in a certification report. Statistical analysis of soil sample results will be prepared and submitted with the report.

4.7 Data Analysis

Analytical results for samples in exposed areas of soil will be compared to UTL screening level as a preliminary indication of whether or not the results are representative of the background distribution. For samples with contaminants exceeding the UTL, additional judgment samples for the contaminants exceeding the UTL screening level will be collected on a step-out pattern of 10 feet from the sampling location where UTLs were exceeded. The step out pattern of judgment sampling will continue until the extent of contamination is characterized by an area with maximum concentration of contaminants identified.

Areas where contaminants are identified above RSLs will be evaluated in relation to Arizona health-based guidance levels designated as RSRLs and NRSRLs. In the event analytical results indicate that the soils contain contaminants above the Arizona NRSRL's, the affected soils as defined by step-out samples will be excavated and treated or disposed at a permitted site. A minimum of one additional sample will be collected and analyzed six inches below each excavation to determine whether all contaminated soils have been removed. Larger excavations may require additional samples. Should contaminated soils remain on site at levels above the RSRLs but below the NRSRLs, Sydcol will prepare a DEUR for areas where soil contamination exists above RSRLs.

In addition to comparison with Arizona health-based guidance levels, Sydcol will determine whether Arizona GPLs are warranted to for any contaminants detected in soil samples. Sydcol will use ADEQ guidance and methods for establishing GPLs for the contaminants of concern. Soils with contaminants above GPLs will be considered to not meet clean closure criteria under this Plan.

Impacted soil that does not meet the clean closure criteria will be removed and treated or disposed in an off-site permitted facility in accordance with appropriate State and Federal regulations. If the extent or location of contamination makes removal impractical based on technical or economic reasons, it may be necessary to use other methods to address the impacted area. This may include in-situ treatment or it may involve post-closure care. A plan to address soil corrective action, a site-specific risk analysis, or a Post Closure Plan, will be developed if necessary.

4.8 Additional Sampling

In the event contamination is discovered in samples collected at a depth of 5 feet bgs, additional samples will be collected at the location of the detection at a depth of 10 feet bgs and at the depth of the water table, anticipated to be approximately 15 feet bgs. A grab sample of groundwater will be collected from the top of the aquifer using a disposal or decontaminated sampling bailer. Additional soil and groundwater samples will be tested for the constituents detected in soils at a depth of 5 feet.

5.0 FINANCIAL ASSURANCE

5.1 Closure Cost Estimate

A closure cost estimate is presented in Appendix A. The closure cost estimate contains a summary page as Table A-1 and several supporting spreadsheets to calculate an estimated cost for each element of the Facility closure. For clarity of presentation, professional services provided throughout the closure process are calculated separately on a single spreadsheet provided in Attachment A-2. The cost of loading, transport, and disposal of all hazardous waste in the Facility's inventory at closure are presented in Table A-3, including management costs associated with inventory removal. Attachment A-4 presents costs for decontaminating the Facility and the cost for loading and removing non-inventory wastes, including waste generated in the process of decontamination. Attachment A-5 presents costs associated with confirmation sampling at the Facility to confirm clean closure.

One of the spreadsheets assumes a diversity of waste types extrapolated to the maximum RCRA waste inventory based on past waste streams arriving at the facility. The costs of labor and equipment to remove the waste from site have also been included with the waste removal estimate.

The closure cost estimates are based on closure costs involving third parties for inventory disposal, transportation, site/equipment decontamination, labor, and administrative and engineering certifications. Where appropriate, relevant reference values were used for necessary equipment and services published in RS Means (RS Means, 2020). Published values that include contractor O&P were used in all line items to adequately account for O&P in the itemized total. Each RS Means value was adjusted for the RS Means location factor for Phoenix, Arizona, as well as for inflation to adjust prices from 2020 levels to 2021 levels. Inflation factors published by ADEQ (ADEQ, 2021) were used in the inflation adjustment. Per diem rates for crew travel were obtained from current published GSA values for Yuma, Arizona. Cost for hazardous waste disposal were obtained from third-party disposal facilities in 2020 and adjusted for inflation using ADEQ inflation factors. A current third-party laboratory quote was used as representative of analytical costs for the analytical methods anticipated under this Plan. Engineering estimates were made for the cost of PPE, vehicle fuel consumption and cost, non-hazardous waste disposal and recycling facility costs, miscellaneous sampling materials costs, and shipping costs associated with sample shipments to an analytical laboratory. Cost estimate source values are provided in Appendix B.

The total direct costs for the Facility closure are estimated at $570,510. A contingency of 20 precent of the total direct costs was applied for an additional $114,142, and a project management cost of 10 percent o f the total direct costs applied for an additional $57,051. The total estimated costs for Facility closure financial assurance is estimated to be $741,663.

5.2 Financial Assurance Mechanism for Closure

Sydcol will execute and provide to ADEQ a closure insurance policy as described in 40 CFR 264.143(e) as the financial assurance mechanism for closing the Facility consistent with this Plan. The closure insurance policy provides funds for closure of the existing units based on the closure cost estimates provided herein in the event Sydcol is unable to provide the financial resources needed for closure. The amount of closure insurance policy is to be adjusted annually by a new estimate of the maximum cost of closure in current dollars or by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its Survey of Current Business. The inflation factor will be determined by dividing the latest published annual Deflator by the Deflator for the previous year.

The first adjustment is made by multiplying the closure cost estimate by the inflation factor. The result is the adjusted closure cost estimate. Subsequent adjustments are to be made by multiplying the latest adjusted closure cost estimate by the latest inflation factor.

5.3 Post Closure Care

Post closure care and subsequent funding will not be necessary at the Facility since all hazardous components and materials will be removed from the site during closure activities. If hazardous components or contaminated soils are found at the site during closure and the Facility demonstrates that not all contaminated soils can be practically removed or decontaminated, post closure care will be performed as specified in 40 CFR 264.197. A post closure plan will be prepared in accordance with all applicable post closure requirements under 40 CFR 264.117 through 264.120.

As this Plan anticipates clean closure of the Facility, a post-closure care cost estimate and post-closure care financial assurance mechanism is not applicable.

6.0 MISCELLANEOUS PROVISIONS

6.1 Notice in Deed

If contamination above the RSRLs remains after closure, Sydcol will comply with deed notice requirements in 40 CFR 270.14(b) (14).

6.2 Liability Insurance

Liability coverage for sudden accidental occurrence with a one million dollar ($1,000,000) per occurrence and an annual aggregate amount of two million dollars ($2,000,000) has been secured by the Facility. Such liability coverage is demonstrated by a Hazardous Waste Certificate of Liability Insurance. A copy of the liability coverage document is provided in Appendix C.

6.3 Amending the Closure Plan

Sydcol may amend this closure plan at any time through the permit modification process during the life of the facility to incorporate any changes in operating plans, Facility design, or waste streams. If a modification is required, the request for modification will be submitted in accordance with 40 CFR 264.112 (c)(3).

6.4 Pre-Closure Corrective Action

Section 3004 (u) of the Resource Conservation and Recovery Act, 42, USC §6924, as amended by section 206 of the Hazardous and Solid Waste Amendments of 1984 (JHSWA), and 40 CFR 264.101, requires that all permits address corrective action for releases of hazardous waste or hazardous constituents from any solid waste management unit (SWMU), regardless of when waste was placed in the unit or whether the unit closed. As of this date of this Closure Plan, there have been no releases of hazardous waste or hazardous waste constituents from a SWMU or HWMU at the Facility.

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TABLES

Table 1
Estimated Annual Hazardous Waste

Waste type	RCRA Waste Codes	HWMUs	Estimated Annual Quantity (tons)	Percentage of total
Ignitables	D001	1, 2, 3*	30,000	26.46%
Corrosives	D002	1, 2, 3*	20,000	17.64%
Reactives	D003	1, 2, 3*	200	0.18%
Toxicity: Heavy metals	D004-011	1, 2, 3*	100	0.09%
Toxicity: pesticides/herbicides	D012-017, 020, 031	1, 2, 3*	100	0.09%
Toxicity: Volatile organics	D018-019, 021-022, 028-029, 035, 039-040, 043	1, 2, 3*	32,500	28.67%
Toxicity: Semi-volatile organics	D022-027, 032-034, 036-038, 041-042,	1, 2, 3*	200	0.18%
2,4-dinitrotoluene, nitrobenzene	D030, D036	1, 2, 3*	2	0.00%
Halogenated compounds: degreasing	F001	1, 2, 3*	4,000	3.53%
Halogenated compounds: solvents	F002	1, 2, 3*	4,000	3.53%
non-Halogenated compounds solvents	F003-005	1, 2, 3*	8,000	7.06%
Listed electroplating wastes	F006-009	1, 2, 3*	11,000	9.70%
Listed metal finishing wastes	F010-012, 019	1, 2, 3*	2,500	2.21%
Chlorinated aliphatic hydrocarbons	F024-026	1, 2, 3*	10	0.01%
Listed wood-preserving wastes	F032, F034-035	1, 2, 3*	10	0.01%
Refinery WW treatment sludges	F037-038	1, 2, 3*	10	0.01%
Hazardous leachates	F039	1, 2, 3*	10	0.01%
P-listed commercial chemicals	P001-P205	1, 2, 3*	100	0.09%
Commercial grade acetone	U002	1, 2, 3*	100	0.09%
Commercial grade benzene	U019	1, 2, 3*	100	0.09%
Commercial grade 1-butanol	U031	1, 2, 3*	20	0.02%
Commercial grade methanol	U154	1, 2, 3*	100	0.09%
Commercial grade methyl-ethyl ketone	U159	1, 2, 3*	100	0.09%
other U-listed commercial chemicals	U001, 003-018, 020-030, 032-153, 154-158, 160-411	1, 2, 3*	200	0.18%
Total			113,362	100%

* Containers with free liquids or listed wastes FO20, FO21, FO22, FO23, FO26, and FO27 to be placed on containment pallets in HWMU3.

Table 2
Maximum Inventory by Waste Class

Waste type	Percentage	Drum-equivalents
Ignitables	26.46%	850
Corrosives	17.64%	567
Reactives	0.18%	6
Toxicity: Heavy metals	0.09%	3
Toxicity: Pesticides	0.09%	3
Toxicity: Volatile organics	28.67%	921
Toxicity: Semi-volatile organics	0.18%	6
Listed: F	26.06%	837
Listed: P/U	0.64%	20
Totals	100%	3,212

Maximum capacity: 3212 drum-equivalents

Table 3
Sample Locations

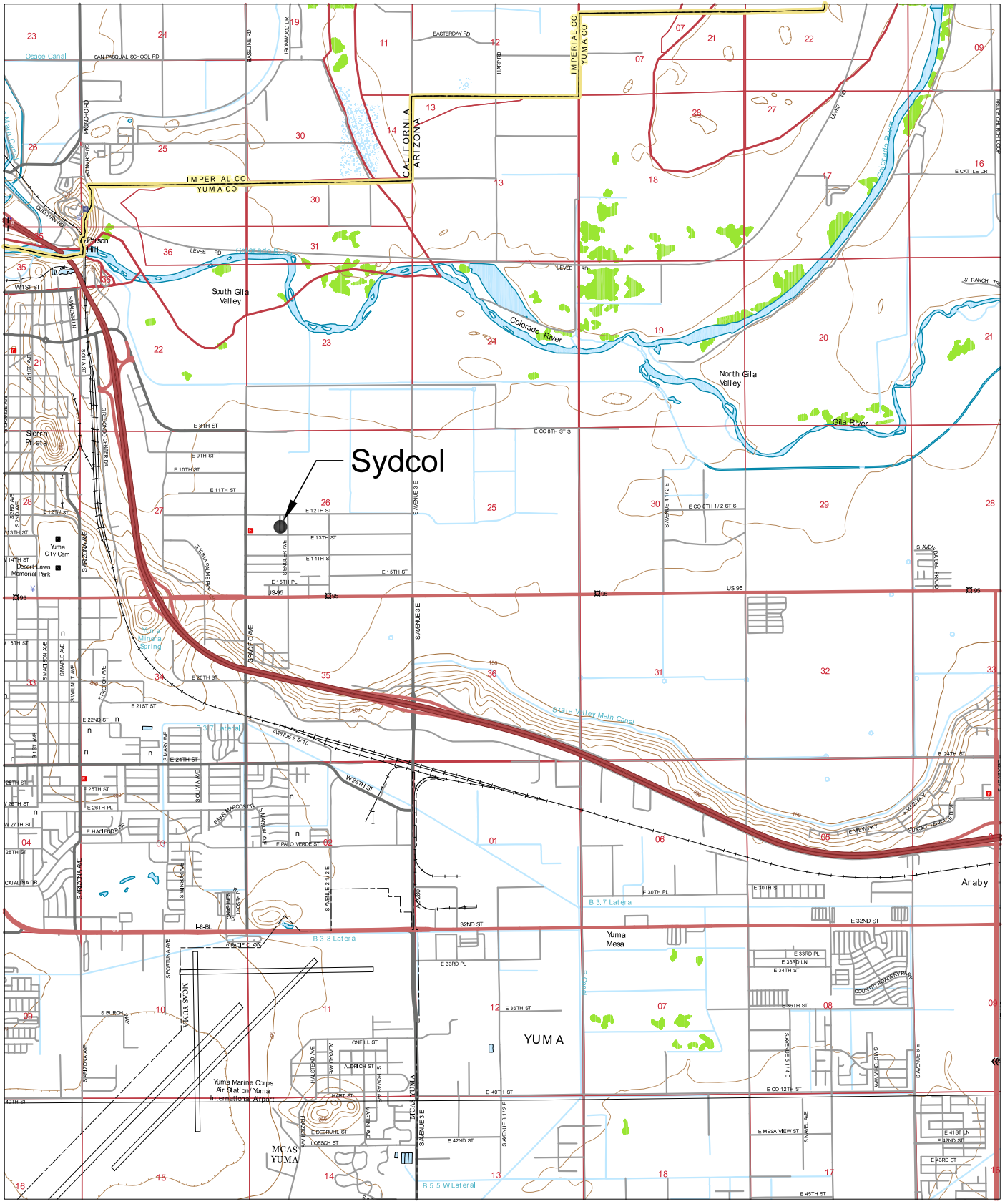
Sampling Area	Number of locations	Concrete samples	Primary Soil Samples	Contingent Soil samples	Rinsate Samples
General					
Background	10	0	20	0	0
Loading dock bays	4	4	4	8	2
Runoff retention basins	10	10	10	20	2
Septic system	2	0	2	4	0
Totals (general)	26	14	36	32	4
HWMU1					
Concrete pad area	10	10	10	20	2
Adjacent soils	6	0	6	12	0
Totals (HWMU1)	16	10	16	32	2
HWMU2					
Concrete pad area	12	12	12	24	2
Adjacent soils	8	0	8	16	0
Totals (HWMU2)	20	12	20	40	2
HWMU3					
Concrete pad area	16	16	16	32	2
Adjacent soils	8	0	8	16	0
Totals (HWMU3)	24	16	24	48	2
Totals	**86**	**52**	**96**	**152**	**10**

Total primary samples 158
Total contingency samples: 152

Table 4
Analytical Parameters

Analytical Parameters	EPA SW-846 Method	Concrete Samples	Soil Samples	Rinsate Samples
Heavy metals	6010A	X	X	X
Volatile organic compounds (VOCs)	8260B	X	X	X
Semi-volatile organic compounds (SVOCs)	8270D	X	X	X
Polychlorinated biphenols (PCBs)	8082		X	
Organochlorine pesticides	8081A		X	
Organophosphorous pesticides	8141B		X	
Chlorinated herbicides	8151A		X	

FIGURES


Sydcol
IMPERIAL CO
YUMA CO
CALIFORNIA
ARIZONA
Colorado River
Gila River
South Gila Valley
North Gila Valley
Sierra Prieta
Yuma City Cem
Desert Lawn Memorial Park
Yuma Mineral Spring
S Gila Valley Main Canal
B 3.7 Lateral
B 3.8 Lateral
B 5.5 W Lateral
Yuma Mesa
YUMA
Araby
Yuma Marine Corps Air Station/Yuma International Airport
MCAS YUMA
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S AVENUE 1 E
S ARIZONA AVE
S MAIN ST
S GILA ST
S FORTUNA AVE
S MARY AVE
S COLMA AVE
S MCKEEN AVE
S MAPLE AVE
S WALNUT AVE
S PACIFIC AVE
S SENDER AVE
S MCLEAN AVE
S MCCAS YUMA
S MCTOWNSEND AVE
S MCTOWNSEND PL
S MCTOWNSEND LN
S MCTOWNSEND WAY
S MCTOWNSEND CT
S MCTOWNSEND TER
S MCTOWNSEND RD
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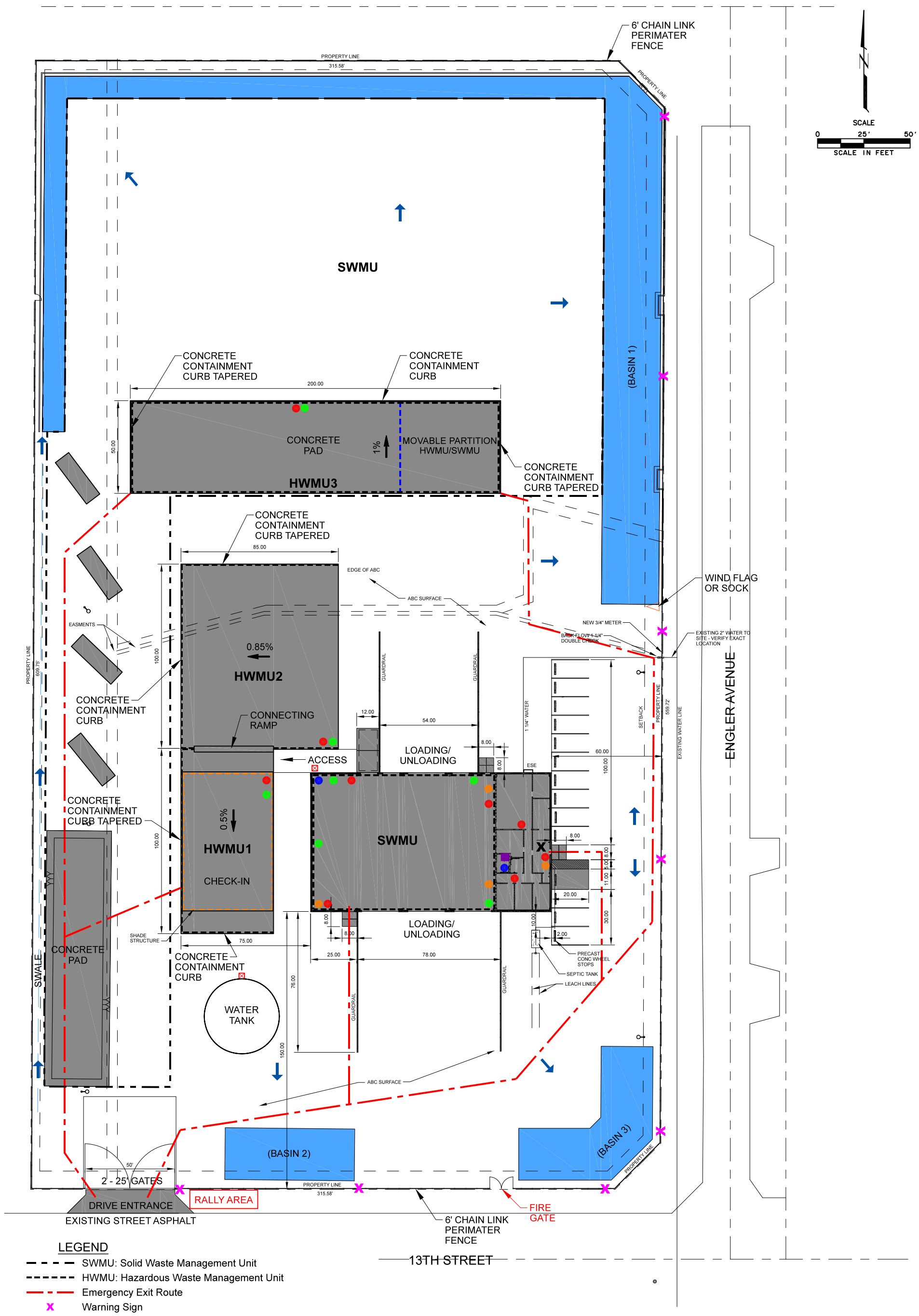

LEGEND

- SWMU: Solid Waste Management Unit
- HWMU: Hazardous Waste Management Unit
- Emergency Exit Route
- Warning Sign
- Spill Kit
- Fire Alarm
- Fire Extinguisher (ABC)
- Eyewash
- Shower
- Facility Report
- Fire Hose Connection
- Concrete Surface
- Drainage Direction
- Drainage Basin

Figure 2
SITE PLAN
Sydcol
2264 E. 13th St.,Yuma, AZ 85365

CLIENT:	APPROVED BY: JGP
PROJECT:	PROJECT NO:
DESIGNED BY: JGP	DATE: 11/5/21
DRAWN BY: TML	DWG/FILE: SYDCOL02
REVISION:	

JGP Consulting, PLC
Environmental Compliance Services

APPENDICES

APPENDIX A

CLOSURE COST ESTIMATE

Table A-1
AA Sydcol Waste Transfer Station
Summary of Closure Costs

Closure Activity	Estimated Cost	Supporting information
Health and Safety Plan	$9,831	Table A-2
Initial closure assessment	$10,123	Table A-2
Inventory removal	$340,052	Table A-3
Waste/recycling disposal and decontamination	$71,388	Table A-4
Confirmation sampling	$121,566	Table A-5
Closure sampling report	$10,289	Table A-2
Closure Certification	$7,260	Table A-2
Total Direct Cost	$570,510	
Contingency (20%)	$114,102	
Project management (10%)	$57,051	
Total Project Cost	**$741,663**	

Table A-2
AA Sydcol Waste Transfer Station
Closure Costs for Services

Service Item	Health and Safety Plan	Initial Closure Assessment	Sampling Report	Closure Certification
Labor costs				
Project Manager: Weeks	0.5	1	1	1
Project Manager w/O&P (01-31-13.20 0220): Rate ($/wk)	3,876	3,876	3,876	3,876
Project Manager total:	$1,938	$3,876	$3,876	$3,876
Field Engineer: Weeks	1	2	2	1
Field Engineer w/O&P (01-31-13.20 0120): Rate ($/wk)	2,487	2,487	2,487	2,487
Field Engineer total:	$2,487	$4,973	$4,973	$2,487
Safety Specialist: Weeks	1	0	0.2	0
Safety Specialist w/O&P (01-31-13.20 0280): Rate ($/wk)	3,607	3,840	3,840	3,840
Safety Specialist total:	$3,607	$0	$768	$0
Clerical support: Weeks	1	1	1	1
Clerical w/O&P (01 31 13.20 0020): Rate ($/Wk)	672	672	672	672
Clerical support total:	$672	$672	$672	$672
Total labor cost	$8,703	$9,521	$10,289	$7,034
Expenses				
Expenses: Per diem lodging (GSA): ($96/day)	$96	$96	$96	$96
Expenses: Per diem meals (GSA) ($55/day)	$55	$55	$55	$55
Expenses: PPE (engineering estimate) ($75 /day)	$225	$150	$0	$75
Travel: person-days	3	2	0	1
Total expenses	$1,128	$602	$0	$226
Project Totals				
Total cost (labor and expenses)	$9,831	$10,123	$10,289	$7,260
	$37,504			

Notes:

All RS Means costs adjusted for location and inflation.

RS Means location factor index (Phoenix):	0.886
Inflation factor (2020-2021):	1.01139

Table A-3
Sydcol Waste Transfer Station
Closure Costs for Inventory Removal

Inventory Removal Safety Oversight

Item	RSMeans or Item	Rate	Units	Quantity	Cost
Safety Specialist	01-31-13.20 0280	3,607	week	6	$21,641
Vehicle (pickup)	01-54-33.40 7100	497	Month	1.5	$746
Fuel	Engineering estimate	30	Day	10	$300
PPE	Engineering estimate	75	Person-day	30	$2,250
Per diem lodging	GSA 2021	96	Person-day	30	$2,880
Per diem meals	GSA 2021	55	Person-day	30	$1,650
Totals:					**$29,467**

Loading, Transport, and Disposal Costs

Facility capacity: 3212 Drum-eq

Inventory Description	Quantity (Drum-eq)	Loading cost	Loads (5000 g/l)	Disposal Facility	Distance (miles)	Transport Cost	Disposal Cost/unit^3	Total Cost
Ignitables	850	5648	10	Veolia	258	20001.45	$46,277	$71,926
Corrosives	567	4434	7	Veolia	258	14001.02	$30,851	$49,287
Reactives	6	45	1	Veolia	258	2000.15	$315	$2,360
Toxicity: Metals	3	23	1	Veolia	258	2000.15	$157	$2,180
Toxicity: Pesticides	3	23	1	Veolia	258	2000.15	$157	$2,180
Toxicity: VOCs	921	7207	11	Veolia	258	22001.60	$50,142	$79,351
Toxicity: SVOCs	6	45	1	Veolia	258	2000.15	$315	$2,360
Listed: F	837	6554	10	Veolia	258	20001.45	$45,595	$72,150
Listed: P/U	21	4902	1	Crosby	274	2124.19	18268.25	$25,294
Totals (2020):	3,213	28,880	43			86,130	192,077	307,088
Totals (2021):								**$310,586**

Total cost for task: **$340,052**

Notes:

1. Loading costs: RS Means 02 81 20.10 3120 with O&P ($265/hour), adjusted for location (Phoenix) (2020)
   Load 30 drum contents per hour.
2. Transport costs: RS Means 02 81 20.10 3400 ($8.75/mile/ load) adjusted for location (Phoenix)
3. Independent price quote from disposal facility (2020)
   Veolia: $0.99/gallon bulk hazardous liquid, Crosby: $875/drum for acute hazardous waste (P-list)

RS Means location factor index: 0.886 Phoenix

Inflation factor (2020-2021): 1.01139

Table A-4
AA Sydcol Waste Transfer Station
Closure Costs for Non-inventory Waste Removal and Decontamination

A-4.1 Non-inventory waste loading

Description	RSMeans	Units	Quantity	Unit Cost	Total Cost
Rolloffs for bulk solids, haz/non-haz (20 cyd)	02 41 19.19 0725	week	14	625	$8,750
Rolloff loading (0-50' wheeled)	02 41 19.19 2005	cyd	120	27.5	$3,300
Listed HW: bulk solids	02 81 20.10 1130	ton	41	210	$8,610
Listed HW: washwater	02 81 20.10 1100	drum	24	655	$15,720
Total:					$36,380

A.4-2 Non-inventory waste disposal

Description (non-inventory Wastes)	RSMeans	Units	Quantity	Disposal Facility	Transport Cost ($/unit-mile)[1]	Disposal ($/unit)[2]	Total Cost
Nonhazardous bulk solids	02 81 20.10 1270	tons	15	MSWLF (15 miles)	0.40	30	$539
Scrap recycling	02 81 20.10 1270	tons	143	Republic (5 miles)	0.40	30	$4,574
Listed: Bulk solids	02 81 20.10 1270	tons	41	US Ecology (398 mi)	0.40	142	$12,288
Listed: Washwater	02 81 20.10 1270	Drum-eq	21	PRR (269 mi)	0.09	255	$5,857
Total:							**$18,145**

A.4-3 Decontamination costs

Description	RSMeans	Units	Quantity	Unit Cost	Total Cost
Pressure wash crew and equipment (Crew B-9B)	Crew B-9B	Day	5	2221	$11,103
Fuel	Engineering est.	Week	1	700	$700
PPE[3]	Engineering est.	Man-Day	15	75	$1,125
Waste profiling	3rd-party	Sample	4	795	$3,180
Expenses: Per diem lodging (GSA)	GSA	Day	5	96	$480
Expenses: Per diem meals (GSA)	GSA	Day	5	55	$275
					$16,863

Total for non-inventory waste removal and decontamination: **$71,388**

Notes:

1. Transport costs: RS Means 02 81 20.10 1270 ($7.98/mile/ load, 80 drums or 18 tons per load) adjusted for location (Phoenix) and inflation.
2. Engineering estimate for solid wastes and recycling. Independent price quote from disposal facility for hazardous wastes (2020, adjusted to 2021)
3. Engineering estimate for PPE costs include tyvek cover, disposable respirator cartridges, and latex boot covers

Location factor index for all RSMeans costs (Phoenix): 0.886
Inflation factor (2020-2021): 1.01139

Table A-5
AA Sydcol Waste Transfer Station
Closure Costs for Sampling

Description	RSMeans[2] or source	Units	Quantity	Unit Cost	Total Cost
Field Engineer	01 31 13.20 0200	Week	1	2487	$2,487
Concrete coring	03 82 13.10 0300	Hole	42	73	$3,067
Drill rig and crew	02 32 13.10 1400	Day	5	2599	$12,993
PPE[1]	Eng. Estimate	Person-day	15	75	$1,125
Sample analytical costs (concrete)	3rd-party quote	Sample	42	350	$14,700
Sample analytical costs (soils)	3rd-party quote	Sample	86	795	$68,370
Sample analytical costs (rinsate)	3rd-party quote	Sample	8	350	$2,800
Sample duplicate analytical costs (soils)	3rd-party quote	Sample	14	795	$10,812
Sampling materials	Eng. Estimate	Lump	1	2000	$2,000
Sample shipping	Eng. Estimate	Lump	1	400	$400
Vehicle (pickup)	01 54 33.40 7100	Day	5	99	$497
Fuel	Eng. Estimate	Day	5	10	$50
Expenses: Per diem lodging (GSA)	GSA	Day	15	96	$1,440
Expenses: Per diem meals (GSA)	GSA	Day	15	55	$825
Samplig total					$121,566

Notes:

1. Estimated PPE costs include tyvek cover, dispoal respirator cartridges, and latex boot covers
2. Costs from RS Means are adjusted for location (Phoenix) and inflation (2020-2021)

   Location factor index for all RSMeans costs (Phoenix): 0.886

   Inflation factor (2020-2021): 1.01139

APPENDIX B

COST ESTIMATE REFERENCES

01 21 Allowances

01 21 55 – Job Conditions Allowance

01 21 55.50 Job Conditions

		Crew	Daily Output	Labor-Hours	Unit	Material	2020 Bare Costs Labor	Equipment	Total	Total Incl O&P
0600	Inexperienced, add				Project				10%	10%
0700	Labor availability, surplus, deduct								1%	1%
0800	Shortage, add								10%	10%
0900	Material storage area, available, deduct								1%	1%
1000	Not available, add								2%	2%
1100	Subcontractor availability, surplus, deduct								5%	5%
1200	Shortage, add								12%	12%
1300	Work space, available, deduct								2%	2%
1400	Not available, add								5%	5%

01 21 57 – Overtime Allowance

01 21 57.50 Overtime

0010	**OVERTIME** for early completion of projects or where R012909-90									
0020	labor shortages exist, add to usual labor, up to				Costs		100%			

01 21 63 – Taxes

01 21 63.10 Taxes

0010	**TAXES** R012909-80									
0020	Sales tax, State, average				%	5.08%				
0050	Maximum					7.50%				
0200	Social Security, on first $118,500 of wages R012909-85						7.65%			
0300	Unemployment, combined Federal and State, minimum R012909-86						.60%			
0350	Average						9.60%			
0400	Maximum						12%			

01 31 Project Management and Coordination

01 31 13 – Project Coordination

01 31 13.20 Field Personnel

0010	**FIELD PERSONNEL**									
0020	Clerk, average				Week		495		495	750
0100	Field engineer, junior engineer						1,241		1,241	1,877
0120	Engineer						1,825		1,825	2,775
0140	Senior engineer						2,400		2,400	3,625
0160	General purpose laborer, average	1 Clab	.20	40			1,675		1,675	2,525
0180	Project manager, minimum						2,175		2,175	3,300
0200	Average						2,500		2,500	3,800
0220	Maximum						2,850		2,850	4,325
0240	Superintendent, minimum						2,125		2,125	3,225
0260	Average						2,325		2,325	3,525
0280	Maximum						2,650		2,650	4,025
0290	Timekeeper, average						1,350		1,350	2,050

01 31 13.30 Insurance

0010	**INSURANCE** R013113-40									
0020	Builders risk, standard, minimum				Job				.24%	.24%
0050	Maximum								.64%	.64%
0200	All-risk type, minimum R013113-50								.25%	.25%
0250	Maximum								.62%	.62%
0400	Contractor's equipment floater, minimum R013113-60				Value				.50%	.50%
0450	Maximum				"				1.50%	1.50%
0600	Public liability, average				Job				2.02%	2.02%
0800	Workers' compensation & employer's liability, average									
0850	by trade, carpentry, general				Payroll		11.97%			

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02 21 Surveys

02 21 13 – Site Surveys

02 21 13.09 Topographical Surveys

		Crew	Daily Output	Labor-Hours	Unit	Material	2020 Bare Costs Labor	Equipment	Total	Total Incl O&P
0010	**TOPOGRAPHICAL SURVEYS**									
0020	Topographical surveying, conventional, minimum	A-7	3.30	7.273	Acre	23.50	415	9.30	447.80	660
0100	Maximum	A-8	60	53.333	"	63	2,975	51	3,089	4,600

02 21 13.13 Boundary and Survey Markers

0010	**BOUNDARY AND SURVEY MARKERS**									
0300	Lot location and lines, large quantities, minimum	A-7	2	12	Acre	36	690	15.35	741.35	1,075
0320	Average	"	1.25	19.200		63.50	1,100	24.50	1,188	1,750
0400	Small quantities, maximum	A-8	1	32		76.50	1,775	30.50	1,882	2,800
0600	Monuments, 3' long	A-7	10	2.400	Ea.	35.50	138	3.07	176.57	249
0800	Property lines, perimeter, cleared land	"	1000	.024	L.F.	.08	1.38	.03	1.49	2.19
0900	Wooded land	A-8	875	.037	"	.10	2.04	.04	2.18	3.21

02 21 13.16 Aerial Surveys

0010	**AERIAL SURVEYS**									
1500	Aerial surveying, including ground control, minimum fee, 10 acres				Total				4,700	4,700
1510	100 acres								9,400	9,400
1550	From existing photography, deduct								1,625	1,625
1600	2' contours, 10 acres				Acre				470	470
1850	100 acres								94	94
2000	1000 acres								90	90
2050	10,000 acres								85	85

02 32 Geotechnical Investigations

02 32 13 – Subsurface Drilling and Sampling

02 32 13.10 Boring and Exploratory Drilling

0010	**BORING AND EXPLORATORY DRILLING**									
0020	Borings, initial field stake out & determination of elevations	A-6	1	16	Day		845	31	876	1,300
0100	Drawings showing boring details				Total		335		335	425
0200	Report and recommendations from P.E.						775		775	970
0300	Mobilization and demobilization	B-55	4	6			263	305	568	730
0350	For over 100 miles, per added mile		450	.053	Mile		2.34	2.69	5.03	6.45
0600	Auger holes in earth, no samples, 2-1/2" diameter		78.60	.305	L.F.		13.40	15.40	28.80	37
0650	4" diameter		67.50	.356			15.60	17.95	33.55	43.50
0800	Cased borings in earth, with samples, 2-1/2" diameter		55.50	.432		20.50	18.95	22	61.45	75
0850	4" diameter		32.60	.736		29	32.50	37	98.50	122
1000	Drilling in rock, "BX" core, no sampling	B-56	34.90	.458			22	43.50	65.50	80.50
1050	With casing & sampling		31.70	.505		20.50	24	48	92.50	111
1200	"NX" core, no sampling		25.92	.617			29.50	58.50	88	109
1250	With casing and sampling		25	.640		21	30.50	60.50	112	136
1400	Borings, earth, drill rig and crew with truck mounted auger	B-55	1	24	Day		1,050	1,200	2,250	2,900
1450	Rock using crawler type drill	B-56	1	16	"		760	1,525	2,285	2,825
1500	For inner city borings, add, minimum								10%	10%
1510	Maximum								20%	20%

02 32 19 – Exploratory Excavations

02 32 19.10 Test Pits

0010	**TEST PITS**									
0020	Hand digging, light soil	1 Clab	4.50	1.778	C.Y.		75		75	112
0100	Heavy soil	"	2.50	3.200			135		135	202
0120	Loader-backhoe, light soil	B-11M	28	.571			28.50	8.30	36.80	51.50
0130	Heavy soil	"	20	.800			39.50	11.60	51.10	72
1000	Subsurface exploration, mobilization				Mile				6.75	8.40

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02 41 19.18 Selective Demolition, Disposal Only

		Crew	Daily Output	Labor-Hours	Unit	2020 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	**SELECTIVE DEMOLITION, DISPOSAL ONLY** R024119-10									
0015	Urban bldg w/salvage value allowed									
0020	Including loading and 5 mile haul to dump									
0200	Steel frame	B-3	430	.112	C.Y.		5.25	5.40	10.65	13.80
0300	Concrete frame		365	.132			6.20	6.35	12.55	16.30
0400	Masonry construction		445	.108			5.10	5.20	10.30	13.35
0500	Wood frame		247	.194			9.15	9.35	18.50	24

02 41 19.19 Selective Demolition

0010	**SELECTIVE DEMOLITION**, Rubbish Handling R024119-10									
0020	The following are to be added to the demolition prices									
0050	The following are components for a complete chute system									
0100	Top chute circular steel 4' long, 18" diameter R024119-30	B-1C	15	1.600	Ea.	285	68.50	20.50	374	440
0102	23" diameter		15	1.600		310	68.50	20.50	399	465
0104	27" diameter		15	1.600		330	68.50	20.50	419	490
0106	30" diameter		15	1.600		355	68.50	20.50	444	515
0108	33" diameter		15	1.600		380	68.50	20.50	469	545
0110	36" diameter		15	1.600		405	68.50	20.50	494	570
0112	Regular chute, 18" diameter		15	1.600		214	68.50	20.50	303	360
0114	23" diameter		15	1.600		238	68.50	20.50	327	390
0116	27" diameter		15	1.600		262	68.50	20.50	351	415
0118	30" diameter		15	1.600		268	68.50	20.50	357	420
0120	33" diameter		15	1.600		310	68.50	20.50	399	465
0122	36" diameter		15	1.600		330	68.50	20.50	419	490
0124	Control door chute, 18" diameter		15	1.600		405	68.50	20.50	494	570
0126	23" diameter		15	1.600		430	68.50	20.50	519	595
0128	27" diameter		15	1.600		450	68.50	20.50	539	620
0130	30" diameter		15	1.600		475	68.50	20.50	564	650
0132	33" diameter		15	1.600		500	68.50	20.50	589	675
0134	36" diameter		15	1.600		520	68.50	20.50	609	700
0136	Chute liners, 14 ga., 18"-30" diameter		15	1.600		228	68.50	20.50	317	375
0138	33"-36" diameter		15	1.600		284	68.50	20.50	373	440
0140	17% thinner chute, 30" diameter		15	1.600		233	68.50	20.50	322	385
0142	33% thinner chute, 30" diameter		15	1.600		176	68.50	20.50	265	320
0144	Top chute cover	1 Clab	24	.333		155	14.05		169.05	192
0146	Door chute cover	"	24	.333		155	14.05		169.05	192
0148	Top chute trough	2 Clab	12	1.333		530	56		586	665
0150	Bolt down frame & counter weights, 250 lb.	B-1	4	6		4,325	257		4,582	5,125
0152	500 lb.		4	6		6,375	257		6,632	7,375
0154	750 lb.		4	6		11,100	257		11,357	12,600
0156	1000 lb.		2.67	8.989		12,000	385		12,385	13,800
0158	1500 lb.		2.67	8.989		14,000	385		14,385	16,000
0160	Chute warning light system, 5 stories	B-1C	4	6		8,525	257	77.50	8,859.50	9,850
0162	10 stories	"	2	12		14,800	515	155	15,470	17,200
0164	Dust control device for dumpsters	1 Clab	8	1		158	42		200	238
0166	Install or replace breakaway cord		8	1		28	42		70	94
0168	Install or replace warning sign		16	.500		11.10	21		32.10	43.50
0600	Dumpster, weekly rental, 1 dump/week, 6 C.Y. capacity (2 tons)				Week	415			415	455
0700	10 C.Y. capacity (3 tons)					480			480	530
0725	20 C.Y. capacity (5 tons) R024119-20					565			565	625
0800	30 C.Y. capacity (7 tons)					730			730	800
0840	40 C.Y. capacity (10 tons)					775			775	850
2000	Load, haul, dump and return, 0'-50' haul, hand carried	2 Clab	24	.667	C.Y.		28		28	42

	02 41 19.19 Selective Demolition	Crew	Daily Output	Labor-Hours	Unit	Material	2020 Bare Costs Labor	Equipment	Total	Total Incl O&P
2005	Wheeled	2 Clab	37	.432	C.Y.		18.20		18.20	27.5
2040	0'-100' haul, hand carried		16.50	.970			41		41	61.5
2045	Wheeled		25	.640			27		27	40.5
2050	Forklift	A-3R	25	.320			16.95	10.25	27.20	37
2080	Haul and return, add per each extra 100' haul, hand carried	2 Clab	35.50	.451			18.95		18.95	28.5
2085	Wheeled		54	.296			12.45		12.45	18.7
2120	For travel in elevators, up to 10 floors, add		140	.114			4.81		4.81	7.2
2130	0'-50' haul, incl. up to 5 riser stairs, hand carried		23	.696			29.50		29.50	44
2135	Wheeled		35	.457			19.25		19.25	29
2140	6-10 riser stairs, hand carried		22	.727			30.50		30.50	46
2145	Wheeled		34	.471			19.80		19.80	30
2150	11-20 riser stairs, hand carried		20	.800			33.50		33.50	50.5
2155	Wheeled		31	.516			21.50		21.50	32.5
2160	21-40 riser stairs, hand carried		16	1			42		42	63.5
2165	Wheeled		24	.667			28		28	42
2170	0'-100' haul, incl. 5 riser stairs, hand carried		15	1.067			45		45	67.5
2175	Wheeled		23	.696			29.50		29.50	44
2180	6-10 riser stairs, hand carried		14	1.143			48		48	72.5
2185	Wheeled		21	.762			32		32	48
2190	11-20 riser stairs, hand carried		12	1.333			56		56	84.5
2195	Wheeled		18	.889			37.50		37.50	56
2200	21-40 riser stairs, hand carried		8	2			84		84	127
2205	Wheeled		12	1.333			56		56	84.5
2210	Haul and return, add per each extra 100' haul, hand carried		35.50	.451			18.95		18.95	28.5
2215	Wheeled		54	.296			12.45		12.45	18.7
2220	For each additional flight of stairs, up to 5 risers, add		550	.029	Flight		1.22		1.22	1.8
2225	6-10 risers, add		275	.058			2.45		2.45	3.6
2230	11-20 risers, add		138	.116			4.88		4.88	7.3
2235	21-40 risers, add		69	.232			9.75		9.75	14.6
3000	Loading & trucking, including 2 mile haul, chute loaded	B-16	45	.711	C.Y.		31.50	12.75	44.25	61.5
3040	Hand loading truck, 50' haul	"	48	.667			29.50	11.95	41.45	57.5
3080	Machine loading truck	B-17	120	.267			12.40	5.35	17.75	24.5
5000	Haul, per mile, up to 8 C.Y. truck	B-34B	1165	.007			.34	.49	.83	1.0
5100	Over 8 C.Y. truck	"	1550	.005			.25	.37	.62	.7

02 41 19.20 Selective Demolition, Dump Charges

0010	SELECTIVE DEMOLITION, DUMP CHARGES R024119-10									
0020	Dump charges, typical urban city, tipping fees only									
0100	Building construction materials				Ton	74			74	81
0200	Trees, brush, lumber					63			63	69.5
0300	Rubbish only					63			63	69.5
0500	Reclamation station, usual charge					74			74	81

02 41 19.21 Selective Demolition, Gutting

0010	SELECTIVE DEMOLITION, GUTTING R024119-10									
0020	Building interior, including disposal, dumpster fees not included									
0500	Residential building									
0560	Minimum	B-16	400	.080	SF Flr.		3.54	1.43	4.97	6.9
0580	Maximum	"	360	.089	"		3.94	1.59	5.53	7.6
0900	Commercial building									
1000	Minimum	B-16	350	.091	SF Flr.		4.05	1.64	5.69	7.9
1020	Maximum	"	250	.128	"		5.65	2.29	7.94	11

02 65 Underground Storage Tank Removal

02 65 10 – Underground Tank and Contaminated Soil Removal

02 65 10.30 Removal of Underground Storage Tanks

			Crew	Daily Output	Labor-Hours	Unit	2020 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0401	For cleaning/transporting tanks (1.5 lb./100 gal. cap)	G	1 Clab	500	.016	Lb.	1.22	.67		1.89	2.35
0503	Disconnect and remove piping	G	1 Plum	160	.050	L.F.		3.22		3.22	4.82
0603	Transfer liquids, 10% of volume	G		1600	.005	Gal.		.32		.32	.48
0703	Cut accessway into underground storage tank	G	1 Clab	5.33	1.501	Ea.		63		63	95
0813	Remove sludge, wash and wipe tank, 500 gal.	G	1 Plum	8	1			64.50		64.50	96.50
0823	3,000 gal.	G		6.67	1.199			77.50		77.50	116
0833	5,000 gal.	G		6.15	1.301			84		84	125
0843	8,000 gal.	G		5.33	1.501			96.50		96.50	145
0853	10,000 gal.	G		4.57	1.751			113		113	169
0863	12,000 gal.	G		4.21	1.900			122		122	183
1020	Haul tank to certified salvage dump, 100 miles round trip										
1023	3,000 gal. to 5,000 gal. tank					Ea.				760	830
1026	6,000 gal. to 8,000 gal. tank									880	960
1029	9,000 gal. to 12,000 gal. tank									1,050	1,150
1100	Disposal of contaminated soil to landfill										
1110	Minimum					C.Y.				145	160
1111	Maximum					"				400	440
1120	Disposal of contaminated soil to										
1121	bituminous concrete batch plant										
1130	Minimum					C.Y.				80	88
1131	Maximum									115	125
1203	Excavate, pull, & load tank, backfill hole, 8,000 gal. +	G	B-12G	50	.32	Ea.		1,625	1,900	3,525	4,525
1213	Haul tank to certified dump, 100 miles rt, 8,000 gal. +	G	B-34K	1	8			390	855	1,245	1,525
1223	Excavate, pull, & load tank, backfill hole, 500 gal.	G	B-11C	1	16			790	214	1,004	1,400
1233	Excavate, pull, & load tank, backfill hole, 3,000-5,000 gal.	G	B-11M	.50	32			1,575	465	2,040	2,875
1243	Haul tank to certified dump, 100 miles rt, 500 gal.	G	B-34L	1	8			425	196	621	850
1253	Haul tank to certified dump, 100 miles rt, 3,000-5,000 gal.	G	B-34M	1	8			425	820	1,245	1,525
2010	Decontamination of soil on site incl poly tarp on top/bottom										
2011	Soil containment berm and chemical treatment										
2020	Minimum	G	B-11C	100	.160	C.Y.	7.65	7.90	2.14	17.69	22.50
2021	Maximum	G	"	100	.160		9.90	7.90	2.14	19.94	25
2050	Disposal of decontaminated soil, minimum									135	150
2055	Maximum									400	440

02 81 Transportation and Disposal of Hazardous Materials

02 81 20 – Hazardous Waste Handling

02 81 20.10 Hazardous Waste Cleanup/Pickup/Disposal

0010	HAZARDOUS WASTE CLEANUP/PICKUP/DISPOSAL										
0100	For contractor rental equipment, i.e., dozer,										
0110	Front end loader, dump truck, etc., see 01 54 33 Reference Section										
1000	Solid pickup										
1100	55 gal. drums					Ea.				240	265
1120	Bulk material, minimum					Ton				190	210
1130	Maximum					"				595	655
1200	Transportation to disposal site										
1220	Truckload = 80 drums or 25 C.Y. or 18 tons										
1260	Minimum					Mile				3.95	4.45
1270	Maximum					"				7.25	7.98
3000	Liquid pickup, vacuum truck, stainless steel tank										
3100	Minimum charge, 4 hours										
3110	1 compartment, 2200 gallon					Hr.				140	155

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03 81 Concrete Cutting

03 81 13 – Flat Concrete Sawing

03 81 13.75 Concrete Saw Blades

		Crew	Daily Output	Labor-Hours	Unit	2020 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
3200	42" diameter				Ea.	2,450			2,450	2,700

03 81 16 – Track Mounted Concrete Wall Sawing

03 81 16.50 Concrete Wall Cutting

0010	CONCRETE WALL CUTTING									
0750	Includes blade cost, layout and set-up time									
0800	Concrete walls, hydraulic saw, plain, per inch of depth	B-89B	250	.064	L.F.	.04	3.21	.6	9.25	11.45
0820	Rod reinforcing, per inch of depth		150	.107		.06	5.35	10.05	15.46	19.10

03 82 Concrete Boring

03 82 13 – Concrete Core Drilling

03 82 13.10 Core Drilling

0010	CORE DRILLING									
0015	Includes bit cost, layout and set-up time									
0020	Reinforced concrete slab, up to 6" thick									
0100	1" diameter core	B-89A	17	.941	Ea.	.20	45.50	6.70	52.40	76.50
0150	For each additional inch of slab thickness in same hole, add		1440	.011		.03	.54	.08	.65	.94
0200	2" diameter core		16.50	.970		.26	47	6.90	54.16	79
0250	For each additional inch of slab thickness in same hole, add		1080	.015		.04	.72	.11	.87	1.25
0300	3" diameter core		16	1		.40	48.50	7.15	56.05	81.50
0350	For each additional inch of slab thickness in same hole, add		720	.022		.07	1.08	.16	1.31	1.86
0500	4" diameter core		15	1.067		.45	51.50	7.60	59.55	87
0550	For each additional inch of slab thickness in same hole, add		480	.033		.07	1.62	.24	1.93	2.78
0700	6" diameter core		14	1.143		.65	55.50	8.15	64.30	93
0750	For each additional inch of slab thickness in same hole, add		360	.044		.11	2.15	.32	2.58	3.72
0900	8" diameter core		13	1.231		1.07	59.50	8.80	69.37	101
0950	For each additional inch of slab thickness in same hole, add		288	.056		.18	2.69	.40	3.27	4.70
1100	10" diameter core		12	1.333		1.20	64.50	9.50	75.20	109
1150	For each additional inch of slab thickness in same hole, add		240	.067		.20	3.23	.48	3.91	5.60
1300	12" diameter core		11	1.455		1.84	70.50	10.40	82.74	119
1350	For each additional inch of slab thickness in same hole, add		206	.078		.31	3.77	.55	4.63	6.65
1500	14" diameter core		10	1.600		1.84	77.50	11.40	90.74	132
1550	For each additional inch of slab thickness in same hole, add		180	.089		.31	4.31	.63	5.25	7.55
1700	18" diameter core		9	1.778		3.06	86	12.70	101.76	147
1750	For each additional inch of slab thickness in same hole, add		144	.111		.51	5.40	.79	6.70	9.55
1754	24" diameter core		8	2		4.15	97	14.30	115.45	166
1756	For each additional inch of slab thickness in same hole, add		120	.133		.69	6.45	.95	8.09	11.55
1760	For horizontal holes, add to above						20%	20%		
1770	Prestressed hollow core plank, 8" thick									
1780	1" diameter core	B-89A	17.50	.914	Ea.	.27	44.50	6.55	51.32	74.50
1790	For each additional inch of plank thickness in same hole, add		3840	.004		.03	.20	.03	.26	.37
1794	2" diameter core		17.25	.928		.35	45	6.60	51.95	75.50
1796	For each additional inch of plank thickness in same hole, add		2880	.006		.04	.27	.04	.35	.50
1800	3" diameter core		17	.941		.53	45.50	6.70	52.73	77
1810	For each additional inch of plank thickness in same hole, add		1920	.008		.07	.40	.06	.53	.75
1820	4" diameter core		16.50	.970		.60	47	6.90	54.50	79.50
1830	For each additional inch of plank thickness in same hole, add		1280	.013		.07	.61	.09	.77	1.09
1840	6" diameter core		15.50	1.032		.87	50	7.35	58.22	84.50
1850	For each additional inch of plank thickness in same hole, add		960	.017		.11	.81	.12	1.04	1.47
1860	8" diameter core		15	1.067		1.43	51.50	7.60	60.53	88
1870	For each additional inch of plank thickness in same hole, add		768	.021		.18	1.01	.15	1.34	1.88

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01 54 33 | Equipment Rental

		UNIT	HOURLY OPER. COST	RENT PER DAY	RENT PER WEEK	RENT PER MONTH	EQUIPMENT COST/DAY
6830	Cable pulling rig	Ea.	73.77	28.50	85	255	607.15
6850	Portable cable/wire puller, 8000 lb max pulling capacity		3.70	120	360	1,075	101.60
6900	Water tank trailer, engine driven discharge, 5000 gallons		7.16	158	475.09	1,425	152.25
6925	10,000 gallons		9.75	215	645.50	1,925	207.10
6950	Water truck, off highway, 6000 gallons		71.75	835	2,504.54	7,525	1,075
7010	Tram car for high voltage line work, powered, 2 conductor		6.88	28.50	85	255	72.05
7020	Transit (builder's level) with tripod		.10	17.55	52.67	158	11.30
7030	Trench box, 3000 lb., 6' x 8'		.56	96.50	290.22	870	62.50
7040	7200 lb., 6' x 20'		.72	187	560	1,675	117.75
7050	8000 lb., 8' x 16'		1.08	186	557.71	1,675	120.15
7060	9500 lb., 8' x 20'		1.20	232	697.14	2,100	149.05
7065	11,000 lb., 8' x 24'		1.26	219	655.83	1,975	141.25
7070	12,000 lb., 10' x 20'		1.49	263	790.09	2,375	169.95
7100	Truck, pickup, 3/4 ton, 2 wheel drive		9.24	61.50	184.87	555	110.85
7200	4 wheel drive		9.48	167	500	1,500	175.85
7250	Crew carrier, 9 passenger		12.66	108	325	975	166.25
7290	Flat bed truck, 20,000 lb. GVW		15.26	133	397.63	1,200	201.60
7300	Tractor, 4 x 2, 220 H.P.		22.25	215	645.50	1,925	307.10
7410	330 H.P.		32.33	294	883.04	2,650	435.25
7500	6 x 4, 380 H.P.		36.09	340	1,022.47	3,075	493.25
7600	450 H.P.		44.23	415	1,239.36	3,725	601.75
7610	Tractor, with A frame, boom and winch, 225 H.P.		24.74	293	877.88	2,625	373.50
7620	Vacuum truck, hazardous material, 2500 gallons		12.79	310	929.52	2,800	288.25
7625	5,000 gallons		13.02	440	1,316.82	3,950	367.55
7650	Vacuum, HEPA, 16 gallon, wet/dry		.85	122	365	1,100	79.80
7655	55 gallon, wet/dry		.78	25.50	76.50	230	21.50
7660	Water tank, portable		.73	160	480.25	1,450	101.90
7690	Sewer/catch basin vacuum, 14 C.Y., 1500 gallons		17.31	665	1,988.14	5,975	536.15
7700	Welder, electric, 200 amp		3.81	33.50	100	300	50.50
7800	300 amp		5.55	103	310	930	106.40
7900	Gas engine, 200 amp		8.95	58.50	175	525	106.55
8000	300 amp		10.13	110	330	990	147
8100	Wheelbarrow, any size		.06	11.15	33.50	101	7.20
8200	Wrecking ball, 4000 lb.		2.50	60	180	540	56
0010	**HIGHWAY EQUIPMENT RENTAL** without operators R015433-10						
0050	Asphalt batch plant, portable drum mixer, 100 ton/hr.	Ea.	88.41	1,550	4,621.78	13,900	1,632
0060	200 ton/hr.		101.99	1,650	4,931.62	14,800	1,802
0070	300 ton/hr.		119.86	1,925	5,783.68	17,400	2,116
0100	Backhoe attachment, long stick, up to 185 H.P., 10.5' long		.37	25.50	76.43	229	18.25
0140	Up to 250 H.P., 12' long		.41	28.50	85.72	257	20.45
0180	Over 250 H.P., 15' long		.56	39	116.71	350	27.85
0200	Special dipper arm, up to 100 H.P., 32' long		1.16	79.50	238.58	715	56.95
0240	Over 100 H.P., 33' long		1.44	100	299.51	900	71.45
0280	Catch basin/sewer cleaning truck, 3 ton, 9 C.Y., 1000 gal.		35.39	420	1,265.18	3,800	536.15
0300	Concrete batch plant, portable, electric, 200 C.Y./hr.		24.18	560	1,678.30	5,025	529.15
0520	Grader/dozer attachment, ripper/scarifier, rear mounted, up to 135 H.P.		3.15	63.50	190.04	570	63.20
0540	Up to 180 H.P.		4.13	95.50	287.12	860	90.50
0580	Up to 250 H.P.		5.85	153	459.60	1,375	138.75
0700	Pvmt. removal bucket, for hyd. excavator, up to 90 H.P.		2.16	58	174.54	525	52.20
0740	Up to 200 H.P.		2.31	74.50	223.08	670	63.05
0780	Over 200 H.P.		2.52	91	273.69	820	74.90
0900	Aggregate spreader, self-propelled, 187 H.P.		50.60	740	2,220.52	6,650	848.90
1000	Chemical spreader, 3 C.Y.		3.17	96.50	290	870	83.35
1900	Hammermill, traveling, 250 H.P.		67.35	515	1,550	4,650	848.80
2000	Horizontal borer, 3" diameter, 13 H.P. gas driven		5.42	232	695	2,075	182.35
2150	Horizontal directional drill, 20,000 lb. thrust, 78 H.P. diesel		27.58	530	1,590	4,775	538.65
2160	30,000 lb. thrust, 115 H.P.		33.90	615	1,850	5,550	641.20
2170	50,000 lb. thrust, 170 H.P.		48.60	710	2,135	6,400	815.80

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-6C	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
2 Labor Foremen (outside)	$44.10	$705.60	$66.25	$1060.00	$42.77	$64.25
4 Laborers	42.10	1347.20	63.25	2024.00		
1 S.P. Crane, 4x4, 12 Ton		428.30		471.13		
1 Flatbed Truck, Gas, 3 Ton		820.40		902.44		
1 Butt Fusion Mach., 8"-24" diam.		1076.00		1183.60	48.43	53.27
48 L.H., Daily Totals		$4377.50		$5641.17	$91.20	$117.52
Crew B-6D	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
0.5 Labor Foreman (outside)	$44.10	$176.40	$66.25	$265.00	$48.36	$72.49
1 Laborer	42.10	336.80	63.25	506.00		
1 Equip. Oper. (medium)	56.75	454.00	84.85	678.80		
1 Hydro Excavator, 12 C.Y.		1262.00		1388.20	63.10	69.41
20 L.H., Daily Totals		$2229.20		$2838.00	$111.46	$141.90
Crew B-7	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Labor Foreman (outside)	$44.10	$352.80	$66.25	$530.00	$44.88	$67.35
4 Laborers	42.10	1347.20	63.25	2024.00		
1 Equip. Oper. (medium)	56.75	454.00	84.85	678.80		
1 Brush Chipper, 12", 130 H.P.		392.80		432.08		
1 Crawler Loader, 3 C.Y.		1169.00		1285.90		
2 Chain Saws, Gas, 36" Long		82.50		90.75	34.26	37.68
48 L.H., Daily Totals		$3798.30		$5041.53	$79.13	$105.03
Crew B-7A	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
2 Laborers	$42.10	$673.60	$63.25	$1012.00	$45.73	$68.57
1 Equip. Oper. (light)	53.00	424.00	79.20	633.60		
1 Rake w/Tractor		339.45		373.39		
2 Chain Saws, Gas, 18"		104.00		114.40	18.48	20.32
24 L.H., Daily Totals		$1541.05		$2133.40	$64.21	$88.89
Crew B-7B	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Labor Foreman (outside)	$44.10	$352.80	$66.25	$530.00	$45.46	$68.21
4 Laborers	42.10	1347.20	63.25	2024.00		
1 Equip. Oper. (medium)	56.75	454.00	84.85	678.80		
1 Truck Driver (heavy)	48.95	391.60	73.35	586.80		
1 Brush Chipper, 12", 130 H.P.		392.80		432.08		
1 Crawler Loader, 3 C.Y.		1169.00		1285.90		
2 Chain Saws, Gas, 36" Long		82.50		90.75		
1 Dump Truck, 8 C.Y., 220 H.P.		428.05		470.86	37.01	40.71
56 L.H., Daily Totals		$4617.95		$6099.19	$82.46	$108.91
Crew B-7C	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Labor Foreman (outside)	$44.10	$352.80	$66.25	$530.00	$45.46	$68.21
4 Laborers	42.10	1347.20	63.25	2024.00		
1 Equip. Oper. (medium)	56.75	454.00	84.85	678.80		
1 Truck Driver (heavy)	48.95	391.60	73.35	586.80		
1 Brush Chipper, 12", 130 H.P.		392.80		432.08		
1 Crawler Loader, 3 C.Y.		1169.00		1285.90		
2 Chain Saws, Gas, 36" Long		82.50		90.75		
1 Dump Truck, 12 C.Y., 400 H.P.		572.90		630.19	39.59	43.55
56 L.H., Daily Totals		$4762.80		$6258.52	$85.05	$111.76

Crew No.	Bare Costs		Incl. Subs O&P		Cost Per Labor-Hour	
Crew B-8	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Labor Foreman (outside)	$44.10	$352.80	$66.25	$530.00	$48.78	$73.09
2 Laborers	42.10	673.60	63.25	1012.00		
2 Equip. Oper. (medium)	56.75	908.00	84.85	1357.60		
1 Equip. Oper. (oiler)	50.55	404.40	75.55	604.40		
2 Truck Drivers (heavy)	48.95	783.20	73.35	1173.60		
1 Hyd. Crane, 25 Ton		580.85		638.93		
1 Crawler Loader, 3 C.Y.		1169.00		1285.90		
2 Dump Trucks, 12 C.Y., 400 H.P.		1145.80		1260.38	45.24	49.77
64 L.H., Daily Totals		$6017.65		$7862.81	$94.03	$122.86
Crew B-9	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Labor Foreman (outside)	$44.10	$352.80	$66.25	$530.00	$42.50	$63.85
4 Laborers	42.10	1347.20	63.25	2024.00		
1 Air Compressor, 250 cfm		201.50		221.65		
2 Breakers, Pavement, 60 lb.		107.00		117.70		
2 -50' Air Hoses, 1.5"		48.50		53.35	8.93	9.82
40 L.H., Daily Totals		$2057.00		$2946.70	$51.42	$73.67
Crew B-9A	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
2 Laborers	$42.10	$673.60	$63.25	$1012.00	$44.38	$66.62
1 Truck Driver (heavy)	48.95	391.60	73.35	586.80		
1 Water Tank Trailer, 5000 Gal.		152.25		167.47		
1 Truck Tractor, 220 H.P.		307.10		337.81		
2 -50' Discharge Hoses, 3"		9.00		9.90	19.51	21.47
24 L.H., Daily Totals		$1533.55		$2113.99	$63.90	$88.08
Crew B-9B	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
2 Laborers	$42.10	$673.60	$63.25	$1012.00	$44.38	$66.62
1 Truck Driver (heavy)	48.95	391.60	73.35	586.80		
2 -50' Discharge Hoses, 3"		9.00		9.90		
1 Water Tank Trailer, 5000 Gal.		152.25		167.47		
1 Truck Tractor, 220 H.P.		307.10		337.81		
1 Pressure Washer		96.95		106.65	23.55	25.91
24 L.H., Daily Totals		$1630.50		$2220.63	$67.94	$92.53
Crew B-9D	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Labor Foreman (outside)	$44.10	$352.80	$66.25	$530.00	$42.50	$63.85
4 Common Laborers	42.10	1347.20	63.25	2024.00		
1 Air Compressor, 250 cfm		201.50		221.65		
2 -50' Air Hoses, 1.5"		48.50		53.35		
2 Air Powered Tampers		67.70		74.47	7.94	8.74
40 L.H., Daily Totals		$2017.70		$2903.47	$50.44	$72.59
Crew B-9E	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Cement Finisher	$49.95	$399.60	$73.45	$587.60	$46.02	$68.35
1 Laborer	42.10	336.80	63.25	506.00		
1 Chip. Hammers, 12 Lb., Elec.		32.40		35.64	2.02	2.23
16 L.H., Daily Totals		$768.80		$1129.24	$48.05	$70.58
Crew B-10	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Equip. Oper. (medium)	$56.75	$454.00	$84.85	$678.80	$51.87	$77.65
.5 Laborer	42.10	168.40	63.25	253.00		
12 L.H., Daily Totals		$622.40		$931.80	$51.87	$77.65
Crew B-10A	**Hr.**	**Daily**	**Hr.**	**Daily**	**Bare Costs**	**Incl. O&P**
1 Equip. Oper. (medium)	$56.75	$454.00	$84.85	$678.80	$51.87	$77.65
.5 Laborer	42.10	168.40	63.25	253.00		
1 Roller, 2-Drum, W.B., 7.5 H.P.		166.10		182.71	13.84	15.23
12 L.H., Daily Totals		$788.50		$1114.51	$65.71	$92.88

APPENDIX C

PROOF OF LIABILITY INSURANCE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/20/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Wood Gutmann & Bogart
15901 Red Hill Ave., Suite 100
Tustin CA 92780

CONTACT NAME:
PHONE (A/C, No, Ext): 714-505-7000
FAX (A/C, No): 714-573-1770
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Starr Indemnity & Liability Co	
INSURER B : Federal Insurance Co.	20281
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
AA Sydcol LLC
2264 E 13th Street
Yuma AZ 85365

INDUS-4

COVERAGES **CERTIFICATE NUMBER:** 251761856 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			1000065485191	4/1/2019	4/1/2020	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 50,000
	X Premises Poll						MED EXP (Any one person)	$ 5,000
	X Prof Liab/E&O						PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:						Pollution	$ 1,000,000
A	AUTOMOBILE LIABILITY			SISIPCA08288919	4/1/2019	4/1/2020	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	ANY AUTO						BODILY INJURY (Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS / X NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
	X MCS90 / X Auto Polluti							$
A	UMBRELLA LIAB X OCCUR			1000336422191	4/1/2019	4/1/2020	EACH OCCURRENCE	$ 4,000,000
	X EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 4,000,000
	DED RETENTION $							$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	N / A		100 000270904	4/1/2019	4/1/2020	X PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N (Mandatory in NH)						E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

General Liability coverage form includes premises pollution liability with a limit of $1,000,000 per incident/$2,000,000 general aggregate.

CERTIFICATE HOLDER

PROOF ONLY

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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