

SITE DEVELOPMENT GUIDELINES  
AND  
PROCEDURES FOR  
UC SAN DIEGO

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UC San Diego



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## CHAPTER ONE

### INTRODUCTION

UC San Diego Site Development Guidelines and Procedures outlines the basic steps for implementing *UC San Diego Soils Management Policy* PPM516-27. The guidelines and procedures contained herein are minimum considerations to be taken during construction and development to address potential site contamination. The procedures in this guide are used to determine conditions for carrying out soil disturbances, disposition of soil exports, and screening criteria for reuse and importing of soil for the UC San Diego Campus, Scripps Institution of Oceanography, Elliot Field, Mount Soledad, Hillcrest and Nimitz Marine Station. Departments that disturb, export, and/or import soil are responsible for implementing these procedures. Each section should be reviewed to determine the appropriate level of action for any given site activity.

This guide reflects the requirements as defined in California Health and Safety Code, Division 20, Chapter 6.8, Section 25319.5 to determine if known or potential hazardous substances exist at a proposed project<sup>(a)</sup> site which could pose a threat to public health or the environment, and San Diego Regional Water Quality Control Board (RWQCB) Order No. R9-2014-0041 for discharge, disposal, stockpiles, and reuse of soil.

#### **Background**

The expansion, redevelopment, or reuse of UC San Diego properties may require the assessment for and/or handling of petroleum hydrocarbon fuels, heavy metals, munitions and other hazardous contaminants or wastes. Potential sources of contaminants may include historical use by U.S. Department of Defense (DOD), historical use as municipal landfills, underground storage tanks, discharge of undocumented fill materials, historical spills of hazardous materials, and agricultural use. Discovery of petroleum contamination, munitions

debris, and unexploded ordnance has occurred throughout UC San Diego properties. The discovery of hazardous contamination on UC San Diego properties has been attributed predominately to DOD activities associated with Formerly Used Defense Sites (FUDS) Camp Matthews, Camp Callen, and Camp Elliott, as well as Nimitz Marine Facility and the Mount Soledad location.

To address the possibility of hazardous materials and ordnance contamination and to continue with planned University expansion, performance standards have been put in place to ensure that site assessment, analysis, and remediation be carried out in accordance with applicable federal, state, and local laws and regulations. These standards are included in the form of the *UC San Diego Soils Management Policy PPM516-27 (Attachment A)*, and *UC San Diego Formerly Used Defense Site Awareness Program (Attachment B)*.

The *UC San Diego Soils Management Policy* establishes the minimum requirements to assess soil for the presence of hazardous materials. UC San Diego acknowledges the history of the U.S. DOD sites, and has implemented a University-wide education program to increase awareness of munitions-related materials. The *Formerly Used Defense Site* brochure, published by Environment, Health and Safety (EH&S), presents a brief site history of University properties, general safety precautions, and other information concerning the US Army Corps of Engineers (USACE) Final Site Inspection Report, Former Camp Calvin B. Matthews Site<sup>1</sup>.

See the **Hazard Awareness and Pollution Prevention for Contractors and Visitors at UCSD**<sup>9</sup> booklet found on the UCSD Blink website for additional information.

## CHAPTER TWO

### SITE ASSESSMENT

PPM 516-27 requires the department implementing the project to coordinate with EH&S to establish soil management procedures including sample collection, excavation<sup>(b)</sup>, temporary storage, and disposal of contaminated soil. This may require the creation of a site-specific soil management plan that will describe the activities listed above, including sampling frequency, soil collection procedures (e.g. use of a hand auger or standard drilling equipment), and identification of the analytical suite. Based on the location, historical data search, proposed development, actual site conditions, and analytical results, any combination of the following may be implemented:

1. Magnetometer Study and/or Geophysical Survey – required to identify any subsurface anomalies.
2. Construction Support – using a certified Unexploded Ordnance (UXO) Technician to observe soil disturbance and grading operations for the depths at which UXO may be found.
3. FUDS Awareness Program – intended to raise awareness within the Department of Defense site boundaries.
4. Restrictions on soil export, import, and reuse.

Field and analytical results produced during the site assessment stage will be compared to the *Soil Export / Import & Relocation / Reuse Guidelines*, found in Chapter 4. Based on investigation and analytical findings, a determination will be made concerning the handling of soils. If UXO or other unexpected contaminants are found, all activity must be stopped and a reevaluation must be made. Exceedances of screening criteria will be addressed by EH&S and the Project Manager<sup>(c)</sup> on a case-by-case basis to assess risk to human health and the environment.



## CHAPTER THREE

### EXCAVATION & SOIL MANAGEMENT OF CONTAMINATED SOIL

Site workers and UC San Diego personnel must be on the alert for any odors, discolorations, physical changes, or other clues and abnormalities that may indicate soil contamination. The use of an Organic Vapor Analyzer (OVA) may also be necessary if the presence of volatile organic compounds (VOCs) is suspected. If there is any indication of soil contamination, grading and excavating in the suspect area must be stopped, and the Environmental Affairs division of EH&S must be contacted immediately. Until the issue is addressed, soils are not to be moved off-site, and excavation must cease in the vicinity of the suspect soil.

The following requirements must be met:

**1. If data indicates contamination is not likely present in the soil samples analyzed:**

Grading and excavating should proceed according to the contractor's methods.

**2. If data indicates there is contamination present or there is the potential for contamination to be present:**

The UC San Diego Project must develop a project-specific soils management plan to address the contaminants of concern.

- a. A project-specific soil screening or characterization protocol should be developed if the presence of contamination is suspected or the extent of contamination is unknown.
- b. For lead-contaminated soil:
  - 1) X-ray fluorescence (XRF) is an acceptable field screening tool; however, it cannot be used to determine the final extent of excavation for the removal of the hazardous waste. EH&S Environmental Affairs division will assist with this determination and provide recommendations for export and disposal.

- 2) For residential, childcare, children play areas, K-12 projects, and areas that may be used for cultivation of food products a qualified consultant must provide observation and testing services to ensure that post construction conditions meet the following minimum conditions:
    - i. Accessible soil (finish grade to 5 feet below finish grade) does not contain any detectable concentrations of total lead greater than 15 mg/kg.
    - ii. Inaccessible soil (greater than 5 feet below finish grade or capped by impermeable surface) does not contain any detectable concentration of total lead greater than 49 mg/kg.
  - 3) For non-residential land uses including commercial, industrial, and university facilities, a qualified consultant must provide observation and testing services to ensure that post construction conditions meet the following minimum conditions:
    - i. Accessible soil does not contain any detectable concentrations of lead greater than 49 mg/kg.
- c. If excavation of known Resource Conservation and Recovery Act (RCRA) or non-RCRA contaminated soil is to occur, a site-specific Health and Safety Plan shall be developed to protect site workers and residential, childcare, children play areas, K-12 facilities and neighboring occupants. The Health and Safety Plan shall comply with applicable provisions of all sections of 29 CFR 1926-OSHA Construction Industry Safety and Health Standards, 29 CFR 1910-OSHA General Industry Safety and Health Standards, and any other applicable standards.
- 1) If excavation of known RCRA or non-RCRA contaminated soil is to occur within 50 feet of an occupied residential, childcare, children play area, K-12 facility or other regular occupied site:
    - i. A containment and barrier system must be established to prevent dust migration from the designated worksite.

- ii. Remove all movable playground equipment, toys, and sandbox items to a distance greater than 50 feet from working surfaces. Items that cannot be readily moved to a distance greater than 50 feet can be sealed with taped plastic sheeting.
- iii. Conduct air sampling to determine effectiveness of the containment and barrier system, ensuring no known thresholds are exceeded (unless exempted by EH&S).
- iv. EH&S reserves the right to require additional sampling when deemed necessary to ensure human and/or environmental safety.

## CHAPTER FOUR

### SOIL EXPORT / IMPORT & RELOCATION / REUSE

PPM516-27 requires that soils only be exported to locations endorsed by the EH&S Department in collaboration with the project's responsible party. For applicable projects, it is the project manager's responsibility to file a notice of intent (NOI) with the Regional Water Quality Control Board (RWQCB), and/or a Special Waste Profile with a receiving facility prior to exporting/relocating soil from the project site. Sampling, analytical, NOI, Special Waste Profile, and soil tracking documents<sup>(d)</sup> must be retained with project documents for a minimum of five years. UC San Diego prefers to export soil to permitted landfills with published acceptance criteria. Soil may not be exported to residential projects, community gardens, or K-12 school sites, including through indirect routes such as concrete mixing, nurseries, and sod farms. Clean, recyclable material such as concrete, rock, and blacktop may be exported to a certified recycling facility. Export of uncontaminated soil to commercial, industrial, and business park projects or roadwork sites is acceptable. Transportation of soils to or from any location not previously endorsed by EH&S must be reviewed and supported by EH&S (Environmental Affairs) prior to reuse.

The following requirements must be met:

1. Sampling results must be compared to the UC San Diego Screening Criteria for Importing and Exporting of Soil (**Table 1**).
2. Fuel-contaminated soils (e.g. soils contaminated by gasoline, aviation gas, diesel fuel, jet fuels, kerosene, and fuel oils) that meet San Diego RWQCB General WDR Order No. R9-2002-0342 criteria may be placed in temporary waste piles or engineered fill. This applies to both on-site and off-site locations where contaminated soil is deposited.
3. Fuel and heavy metal-contaminated soils that meet the criteria for Special Waste landfill

disposal may be removed to a solid waste landfill after filing an appropriate application and receiving approval from the landfill operator.

4. Contaminated soil may need special handling and disposal.
5. Excavated soil containing RCRA and non-RCRA waste will be disposed of at an appropriately permitted hazardous waste landfill.
6. Each load of soil exported from UC San Diego must be documented. If the soil is determined to be contaminated or hazardous waste (RCRA or non-RCRA), then EH&S Environmental Affairs needs to be contacted. Only UC San Diego EH&S personnel have the authority to sign hazardous waste manifests for removal or disposal of hazardous materials generated by UC San Diego operations.
7. Completed soil tracking documents are to be returned to the project manager and retained with project documents for a minimum of five years.
8. Hazardous waste manifests are to be returned to EH&S.

**If contaminated soil is discovered at export location:**

The project manager must be notified immediately by the contractor of any claim that contaminated soil was received from UC San Diego or of the site's refusal of acceptance. The project manager should immediately contact the Environmental Affairs division of EH&S.

1. Further grading, excavating, or loading of trucks must be stopped at the UC San Diego project site until a determination regarding contamination can be performed, including but not limited to a root cause analysis and corrective action plan.
2. A representative from UC San Diego must visit the export site immediately and identify the soil in question. It is important that the soil in question not be combined with other soils at the export site.
3. All suspected contaminated soil from UC San Diego must be removed from the export location to an appropriate disposal site, or brought back to the UC San Diego site of origin, as soon as possible.

4. If soil is returned to the UC San Diego site, it must be stockpiled and separated from the working area on plastic sheeting and cordoned off with traffic tape. All appropriate storm water BMPs must be followed until the soil can be properly managed.
5. All trucks in route must return immediately, or as soon as responsibly possible, to the project site for a determination regarding contamination.

### **SOIL IMPORT / RELOCATION GUIDELINES**

**The following general requirements apply to fill materials brought from off-campus locations or from locations on campus generated from ongoing or previous excavations.**

1. EH&S Environmental Affairs or other acceptable party should conduct a preliminary assessment of the source of the fill prior to any material being imported or relocated on campus. The primary purpose shall be to identify the potential for soil contamination and the potential extent of the contamination of concern.
2. The fill must not be from an area undergoing environmental clean-up or remediation, sites with open or closed environmental cases related to site assessment or remediation of contamination, an area with expected contamination, or similar locations with high potential for soil contamination.
3. Acceptable soils shall be obtained from residential locations, undeveloped locations, previously evaluated and approved areas, or areas of “virgin” soils, such as deep excavations. Soils from agricultural areas should be used with caution due to potential pesticide contamination or presence of manure or decomposed organic material.
4. Imported soils from locations other than UC San Diego property must be compliant with the San Diego RWQCB Order # R9-2014-0014, the EPA Region 9 Regional Screening Levels (RSLs), and the Department of Toxic Substances Control (DTSC) Soil Screening Levels (SSLs) for Soil for Residential or Commercial/Industrial use, depending upon the proposed land use (**Table 1**).

5. The following soil sampling and analysis requirements shall be used in the characterization of potential import soil:
  - Samples are to be “representative grab samples” from the source of the fill soil
  - Up to 1000 yd<sup>3</sup> – 4 samples
  - 1000 to 5000 yd<sup>3</sup> – 4 samples for first 1000 yd<sup>3</sup> + 1 per each added 500 yd<sup>3</sup>
  - >5000 yd<sup>3</sup> – 12 samples for first 5000 yd<sup>3</sup> + 1 per each added 1000 yd<sup>3</sup>

**If suspected contaminated soil is imported:**

1. Further grading, excavating, or unloading of trucks must be stopped at the UC San Diego project site until a determination regarding contamination can be performed, including but not limited to a root cause analysis and corrective action plan.
2. A representative from UC San Diego must visit the UC San Diego project site immediately and observe the soil in question. It is important that the soil in question not be combined with other soils at the project site.
3. All suspected contaminated soil from UC San Diego must be stockpiled and separated from the working area on plastic sheeting and cordoned off with traffic tape. All appropriate storm water BMPs must be followed until the soil can be properly managed.
4. All trucks in route must return immediately, or as soon as responsibly possible, to the borrow site for a determination regarding contamination.

**TABLE 1. UC San Diego Screening Criteria for Importing and Exporting of Soil**

(San Diego Regional Water Quality Board Resolution R9-2014-0041 General Conditional Waiver 10 )

Petroleum Hydrocarbon Contamination Limits by EPA Method 8015 Modified			
	Suitable for import/reuse on campus	Suitable for export/reuse at industrial/commercial site 5 feet below finish grade	Requires further evaluation by EH&S prior to export/reuse
Gasoline and lighter chain hydrocarbons (C4-C12)	ND & No contamination-based odor	ND & No contamination-based odor	Detectable concentrations or contamination-based odor
Diesel fuel and medium chain hydrocarbons (C8-C22)	ND & No contamination-based odor	ND & No contamination-based odor	Detectable concentrations or contamination-based odor
Waste oil and heavier chain hydrocarbons (C8-C40)	ND & No contamination-based odor	ND & No contamination-based odor	Detectable concentrations or contamination-based odor
California Title 22 Metals			
Antimony	<5.0 mg/kg	<6.0 mg/kg	≥6.0 mg/kg
Arsenic	<12 mg/kg**	<12 mg/kg**	≥12 mg/kg**
Barium	<509 mg/kg	<1000 mg/kg	≥1000 mg/kg
Beryllium	<4.0 mg/kg	<4 mg/kg	≥4 mg/kg
Cadmium	<1.7 mg/kg	<5 mg/kg	≥5 mg/kg
Chromium (total)	<50 mg/kg	<790 mg/kg	≥790 mg/kg
Cobalt	<20 mg/kg	<3200 mg/kg	≥3200 mg/kg
Copper	<60 mg/kg	<1300 mg/kg	≥1300 mg/kg
Lead	<15 mg/kg	<49 mg/kg	≥49 mg/kg
Mercury	<0.26 mg/kg	<2 mg/kg	≥2 mg/kg
Molybdenum	<2.0 mg/kg	<3500 mg/kg*	≥3500 mg/kg*
Nickel	<57 mg/kg	<255 mg/kg	≥255 mg/kg
Selenium	<0.21 mg/kg	<50 mg/kg	≥50 mg/kg
Silver	<2.0 mg/kg	<500 mg/kg*	≥500 mg/kg*
Thallium	<1.0 mg/kg	<2 mg/kg	≥2 mg/kg
Vanadium	<50 mg/kg	<144 mg/kg	≥144 mg/kg
Zinc	<149 mg/kg	<5000 mg/kg*	≥5000 mg/kg*
Explosives by EPA Method 8330			
2,4-Dinitrotoluene	None detectable	None detectable	Detectable Concentration
Nitroglycerin	None detectable	None detectable	Detectable Concentration

Note: In evaluation by EH&S, consideration will be given to whether elevated levels are due to naturally-occurring metals;

\*None of the analytical results from any samples collected to characterize the waste soil can exceed this level

\*\*Arsenic background level 12 mg/kg, (Chernoff, Determination of a Southern California Regional Background Arsenic Concentration in Soil)

- (a) **Project** – Soil disturbance at any property owned by UC San Diego.
- (b) **Excavate** – Digging and scooping or otherwise removing soil from the ground whether or not the soil is ultimately intended for replacement in situ, relocation, or stockpiling.
- (c) **Project Manager** – UC San Diego staff responsible for project oversight.
- (d) **Soil Tracking Document** must include project site generating soil for export, receiving site owner and contact information, and approximate volume of soil exported. Record retention is the responsibility of the Project Manager's Department.

## REFERENCES

- 1) FINAL Site Inspection Report, Former Camp Calvin B. Matthews Site, September 2007.
- 2) Review of a History of U.S. Army Camp Robert E. Callan and U. S. Marine Corps Camp Calvin B. Matthews, September 1998.
- 3) USC, Title 42, Chapter 103 – Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- 4) CCR, Title 22, Chapter 6.8 (Section 25300) – Hazardous Substance Account Act
- 5) California Regional Water Quality Control Board San Diego Region Order No. R9-2014-0014 Conditional Waiver No. Discharge/Disposal of Solid Wastes to Land. June 2014.
- 6) California Regional Water Quality Control Board San Diego Region Order No. R9-2002-0342 Waste Discharge Requirements for the Disposal of Fuel Contaminated Soil in the San Diego Region. December 2002.
- 7) 29 CFR 1926-OSHA Construction Industry Safety and Health Standards
- 8) 29 CFR 1910-OSHA General Industry Safety and Health Standards
- 9) Hazard awareness and pollution prevention for contractors and visitors at UCSD policy, July 2013.
- 10) DTSC Hazardous Waste Explanatory Guidance, Defining Hazardous Waste March 22, 2016

- 11) Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties January 2005
- 12) G. Chernoff, W. Bosan and D. Oudiz, Determination of a Southern California Regional Background Arsenic Concentration in Soil, California Department of Toxic Substance Control
- 13) Kearney Foundation of Soil Science Division of Agriculture and Natural Resources, University of California Background Concentrations of Trace and Major Elements in California Soil – Special Report (Bradford, et al 1996).

## ATTACHMENT A

### 516 - Environment, Health & Safety

**Section:** 516-27

**Effective:** 12/07/2009

**Review:** TBD

**Issuance Date:** TBD

**Issuing Office:** Environment, Health & Safety

PPM 516-27 Policy

#### SOILS MANAGEMENT POLICY

##### I. POLICY

The purpose of this policy is to protect human health and the environment from petroleum, heavy metals, and other hazardous materials or wastes that may be contained in UCSD soils. This policy applies to soil disturbance and soil placement associated with new development and redevelopment within the UCSD Campus, Scripps Institution of Oceanography, Elliot Field, Mount Soledad, Hillcrest and Nimitz Marine Station. Requirements of this policy shall be included in any geotechnical field investigations.

Soil disturbance associated with landscaping, utility installation, or subsurface repair and maintenance should follow the UCSD Awareness Program as outlined in the brochure located at <http://blink.ucsd.edu/safety/environment/outdoor/FUDS/>.

The department implementing the project will be the primary responsible department with coordination support provided by Environment, Health and Safety (EH&S) and Physical Planning.

##### II. PROCEDURES

Implementation of this policy assists in determining the presence of hazardous materials or wastes within a proposed project site. This will be done by collecting samples in accordance with industry-standard ASTM guidelines, analyzing samples using US EPA-approved methods, and reporting results as part of the geotechnical investigation. The process includes:

- A. The department implementing the project will consult with EH&S to determine application of this policy.
- B. The department implementing the project will hire the environmental service, typically as part of geotechnical activities.
- C. The environmental service provider will conduct sample collection according to ASTM guidelines and the procedure described below.
  1. All samples will be collected according to industry standards.
  2. All chemical analyses must be performed by State of California certified laboratories.

3. At a minimum, the following soil sampling and analyses will be performed:
  - a. In cooperation with EH&S, grid the site into an approximate 100 foot by 100 foot grid (approximately ¼ acre blocks). Historical use, such as an underground storage tank, may require additional, biased sample locations.
  - b. Collect soil samples from each of the locations using appropriate methods at approximately 2 feet below surface, 5 feet below surface and at 5 foot intervals thereafter to the bottom elevation of the proposed excavation.
  - c. Analyze all samples for the following constituents:
    - 1) Total Petroleum Hydrocarbons (TPH) Extended Range (C8-C40) by EPA Method 8015 Modified.
    - 2) California Toxic Metals Total Concentration for Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.
    - 3) Explosives by EPA Method 8330 (unless exempted by EH&S).
4. Environmental service provider will include a limited environmental section (sample collection locations, collection specifics, and analytical results) as part of the geotechnical report. The environmental information will be signed by a State of California registered geologist or professional engineer. The report will be provided in hardcopy and in a readable electronic format.
5. Forward environmental section results to EH&S.
6. Any detection of explosives or California Toxic Metals will be addressed. Detections may be submitted to the United States Army Corps of Engineers and the Department of Toxic Substance and Control as the agencies involved with these constituents. Detections of TPH may be submitted to the Regional Water Quality Control Board depending on the final disposition of the soils.
7. Placement of excavated soils will be a joint decision between the Responsible Parties and EH&S.

### **III. RESPONSIBILITY**

Departments that disturb soil as defined in this policy statement are responsible for implementing these procedures. At a minimum, the department implementing the project as the primary responsible parties will coordinate with Environment, Health & Safety, and Physical Planning to determine the application of the policy and level of implementation.

**IV. REFERENCES**

- A. FINAL Site Inspection Report, Former Camp Calvin B. Matthews Site, September 2007.
- B. Review of a History of U.S. Army Camp Robert E. Callan and U. S. Marine Corps Camp Calvin B. Matthews, September 1998.
- C. USC, Title 42, Chapter 103 – Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- D. CCR, Title 22, Chapter 6.8 (Section 25300) – Hazardous Substance Account Act.
- E. Order No. R9-2002-0342 - Waste Discharge Requirements for the Disposal and/or reuse of Petroleum Fuel Contaminated Soils (FCS) in the San Diego Region.

## ATTACHMENT B

### UC SAN DIEGO FORMERLY USED DEFENSE SITE AWARENESS PROGRAM

#### Camp Matthews: Formerly Used Defense Site at UC SAN DIEGO

UC San Diego contains about 400 acres designated as a Formerly Used Defense Site (FUDS). This land, formerly Camp Calvin B. Matthews, is in the southeastern part of the campus (see <http://blink.ucsd.edu/safety/environment/outdoor/FUDS/maps.html> for map).

#### Inspection and findings

The U.S. Army Corps of Engineers inspected the old Camp Matthews property, which included a search for unexploded ordnance and discarded military munitions constituents.



In a September 2007 report, inspectors' findings indicated instances of soil contamination and debris remaining from military munitions (see image at right).

#### Precautions

If you encounter or suspect the presence of unexploded military ordnance, debris, or contamination:

- Do not touch it! Consider all munitions to contain a live charge.
- Report the find immediately to UC San Diego Police, (858) 534-4357.
- Step away from the area, and keep others away until responders arrive.
- Provide a general description, including length, width, color, and location of the item(s).
- Be prepared to direct responders to the location.

**For more information** on Camp Matthews and the Army Corps of Engineers Final Report, visit the local library or contact EH&S Risk Management through a Freedom of Information Act request.

University Community Branch Library  
4155 Governor Drive  
San Diego, CA 92122-2501  
Phone: (858) 552-1655

# ATTACHMENT C

## 2017 CAMPUS SOIL EXPORT ANALYSIS

CAMPUS SOIL EXPORT ANALYSIS							
EXISTING CONDITIONS						PROPOSED CONDITION	
EXPORT OPTIONS	Miramar Land Fill	Otay Landfill	On Campus	Off Campus (Pvt Project Site)	Vulcan aterials (No Contract)	Vulcan Preferred Developer Program for UC San Diego	
	Dump Fee per Load	\$20	\$84-\$720	\$0	\$0	\$480	\$360 (Up to 30% UCSD Discount with purchase of Material)
	Distance (Miles)	20	60	8	50 (assuming local site)	20	20
	Travel Time (Mins)	40	75	15	60 (assumed)	45	45
	Reliable Export Location?	No	No	No	No	No	Yes
	Restrictions	2,500 CY/ Day Limit	Subject to Facility Needs	Subject to Facility Needs	Subject to Facility Needs	Subject to Facility Needs	Requires Enrollment in program and Environmental Testing.
RISK						RISK MITIGATION	
Construction Cost	With exception to Miramar, all other sites are subject to Market Fluctuations and have been upwards of 720 per load at Otay.					Vulcan will agree to a minimum of 25% reduction to their Current Market Rate, if materials purchased are over \$25K and an additional 5% minimum off materials purchased over \$50K, depending on specific project and circumstance	
Schedule Impacts Due to Receiving Site availability	Export is dependant upon the receiving site availability. If receiving sites will not take in material or do not align with the project's schedule, it may result in a delay to the project's progress until a facility is available.					Vulcan will give priority export to their site but requires enrollment into the program in advance. Small quantities need less notice but large quantities will need to be coordinated in advance.	
Schedule Impacts Due to Hauling Distance	The additional mileage results in a direct time increase for hauling which results in a longer duration for export activities as well as an increase in cost.					Vulcan is conveniently located within 10 miles of UCSD which allows for more trips per hour resulting in a higher efficiency and savings in cost and time	
Delay Claim	When export sites are unavailable, it may cause an unforeseen condition where					The Vulcan site provides an additional safety net for the Campus	
Environmental Impacts	Longer hauling distances have a direct impact on the production of green house gases.					Vulcan provides the shortest hauling distances aside from on campus export. This will have a direct and proportional reduction in UCSD's green house gas contributions	
Flexibility	The existing export locations do not allow for flexibility in schedule and timing between projects.					The Vulcan Preferred Developer Program provides an reliable export location that can alleviate schedule restraints that normally exist with quantity restricted sites or construction schedule timing between projects.	
Reliability	The export locations are not guaranteed and are subject to Facility needs and availability.					The Vulcan Preferred Developer Program gives UCSD project priority and provides a more reliable export location that can alleviate schedule restraints that normally exist with quantity restricted sites or construction schedule timing between projects.	
EXAMPLE PROJECT COMPARISON MATRIX							
Export of 15,000 CY from Main Campus	Miramar Land Fill	Otay Landfill	On Campus	Off Campus (Pvt Project Site)	Vulcan Materials	Vulcan Preferred Developer Program for UC San Diego	
	Total Cost	\$197,650	\$1,550,225	\$64,900	\$227,150	\$1,028,075	\$815,675
	Contractor Markup (18%)	\$30,150	\$236,475	\$9,900	\$34,650	\$156,825	\$124,425
	Estimated Dump Fee Cost	\$30,000	\$1,080,000	\$0	\$0	\$720,000	\$540,000
	Estimated Haul Cost	\$137,500	\$233,750	\$55,000	\$192,500	\$151,250	\$151,250
	Cost per Load	\$132	\$1,033	\$43	\$151	\$685	\$515
	Estimated Transportation Time (Hrs)	1,250	2,125	500	1,750	1,375	1,375
	Estimated Miles	30,000	90,000	12,000	75,000	30,000	30,000
	Estimated Loads	1,500	1,500	1,500	1,500	1,500	1,500