

Central Florida Testing Laboratories, Inc.
Largo, Florida

INDEPENDENCE EXCAVATING, INC.
PORTABLE HAZMAG CRUSHING UNIT A
STATEWIDE
FDEP CONSTR. PERMIT APPLICATION



*Testing Development and Research
Engineering Consultants*

Florida Department of Environmental Protection

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DEP Form # _____
Form Title _____
Effective Date _____
DEP Application No. _____ (Filed in by DEP)

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AC 20-256364

#1,000 pd.
8-22-94
Dept. # 224250

STATEWIDE

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

AUG 22 1994

SOURCE TYPE: Portable Secondary Crushing Unit [X]New []Existing

APPLICATION TYPE: Bureau of Air Regulation [X]Construction []Operation []Modification

COMPANY NAME: Independence Excavating, Inc. COUNTY: Hillsborough/Sarasota

Identify the specific emission point source(s) addressed in this application: 150 ton/hr Hazmag Crushing Unit (A) Serial # APSE1013 powered by a 320 H.P Catepillar - Model 3406 diesel fired motor and a and a Catepillar diesel fired 270 H.P., Model 3306 generator set used to supply electrical power to conveyors and etc.

SOURCE LOCATION: 730 Roosevelt Plaza, Tampa Port Authority/ Tampa/ Street Interstate 75 (0.8 mile south of S.R.72) City Osprey

UTM: East 17-358.2 / 17-356.2 North 3091.9 / 3015.8

Latitude 27° 18' 32" N Longitude 82° 27' 10" W

APPLICANT NAME AND TITLE: Mr. Vic DiGeronimo, Jr., Owner

APPLICANT ADDRESS: 730 Roosevelt Plaza, Tampa Port Authority, Tampa, Florida 33605

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Independence Excavating After-the-fact

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: [Signature]
Mr. Vic DiGeronimo, Owner

Name and Title (Please Type)

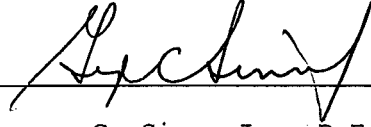
Date: 8-11-94 Telephone No. (813) 247-4114

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA [where required by Chapter 471, F.S.]

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

1 See Florida Administrative Code Rule 17-210.200(14) and (31)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed 

Mr. George C. Sinn, Jr., P.E.
Name (Please Type)

Central Florida Testing Laboratories, Inc.
Company Name (Please Type)

1400 Starkey Road, Largo, Florida 34641
Mailing Address (Please Type)

Florida Registration No. 16911 Date: 8-9-94 Telephone No. (813)581-7019

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of the installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

"SEE SUPPLEMENTAL PAGE NO. 1"

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction N/A Completion of Construction Already Constructed

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Water Induction System including spray bars to control emissions
and sheet metal enclosures to control emissions ~\$ 7,000.00

D. Indicate any previous DEP permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None - New Source

SUPPLEMENTAL INFORMATION PAGE No.1

Section II. General Project Information

This project consists of an existing Portable Hazmag Secondary Crushing Unit, Serial # APSE1013 that was brought to Independence Excavating, Inc. - Tampa Port Authority Site to replace another Hazmag Crushing Unit currently employed at a repaving site on Interstate 75 in Sarasota County, Florida. The crushing unit that is now located in Sarasota County has been at the Tampa site periodically for the past two years. The unit now located at the Tampa Port Authority Site will be known as " Unit A " and will be relocated from the Tampa site to the Sarasota County Site on a as needed basis. This crushing plant is utilized to crush and stockpile reclaimed asphalt and concrete material for retail sale at the Tampa site and crush reclaimed asphalt and concrete for reuse in asphaltic concrete mixes at the Sarasota County site. This crushing plant ("Unit A") crushes , screens, and stockpiles asphalt and concrete material at a maximum of 150 tons per hour. This crushing unit will utilize water introduced through spray bar systems, moistening the reclaimed material to be crushed and moistening crushed material drop and transfer points to control the emissions generated during feeding, crushing, screening, and the conveying process. The water spray bar system will be adjusted accordingly to control emissions with water pressure varying from 10 to 40 gallons per minute. This facility will comply with all FDEP/HCEPC/SCESD rules and regulations.

E. Requested permitted equipment operating time: hrs/day 0-10 ; days/wk 0-6 ; wks/yr 52
if power plant, hrs/yr 2,080 if seasonal, describe: This facility is not seasonal
but is weather dependent. Normal Daily Operating Hours: 7:00 a.m. to 5:00 p.m.

F. If this is a new source or major modification, answer the following questions.
(Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? Yes
 - a. If yes, has "offset" been applied? No
 - b. If yes, has "Lowest Achievable Emission Rate" been applied? No
 - c. If yes, list non-attainment pollutants. Particulate and Ozone
2. Does best available control technology (BACT) apply to this source?
If yes, see Section VI. No
3. Does the "Prevention of Significant Deterioration" (PSD)
requirement apply to this source? If yes, see Sections VI and VII. No
4. Do "Standards of Performance for New Stationary Sources" (NSPS)
apply to this source? Yes
5. Do "National Emission Standards for Hazardous Air Pollutants"
(NESHAP) apply to this source? No

- H. Do "Reasonably Available Control Technology" (RACT) requirements apply
to this source? Yes
- a. If yes, for what pollutants? Particulate
 - b. If yes, in addition to the information required in this form,
any information requested in Rule 17.296.500 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justifi-
cation for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate lbs/hr	Relate to Flow Diagram
	Type	% Wt.		
Reclaimed Asphalt Pavement or Reclaimed Concrete	Particulate -200 mesh	2.0	300,000	A

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 150 ton/hr as reclaimed asphalt or concrete materia
2. Product Weight (lbs/hr): 150 ton/hr as recycled asphalt or concrete pavement

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary) * Emissions include fugitives and gaseous emissions from diesel engine operation.

Name of Contaminant	Emission ¹		Allowed ² Emission Rate per Rule 17-296	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	6.21	9.69	Visible Emissions	<5% Opacity Crusher &	6.21	9.69	A, C, J, I
Sulfur Oxides	0.121	0.19		Emission Points	0.121	0.19	K, L
Carbon Oxides	3.19	6.13		<20% Opacity -	3.19	6.13	K, L
Hydrocarbons	1.48	2.31		Diesel Engine	1.48	2.31	K, L
Nitrogen Oxides	18.21	28.41		Exhausts	18.21	28.41	K, L

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-296.405(2)(b), - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

⁴Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (if applicable)	Basis for Efficiency (Section V Item 5)
Induction of Water through spray bars on various emission points and metal sheeting enclosures	Particulate	85.0%	+1.0 Micron	AP-42, Design and Test Data

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max/hr	
No.2 virgin diesel fuel with 1.0% sulfur limit to 270 H.P. Generator Set	12.8 gal/hr	13.3 gal/hr	1.86 MBTU/hr
No.2 virgin diesel fuel as with a 1.0% sulfur limit to fire 320 H.P. Crusher Motor	14.0 gal/hr	15.8 gal/hr	2.20 MBTU/hr

*Units: Natural Gas - MCF/hr; Fuel Oils - gallons/hr; Coal, wood, refuse, other - lbs/hr.

Fuel Analysis: No.2 Fuel Oil

Percent Sulfur: <1.0 % Percent Ash: 0.3%
 Density: 8.012 lbs/gal Typical Percent Nitrogen: Neg. / Neg.
 Heat Capacity: BTU/lb; 135,000 BTU/gal N/A BTU/ft³
 Other Fuel Contaminants (which may cause air pollution): NONE

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average NOT APPLICABLE Maximum NOT APPLICABLE

G. Indicate liquid or solid wastes generated and method of disposal.

No liquid or solid wastes generated from this process. Water spray bars utilized at
 emission points, material sprayed, water absorbed by product to eliminate dust.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):
 (* SEE PAGE 1 of 6 - Calculation of Emissions Sheets)

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (PLASTICS)	Type I (RUBBISH)	Type II (REFUSE)	Type III (GARBAGE)	Type IV (PATHOLOGICAL)	Type V (LIQUID & GAS BY-PROD)	Type VI (SOLID BY PRODUCT)
Actual lb/hr incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ days/wk _____ wks/yr _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume (ft ³)	Heat Release (Btu/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temperature: _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emission rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: Cyclone Wet Scrubber Afterburner
 Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight - show derivation [Rule 17-212.200(41)]
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8 1/2' x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

INDEPENDENCE EXCAVATING, INC.
SUPPLEMENTAL INFORMATION
FDEP CONSTRUCTION PERMIT APPLICATION
HAZMAG CRUSHING UNIT " A "

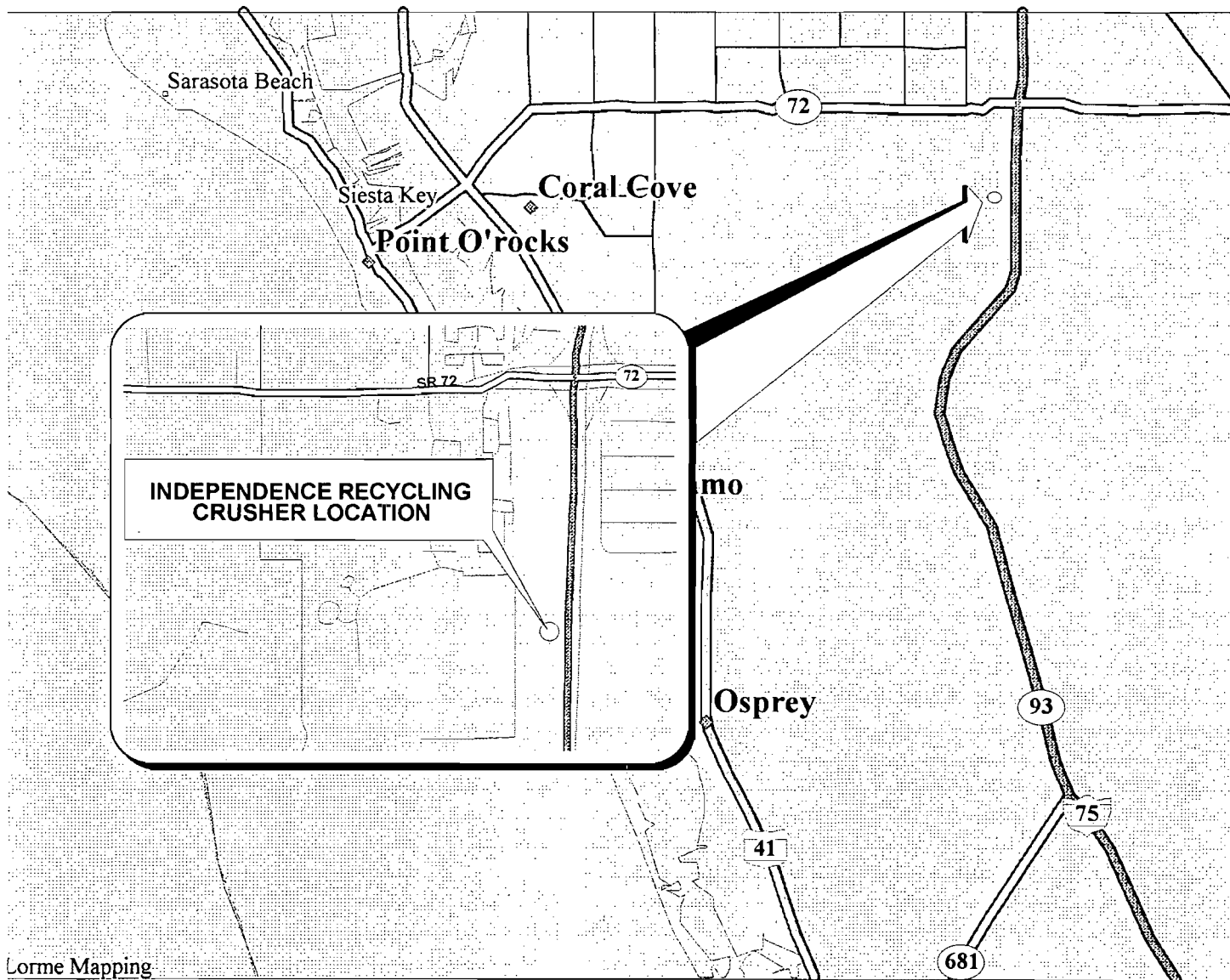
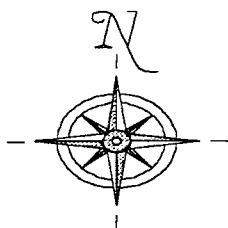
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I. PLANT LOCATIONS

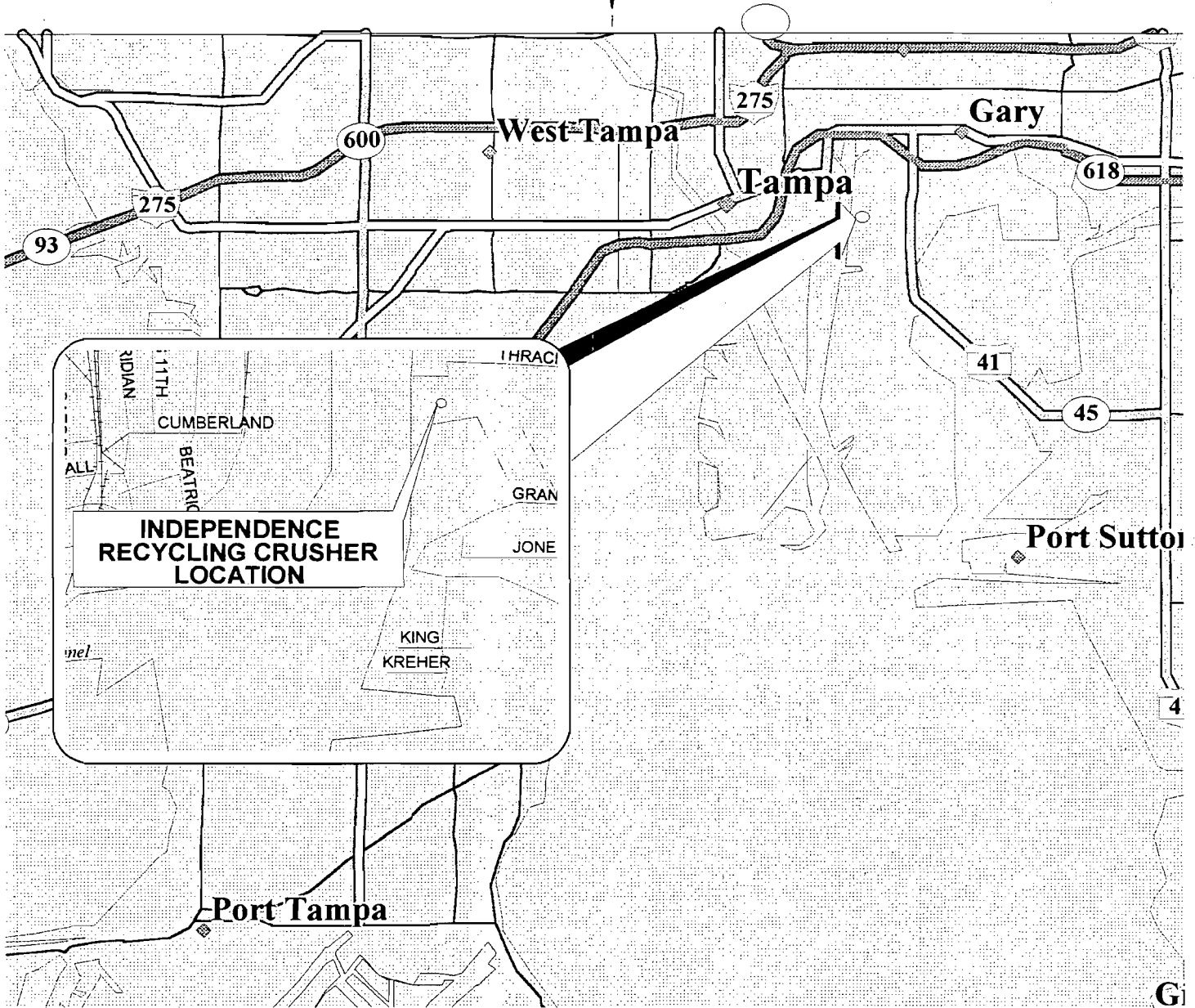
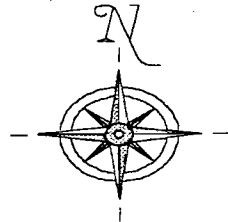
INDEPENDENCE RECYCLING

Facility Location



INDEPENDENCE RECYCLING

Facility Location



II. SITE PLANS



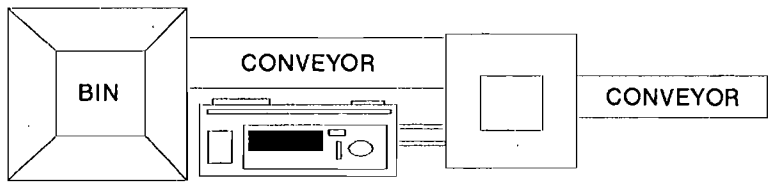
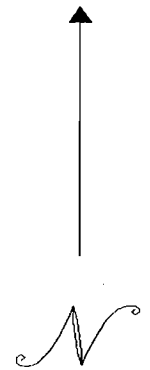
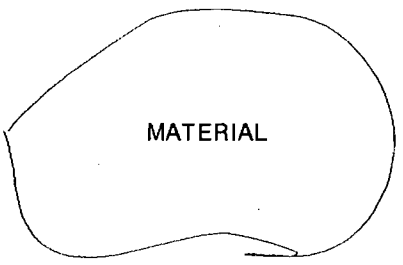
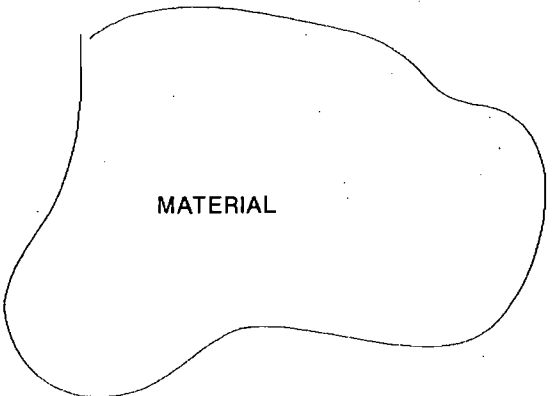
Central Florida Testing Laboratories
 1400 STARKEY ROAD
 LARGO, FL. 34641

SCALE: NTS APPROVED BY: *MSO* DRAWN BY: MSO

DATE: REVISED:

INDEPENDENCE RECYCLING

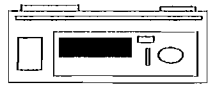
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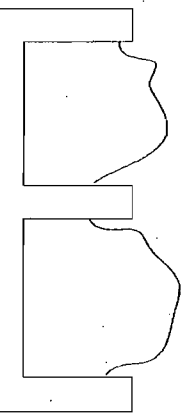
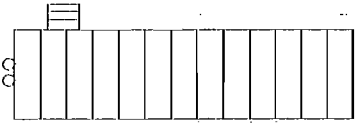
320 HP DIESEL MOTOR

CRUSHER

300 GAL. DIESEL FUEL DRUM



270 HP DIESEL MOTOR



RAWLINGS RD

ROBINSON RD



Central Florida Testing Laboratories

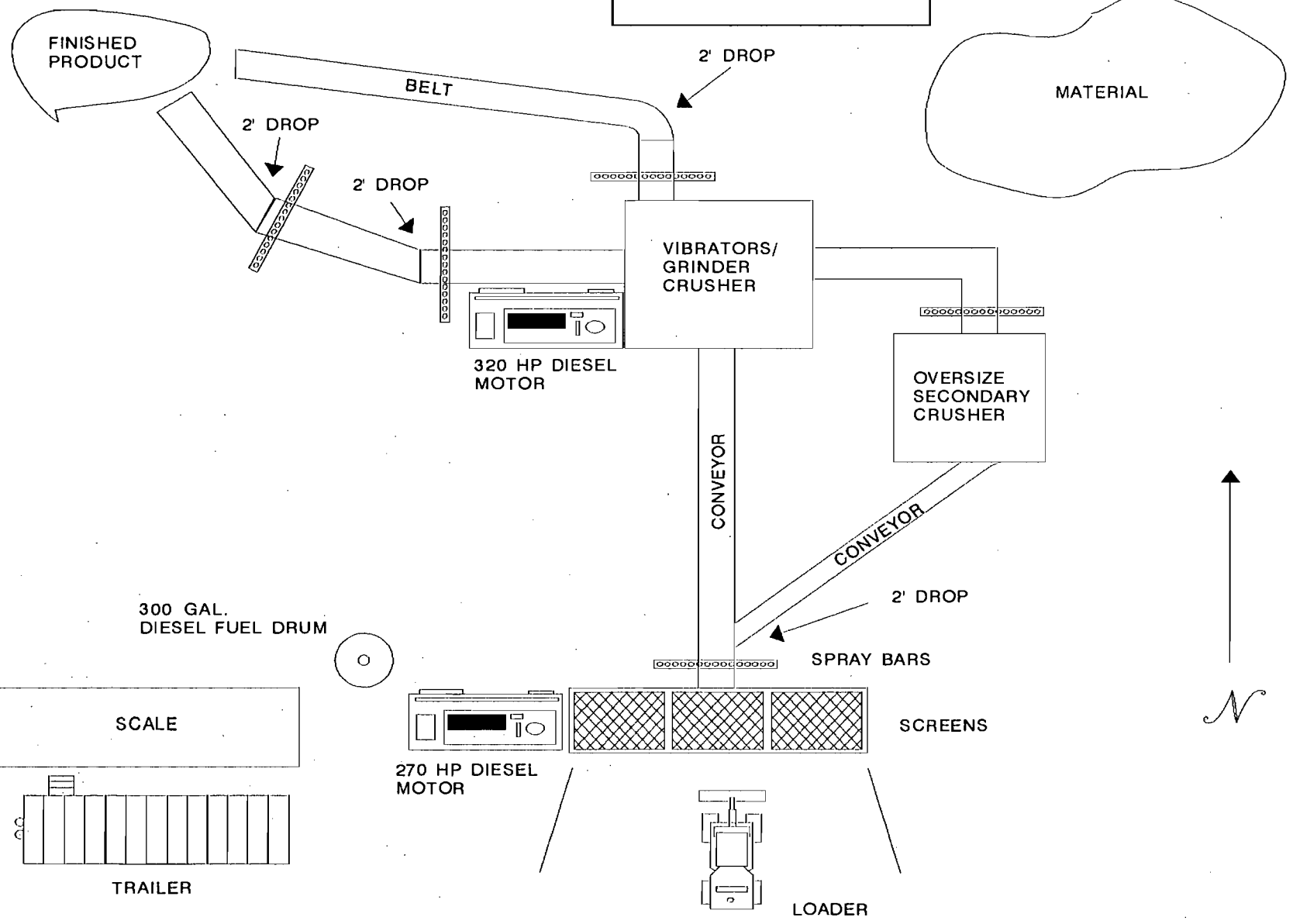
1400 STARKEY ROAD
LARGO, FL. 34641

DATE: NTS	APPROVED BY: <i>BBH</i>	DRAWN BY: MSO
INDEPENDENCE RECYCLING		
CONSTRUCTION APPLICATION		

APAC PORTABLE ASPHALT PLANT

UNIT B

I-75 SOUTH



III. PROCESS DESCRIPTION

PROCESS DESCRIPTION

This project consists of a portable secondary crushing plant utilized to recycle reclaimed asphalt and concrete material for retail sales or for use in asphaltic concrete mixes.

The process begins with the transfer of reclaimed asphalt and concrete material that has been scalped or excavated from highways, parking lots, building demolition which is brought to the site and stockpiled for crushing. This stockpiled material, usually in chunk form ranging from one to twenty inches in diameter contains very little if any fine material and therefore virtually dust free. This material is too large for reuse in it's reclaimed size, therefore the reclaimed material has to be screened and crushed to various usable aggregate sizes. The reclaimed asphalt or concrete chunks are transferred from their stockpiles by a front-end-loader into a vibrating grizzly feeder hopper where this material is sized by a screen. After being sized the material small enough to pass through the screen drops onto the conveyor belt. If the material is too large for the screen it drops into the impactor where it is crushed to a desired size and falls onto the conveyor belt. This material is then transferred by the conveyor belt to the stockpile where it is picked up by a front-end loader and stockpiled for retail sales or delivered to the asphalt plants for use in their asphaltic concrete mixes.

The majority of fugitive dust created during this process is generated by the vibrating feeder, the screening process and the impactor-crusher. The emissions at this facility will be controlled by damping the material to be crushed with just enough water to so that when these materials are processed the emissions of the fugitive will be negligible. The introduction of water into this material will be accomplished by mounting sprayer bars on the vibrating feeder and various other drop and emission points in the manner that these spray bars will dampen the material such that the dust will not be emitted. The flow of water will vary on a as needed basis and will be controlled by the operator of the crushing plant. In addition, the emissions points will be covered with a sheeting material as to prevent any fugitive dust generated to leave this source.

On location, this crushing operation will comply with all FDEP/HCEPC/SCESD rules and regulations.

IV. FLOW DIAGRAM



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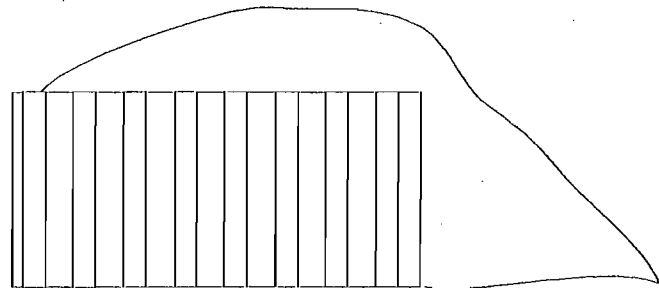
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LARGO, FL. 34641

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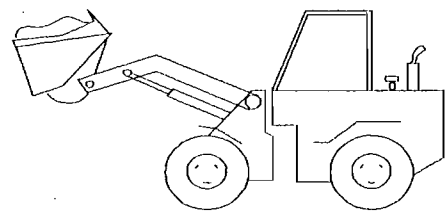
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INDEPENDENCE EXCAVATING, INC.

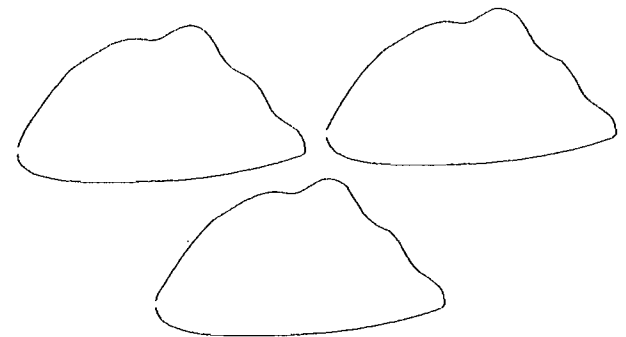
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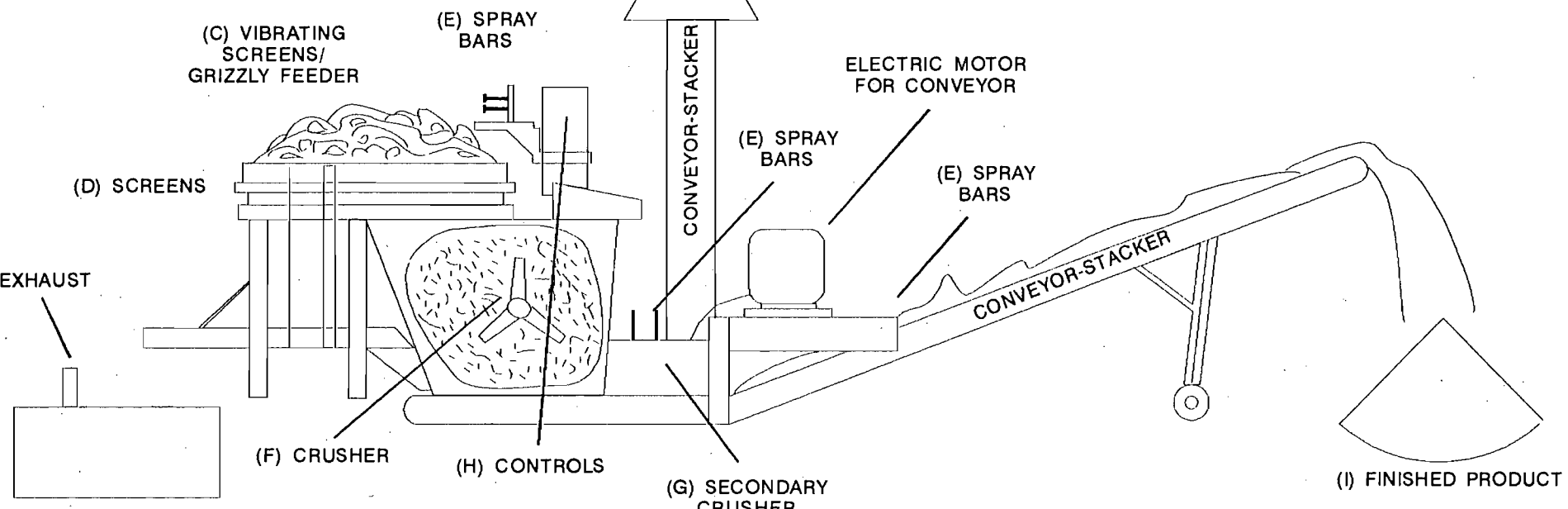
(J) FINISHED PRODUCT STOCKPILES



(B) LOADER



(A) RECLAIMED ASPHALT OR CEMENT



(K) 320 HP DIESEL MOTOR (CRUSHER)

(L) 270 HP DIESEL MOTOR (ELECTRIC SUPPLY)

(I) FINISHED PRODUCT

(I) FINISHED PRODUCT

V. CALCULATIONS OF EMISSIONS



CENTRAL FLORIDA TESTING LABORATORIES, INC.
 1400 Starkey Road - Largo, FL 34641
 (813)581-7019 (800)248-CFTL

INDEPENDENCE EXCAVATING, INC.

150 tph Portable - Hazmag Crushing Unit
 FDEP/HCEPC Construction Permit Application
 Calculation of Emissions

Two Diesel Engines Utilized In Crushing Process

- 320 H.P. Caterpillar - Model 3406, Diesel Fired Motor to Power Crusher
- 270 H.P. Caterpillar - Model 3306, Diesel Fired Motor to Power Facility
- * Maximum Facility Process Rate of Facility = 150 ton/hr
- * Aggregate Storage Area = 2500 tons @ 30 feet in height and a density of 100 lbs/ft³.

DIESEL GENERATOR EMISSION PARAMETERS

Each Unit Exhaust Stack is 4 ft. high with a 5 inch (ID) opening.
 Approximate Exhaust Temperature of each unit is 415° F

Fw = 10,320 scf/million BTU (Distillate Oil EPA Ref. Method 19)

Assuming 20% excess air is needed to operate diesel engines and 37% efficiency in converting BTU input to output.

320 H.P. Diesel Motor - velocity

2547 BTU	10,320 scf	1	486° K	
320 H.P. (-----)	(-----)	(-----)	(-----)	(120% excess air)
HP/HR	million BTU	0.37	293° K	

1 hr.
 (-----) = 12.6 ft³/sec
 3600 sec.

270 H.P. Diesel Motor - velocity

2547 BTU	10,320 scf	1	486° K	
270 H.P. (-----)	(-----)	(-----)	(-----)	(120% excess air)
HP/HR	million BTU	0.37	293° K	

1 hr.
 (-----) = 10.6 ft³/sec
 3600 sec.



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INDEPENDENCE EXCAVATING, INC.

150 tph Portable - Hazmag Crushing Unit
FDEP/HCEPC Construction Permit Application
Calculation of Emissions

Page 2 of 6

320 H.P. Diesel Engine Emissions

* Emission Formula = $[(\text{Grams}/\text{hp-hr})(\text{H.P. rating})]/(453.6 \text{ g/lb}) = \text{lb/hr}$

Particulate Emissions

EPM = $[(1.00)(320)]/(453.6 \text{ g/lb}) = 0.71 \text{ lb/hr}$

Sulfur Oxide Emissions

ESO2 = $[(0.0931)(320)]/(453.6 \text{ g/lb}) = 0.066 \text{ lb/hr}$

Carbon Monoxide Emissions

ECO = $[(3.03)(320)]/(453.6 \text{ g/lb}) = 2.13 \text{ lb/hr}$

Hydrocarbon Emissions

EHC = $[(1.14)(320)]/(453.6 \text{ g/lb}) = 0.80 \text{ lb/hr}$

Nitrogen Oxide Emissions

ENOx = $[(14.0)(320)]/(453.6 \text{ g/lb}) = 9.88 \text{ lb/hr}$

270 H.P. Diesel Engine Emissions

Particulate Emissions

EPM = $[(1.00)(270)]/(453.6 \text{ g/lb}) = 0.60 \text{ lb/hr}$

Sulfur Oxide Emissions

ESO2 = $[(0.0931)(270)]/(453.6 \text{ g/lb}) = 0.055 \text{ lb/hr}$

Carbon Monoxide Emissions

ECO = $[(3.03)(270)]/(453.6 \text{ g/lb}) = 1.80 \text{ lb/hr}$

Hydrocarbon Emissions

EHC = $[(1.14)(270)]/(453.6 \text{ g/lb}) = 0.68 \text{ lb/hr}$

Nitrogen Oxide Emissions

ENOx = $[(14.0)(270)]/(453.6 \text{ g/lb}) = 8.33 \text{ lb/hr}$

Notes:

- 1) Emission factors used for calculations based on Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines in Table 3.3-1 of AP-42 and in AP-40.



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LABORATORIES, INC.
1400 Starkey Road - Largo, FL 34641
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INDEPENDENCE EXCAVATING, INC.

150 tph Portable - Hazmag Crushing Unit
FDEP/HCEPC Construction Permit Application
Calculation of Emissions

Page 3 of 6

PARTICULATE EMISSIONS FROM FACILITY (TSP & PM10)

* Each emission point has an area of ~ 100 ft³ and an emission height of ~15 feet, with the exception of the storage pile.

#1 - Primary or Secondary Crushing of Moistened Material

$$\text{TSP} = (0.018 \text{ lb/ton})(150 \text{ ton/hr})(1-0.90 \text{ enclosure eff.}) = 0.27 \text{ lb/hr}$$

#2 - Crusher Hopper Loading Operations

$$\text{TSP} = (0.0003 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.007 \text{ lb/hr}$$

$$\text{PM10} = (0.00002 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.0005 \text{ lb/hr}$$

#3 - Conveying System

$$\text{TSP} = (0.0003 \text{ lb/ton})(150 \text{ ton/hr}) = 0.045 \text{ lb/hr}$$

$$\text{PM10} = (0.0001 \text{ lb/ton})(150 \text{ ton/hr}) = 0.015 \text{ lb/hr}$$

#4 - Screening Unit

$$\text{TSP} = (0.16 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 3.6 \text{ lb/hr}$$

$$\text{PM10} = (0.12 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 2.7 \text{ lb/hr}$$

#5 - Continuous Drop Transfer Station

$$\text{PM10} = (0.029 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.65 \text{ lb/hr}$$

Notes:

- 1) Control Efficiencies based on efficiency ratings in Section 8.19.2-4 of AP-42 also in AP-40.
- 2) Emission factors based on emission factors found in Section 8.19.2, and 8.19.1 of AP-42 also in AP-40.



CENTRAL FLORIDA TESTING
LABORATORIES, INC.

1400 Starkey Road - Largo, FL 34641
(813)581-7019 (800)248-CFTL

INDEPENDENCE EXCAVATING, INC.

150 tph Portable - Hazmag Crushing Unit
FDEP/HCEPC Construction Permit Application
Calculation of Emissions

Page 4 of 6

EMISSIONS FROM AGGREGATE HANDLING AND STORAGE PILES

(includes continuous drop, equipment traffic, wind erosion and load outs)

$$E \text{ (lb/ton)} = K(0.0032) \frac{(u/5)^{1.3}}{(m/2)^{1.4}}$$

K (particle size multiplier) = 0.74 (TSP) & 0.35 (PM10)

U (mean wind speed) = 10 mph

M (material moisture content) = 7%

$$\begin{aligned} E(\text{TSP}) &= [0.74(0.0032)][(10/5)^{1.3}/(0.7/2)^{1.4}] = 0.02535 \text{ lb/ton} \\ &= 0.02535 \text{ lb/ton}(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.57 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} E(\text{PM10}) &= [0.35(0.0032)][(10/5)^{1.3}/(0.7/2)^{1.4}] = 0.01199 \text{ lb/ton} \\ &= 0.01199 \text{ lb/ton}(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.27 \text{ lb/hr} \end{aligned}$$

Notes:

- 1) Emission Factors based on emission factors found in Section 11.3.3 of AP-42.



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TOTAL HOURLY EMISSIONS FROM FACILITY

Particulate

$E_{p\text{total}} = (E \text{ crushing}) + (E \text{ Hopper Loading}) + (E \text{ conveying}) + (E \text{ screening}) + (E \text{ transfer station}) + (E \text{ storage pile \& traffic}) + (E \text{ diesel engines})$

$E_{p\text{total}} = (0.0270) + (0.007) + (0.045) + (3.60) + (0.65) + (0.57) + (1.31)$

$E_{p\text{total}} = 6.21 \text{ lb/hr}$

Sulfur Dioxide - (Diesel Engines)

$ESO_2 = (0.066 + 0.055 \text{ lb/hr}) = 0.121 \text{ lb/hr}$

Carbon Monoxide - (Diesel Engines)

$ECO = (2.13 + 1.80 \text{ lb/hr}) = 3.93 \text{ lb/hr}$

Hydrocarbons - (Diesel Engines)

$EHC = (0.80 + 0.68 \text{ lb/hr}) = 1.48 \text{ lb/hr}$

Nitrogen Oxides - (Diesel Engines)

$ENox = (9.88 + 8.33 \text{ lb/hr}) = 18.21 \text{ lb/hr}$



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Calculation of Emissions

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TOTAL YEARLY EMISSIONS

Particulate

$$E_p = (6.21 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 9.69 \text{ ton/yr}$$

Sulfur Dioxides

$$E_{SO_2} = (0.066 + 0.055 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 0.19 \text{ ton/yr}$$

Carbon Monoxide Emissions

$$E_{CO} = (2.13 + 1.80 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 6.13 \text{ ton/yr}$$

Hydrocarbons

$$E_{HC} = (0.80 + 0.68 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 2.31 \text{ ton/yr}$$

Nitrogen Oxides

$$E_{NO_x} = (9.88 + 8.33 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 28.41 \text{ ton/yr}$$

VI. FUEL ANALYSIS



central company, inc.
PETROLEUM PRODUCTS

NO. 2 FUEL OIL SPECIFICATIONS

API Gravity @ 60 Degrees F	15.58
Viscosity, SSU @ 100 Degrees F	744 Sec
Sulphur, Wt. %	.90
Flash Point	175 Degrees F
B.S. & W.	.08%
Ash, Wt. %	.03

r-29-94

John,
Please) review for correctness.
These have been assigned to you
as project engineer.

Thanks,

Ben

P.S. These units, I believe, qualify as 40CFR 60,
Subpart 000. The app. indicates NSOS, but I
did not find which one.

application shield provisions. [See 40 CFR §70.6(d)(1).]

- d. The State's general permits rules do not appear to require sources qualifying for a general permit to apply to the Department either for coverage under the terms of a general permit or for a regular part 70 permit consistent with §70.5. [See 40 CFR §70.6(d)(2).]
- e. The State's general permits rules do not describe the application forms to be used for general permits. If the Department provides for applications that deviate from the requirements of 40 CFR §70.5, such applications must meet the requirements of the operating permits program and include all information necessary to determine qualification for, and to assure compliance with, the general permit. [See 40 CFR §70.6(d)(2).]
- f. The State's general permits rules do not provide that the Department may grant a source's request for authorization to operate under a general permit without repeating the public participation procedures, but such a grant shall not be a final permit action for purposes of judicial review. [See 40 CFR §70.6(d)(2).]

It was the Department's intent in the original submittal to indicate that the State has rule authority to issue general permits and that it was not necessary to create a new general permit procedure as part of the Title V rules.

If the Department chooses to issue general permits to Title V sources, a general permit for such category of sources shall be developed pursuant to procedures at Rules 17-4.510, .520, .530, .540 and the 40 CFR 70.6(d). As indicated, general permits must be developed by rule pursuant to Rule 17-4.520.

Each general permit (rule) developed for Title V sources will contain all of the requirements of 40 CFR 70.6(d) to include appropriate application forms and will be submitted to EPA for comments and approval. In the interim, no Title V permits can be issued under a general permit because no such permit (rule) exists.

✓ 15.

Contrary to the information in the "Responses to Select Checklist Questions" section of the submittal, the program does not appear to include provisions for temporary sources consistent with 40 CFR §70.6(e). Moreover, the definition of "Relocatable Facility" in rule 17-212.200(59) for

preconstruction review does not satisfy the part 70 requirements.

As the rule exists, it would be possible for a relocatable source to move under the provisions of seven days notification since such moves would be allowed under the definition and implementation procedures for an operating change. Rule 17-213.400(2)(h) is proposed under CAR, attachment A, to preclude a source from relocating without first applying for and receiving a permit revision if such source is subject to Rule 17-213.100(19)(a), (b), (c), (d), (e), (g) or (h), F.A.C., unless such relocation was approved as a permit condition and all applicable requirements to include public notice are met. Rule 17-213.100(24), the definition of operating change, will be changed to reflect the same requirement. This means that only a source that is a relocatable (temporary) source and is subject to Title V only by virtue of its being subject to NSPS or NESHAP under Rule 17-213.100(19)(f), can move to a new location without first obtaining a permit revision and meeting all of the requirements of 40 CFR 70.6(e). Those sources under Rule 17-213.100(19)(f) are Title V sources under State rule but can be exempted under 40 CFR 70.3 from the obligation to obtain a Part 70 permit.

These changes and the requirements of rules 17-210.200(49), 17-210.370, 17-212.200(59) and 17-212.400(3)(a), all of which are applicable requirements, and the new language proposed under corrective amendments at Rule 17-213.400(3), attachment A, meet all of the requirements of the intent of the federal rule and are equivalent to 40 CFR 70.6(e).

16. Florida's rule 17-213.460 provides for permit shields. However, the permit content requirements in rule 17-213.440 do not appear to include a permit shield provision. As specified in 40 CFR §70.6(f)(2), a part 70 permit that does not expressly state that a permit shield exists shall be presumed not to provide such a shield. Moreover, if the shield provision is included in the permit, it should be consistent with §70.6(f)(1).

Rule 17-213.460, F.A.C., Permit Shield, is an applicable requirement and applies to all Title V permits. The Department intends to implement the shield provisions by including a standardized permit condition that incorporates the content of this rule into each Title V permit pursuant to Rule 17-213.440(1), F.A.C.

The federal rule, technically, under 40 CFR 70.6(f)(1), requires that the permitting authority state in the permit that other requirements specifically identified that do not apply are not applicable to the source. The Department will

Also See
62-210 changes
made in CAR amend.

Central Florida Testing Laboratories, Inc.
Largo, Florida

INDEPENDENCE EXCAVATING, INC.
PORTABLE HAZMAG CRUSHING UNIT B
STATEWIDE
FDEP CONSTR. PERMIT APPLICATION



*Testing Development and Research
Engineering Consultants*

Florida Department of Environmental Protection
RECEIVED

Air Pollution Control Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

AC 24-256364

DEP Form #	_____
Form Title	_____
Effective Date	_____
DEP Application No.	_____ (Filed in by DEP)

\$1000 pd
 8-22-94
 Receipt # 224250

AUG 22 1994

STATEWIDE

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Bureau of Air Regulation Portable Secondary Crushing Unit New¹ Existing¹

APPLICATION TYPE: Construction Operation Modification

COMPANY NAME: Independence Excavating, Inc. COUNTY: Hillsborough/Sarasota

Identify the specific emission point source(s) addressed in this application: 150 ton/hr Hazmag Crushing Unit (B) Serial # KR00881832 powered by a 320 H.P. Caterpillar - Model 3406 diesel fired motor and a and a Caterpillar diesel fired 270 H.P., Model 3306 generator set used to supply electrical power to conveyors and etc.

SOURCE LOCATION: 730 Roosevelt Plaza, Tampa Port Authority/ Tampa/ Street Interstate 75 (0.8 mile south of S.R.72) City Osprey

UTM: East 17-358.2 / 17-356.2 North 3091.9 / 3015.8

Latitude 27° 18' 32" N Longitude 82° 27' 10" W

APPLICANT NAME AND TITLE: Mr. Vic DiGeronimo, Jr., Owner

APPLICANT ADDRESS: 730 Roosevelt Plaza, Tampa Port Authority, Tampa, Florida 33605

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Independence Excavating After-the-fact

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: [Signature]

Mr. Vic DiGeronimo, Owner
 Name and Title (Please Type)

Date 8-11-94 Telephone No. (813) 247-4114

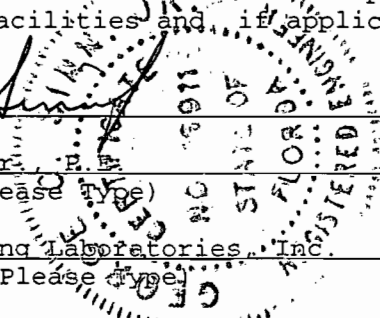
B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

¹ See Florida Administrative Code Rule 17-210.200(14) and (31)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed [Signature]
Mr. George C. Sinn, Jr., P.E.
Name (Please Type)
Central Florida Testing Laboratories, Inc.
Company Name (Please Type)
1400 Starkey Road, Largo, Florida 34641
Mailing Address (Please Type)



Florida Registration No. 16911 Date: 8-9-94 Telephone No. (813)581-7019

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of the installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

"SEE SUPPLEMENTAL PAGE NO. 1"

B. Schedule of project covered in this application (Construction Permit Application Only)
Start of Construction N/A Completion of Construction Already Constructed

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Water Induction System including spray bars to control emissions
and sheet metal enclosures to control emissions ~\$ 7,000.00

D. Indicate any previous DEP permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

None - New Source

SUPPLEMENTAL INFORMATION PAGE No.1

Section II. General Project Information

This project consists of an existing Portable Hazmag Secondary Crushing Unit, Serial # KR00881832 that has operated at Independence Excavating, Inc., Tampa Port Authority Site periodically for approximately two years. This crushing plant is currently employed at a repaving site on Interstate 75 in Sarasota County, Florida. This unit now located at the Sarasota County Site will be known as " Unit B " and will be relocated from the Sarasota County Site to the Tampa Port Authority Site on a as needed basis and on a portable basis upon job completion in Sarasota County. This crushing plant is utilized to crush and stockpile reclaimed asphalt and concrete material for retail sale at the Tampa site and crush reclaimed asphalt and concrete for reuse in asphaltic concrete mixes at the Sarasota County site. This crushing plant ("Unit A") crushes, screens, and stockpiles asphalt and concrete material at a maximum of 150 tons per hour. This crushing unit will utilize water introduced through spray bar systems, moistening the reclaimed material to be crushed and moistening crushed material drop and transfer points to control the emissions generated during feeding, crushing, screening, and the conveying process. The water spray bar system will be adjusted accordingly to control emissions with water pressure varying from 10 to 40 gallons per minute. This facility will comply with all FDEP/HCEPC/SCESD rules and regulations.

E. Requested permitted equipment operating time: hrs/day 0-10 ; days/wk 0-6 ; wks/yr 52
if power plant, hrs/yr 2,080 if seasonal, describe: This facility is not seasonal
but is weather dependent. Normal Daily Operating Hours: 7:00 a.m. to 5:00 p.m.

F. If this is a new source or major modification, answer the following questions.
(Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? Yes
 - a. If yes, has "offset" been applied? No
 - b. If yes, has "Lowest Achievable Emission Rate" been applied? No
 - c. If yes, list non-attainment pollutants. Particulate and Ozone
 2. Does best available control technology (BACT) apply to this source?
If yes, see Section VI. No
 3. Does the "Prevention of Significant Deterioration" (PSD)
requirement apply to this source? If yes, see Sections VI and VII. No
 4. Do "Standards of Performance for New Stationary Sources" (NSPS)
apply to this source? Yes
 5. Do "National Emission Standards for Hazardous Air Pollutants"
(NESHAP) apply to this source? No
- H. Do "Reasonably Available Control Technology" (RACT) requirements apply
to this source? Yes
- a. If yes, for what pollutants? Particulate
 - b. If yes, in addition to the information required in this form,
any information requested in Rule 17.296.500 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justifi-
cation for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate lbs/hr	Relate to Flow Diagram
	Type	% Wt.		
Reclaimed Asphalt Pavement or Reclaimed Concrete	Particulate -200 mesh	2.0	300,000	A

B. Process Rate, if applicable: (See Section V, Item 1)

- Total Process Input Rate (lbs/hr): 150 ton/hr as reclaimed asphalt or concrete materia
- Product Weight (lbs/hr): 150 ton/hr as recycled asphalt or concrete pavement

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary) * Emissions include fugitives and gaseous emissions from diesel engine operation.

Name of Contaminant	Emission ¹		Allowed ² Emission Rate per Rule 17-296	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	6.21	9.69	Visible Emissions	<5% Opacity Crusher &	6.21	9.69	A, C, J, I
Sulfur Oxides	0.121	0.19		Emission Points	0.121	0.19	K, L
Carbon Oxides	3.19	6.13		<20% Opacity -	3.19	6.13	K, L
Hydrocarbons	1.48	2.31		Diesel Engine	1.48	2.31	K, L
Nitrogen Oxides	18.21	28.41		Exhausts	18.21	28.41	K, L

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-296.405(2)(b), - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

⁴Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (if applicable)	Basis for Efficiency (Section V Item 5)
Induction of Water through spray bars on various emission points and metal sheeting enclosures	Particulate	85.0%	+1.0 Micron	AP-42, Design and Test Data

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max/hr	
No.2 virgin diesel fuel with 1.0% sulfur limit to 270 H.P. Generator Set	12.8 gal/hr	13.3 gal/hr	1.86 MBTU/hr
No.2 virgin diesel fuel as with a 1.0% sulfur limit to fire 320 H.P. Crusher Motor	14.0 gal/hr	15.8 gal/hr	2.20 MBTU/hr

*Units: Natural Gas - MCF/hr; Fuel Oils - gallons/hr; Coal, wood, refuse, other - lbs/hr.

Fuel Analysis: No.2 Fuel Oil

Percent Sulfur: <1.0 % Percent Ash: 0.3%

Density: 8.012 lbs/gal Typical Percent Nitrogen: Neq. / Neq.

Heat Capacity: BTU/lb; 135,000 BTU/gal N/A BTU/ft³

Other Fuel Contaminants (which may cause air pollution): NONE

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average NOT APPLICABLE Maximum NOT APPLICABLE

G. Indicate liquid or solid wastes generated and method of disposal.

No liquid or solid wastes generated from this process. Water spray bars utilized at
emission points. material sprayed, water absorbed by product to eliminate dust.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):
 (* SEE PAGE 1 of 6 - Calculation of Emissions Sheets)

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (PLASTICS)	Type I (RUBBISH)	Type II (REFUSE)	Type III (GARBAGE)	Type IV (PATHOLOGICAL)	Type V (LIQUID & GAS BY-PROD)	Type VI (SOLID BY PRODUCT)
Actual lb/hr incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ days/wk _____ wks/yr _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume (ft ³)	Heat Release (Btu/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temperature: _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emission rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: Cyclone Wet Scrubber Afterburner
 Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight - show derivation [Rule 17-212.200(41)]
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8 1/2' x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

INDEPENDENCE EXCAVATING, INC.
SUPPLEMENTAL INFORMATION
FDEP CONSTRUCTION PERMIT APPLICATION
HAZMAG CRUSHING UNIT " B "

TABLE OF CONTENTS

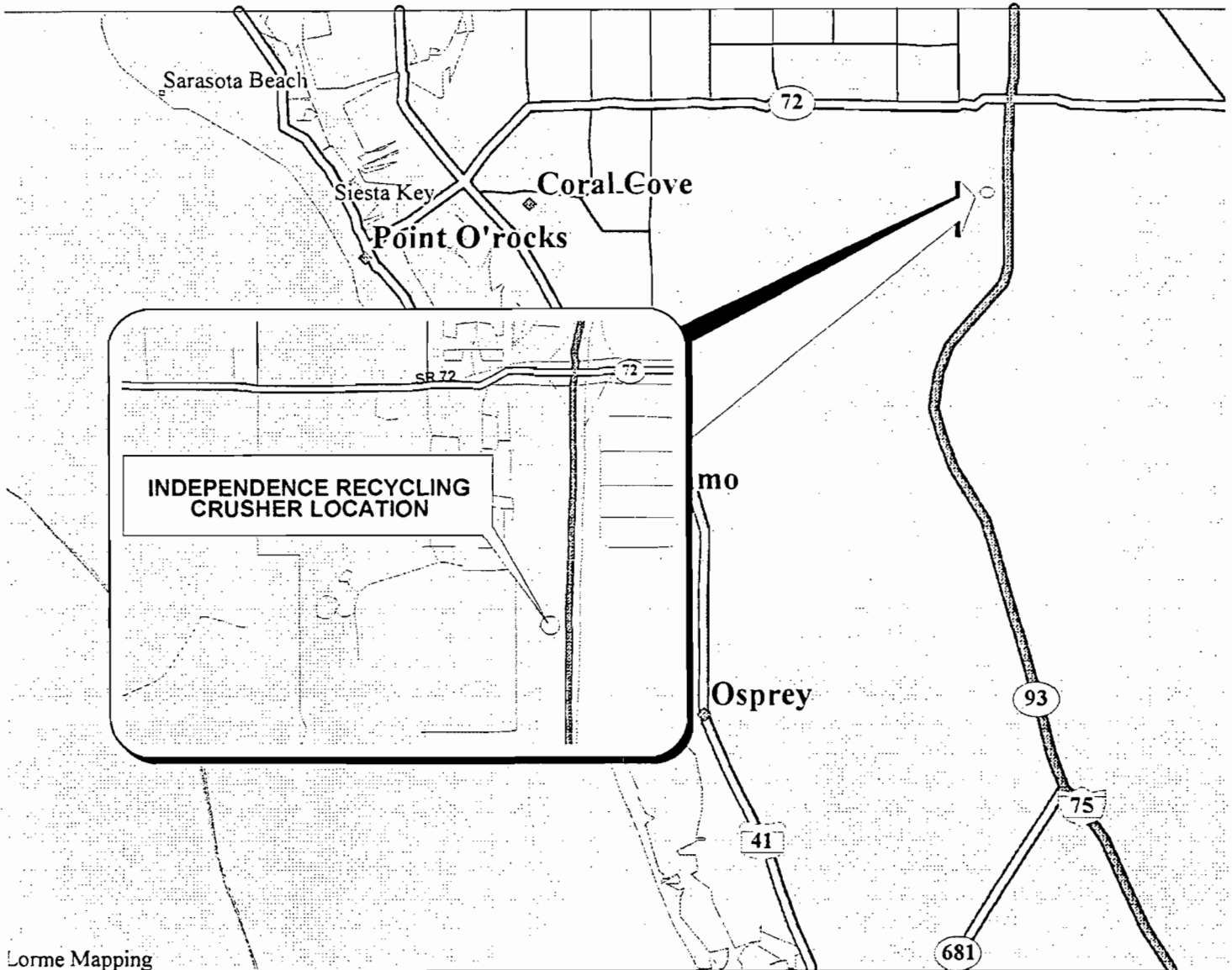
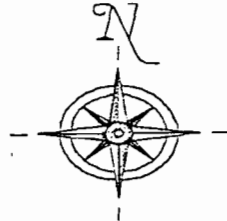
- I. PLANT LOCATION
- II. SITE PLAN
- III. PROCESS DESCRIPTION
- IV. FLOW DIAGRAM
- V. CALCULATIONS OF EMISSIONS
- VI. FUEL ANALYSIS

I. PLANT LOCATIONS

BEST AVAILABLE COPY

INDEPENDENCE RECYCLING

Facility Location



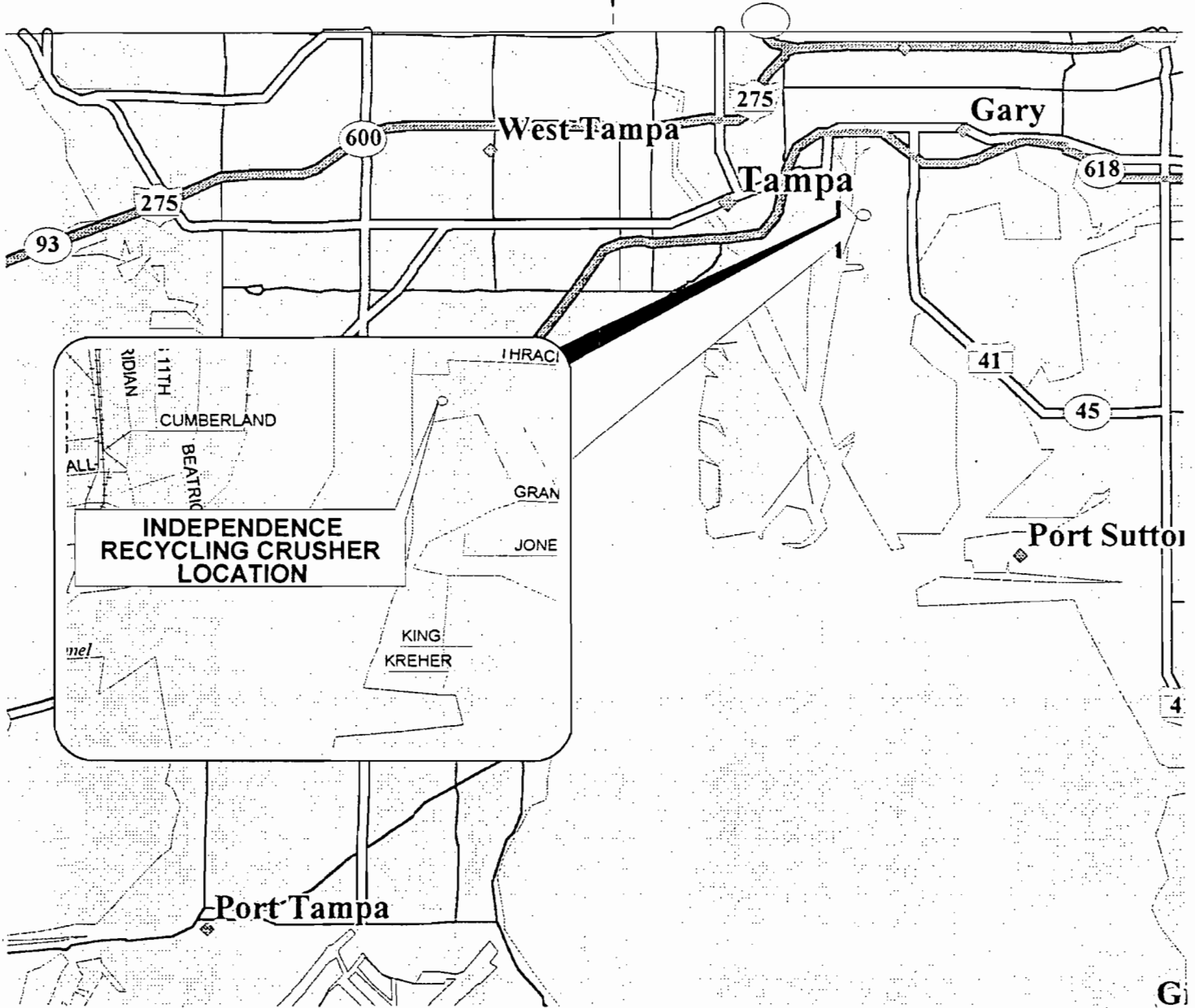
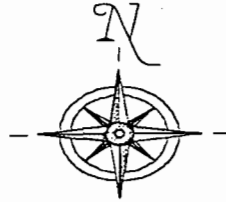
Lorme Mapping

Central Florida Testing Laboratories, Inc.
1400 STARKEY ROAD • LARGO, FLORIDA • (813) 581-7019



INDEPENDENCE RECYCLING

Facility Location



II. SITE PLANS



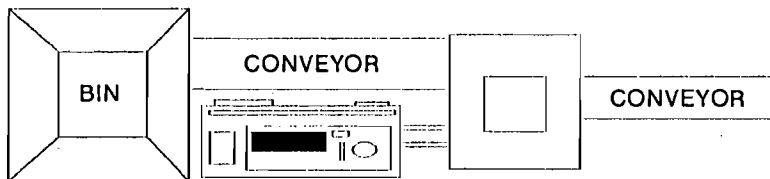
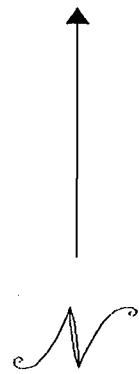
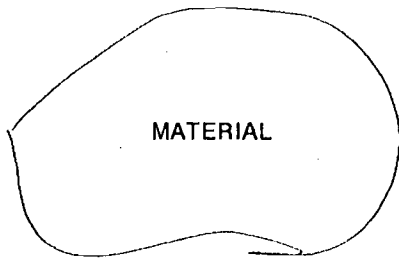
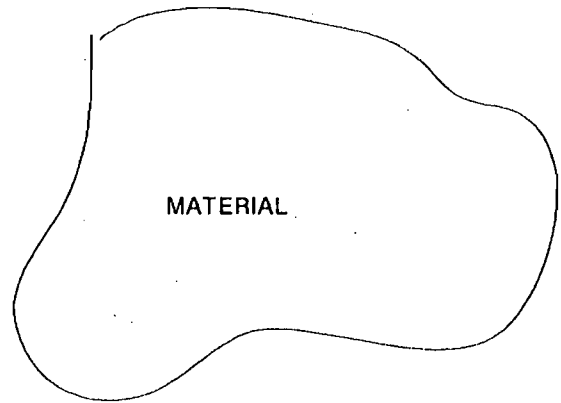
Central Florida Testing Laboratories

1400 STARKEY ROAD
LAVIGO, FL 34641

DATE: NIS APPROVED BY: *BBh* DRAWN BY: MGO

INDEPENDENCE RECYCLING

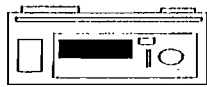
CONSTRUCTION APPLICATION



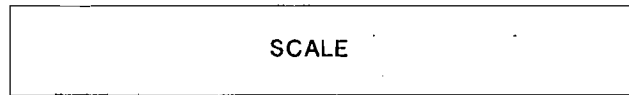
320 HP DIESEL MOTOR

CRUSHER

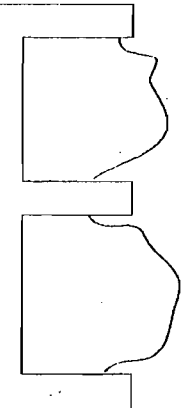
300 GAL. DIESEL FUEL DRUM



270 HP DIESEL MOTOR



TRAILER



FINISHED PRODUCT

RAWLINGS RD

ROBINSON RD

CFTL
Central Florida Testing Laboratories
 1400 STARKEY ROAD
 LARGO, FL 34641

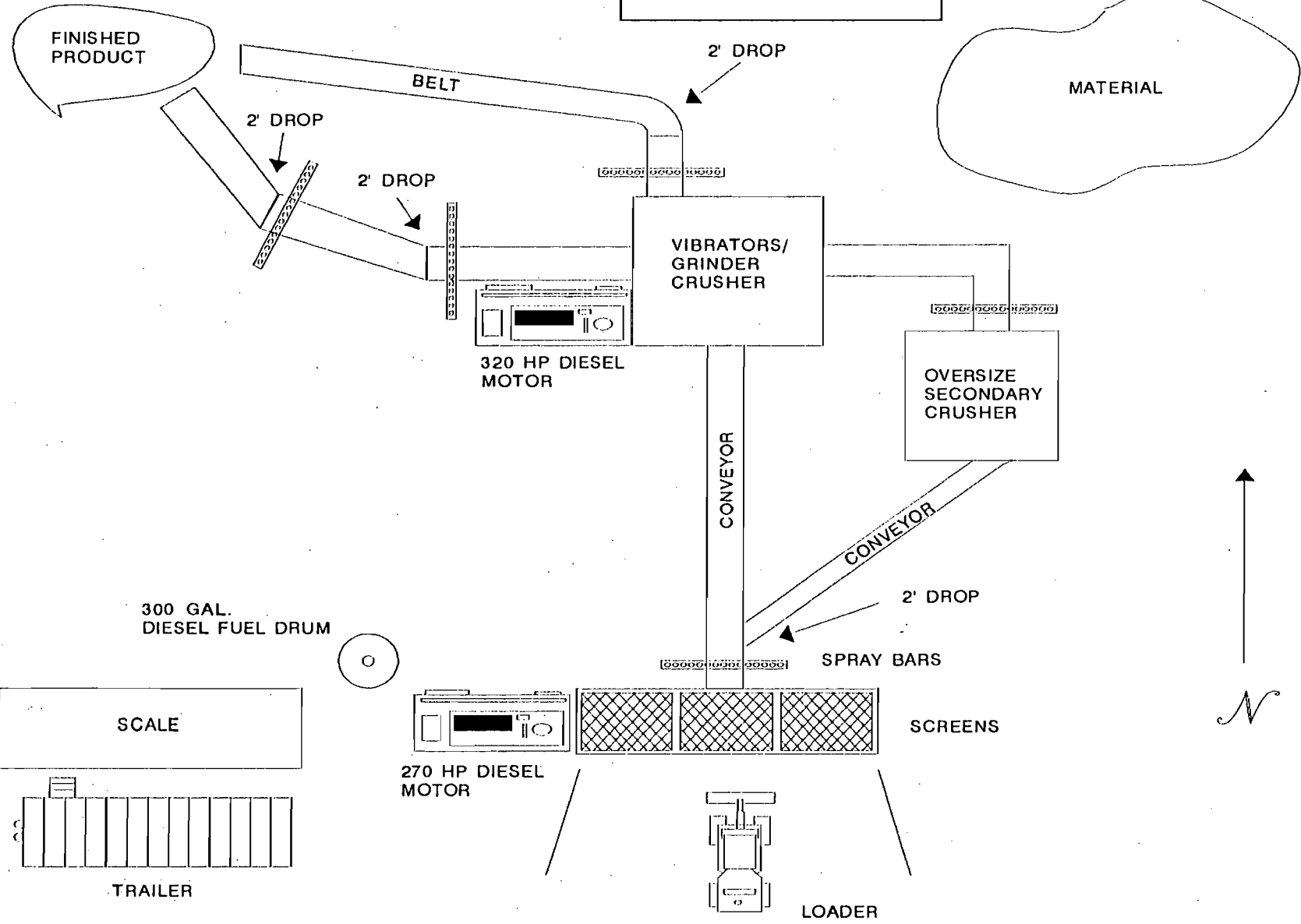
DATE: NIS
 APPROVED BY: *BBH*
 DRAWN BY: MGO
 REVISIONS:

INDEPENDENCE RECYCLING
 CONSTRUCTION APPLICATION

APAC PORTABLE ASPHALT PLANT

UNIT B

I-75 SOUTH



III. PROCESS DESCRIPTION

PROCESS DESCRIPTION

This project consists of a portable secondary crushing plant utilized to recycle reclaimed asphalt and concrete material for retail sales or for use in asphaltic concrete mixes.

The process begins with the transfer of reclaimed asphalt and concrete material that has been scalped or excavated from highways, parking lots, building demolition which is brought to the site and stockpiled for crushing. This stockpiled material, usually in chunk form ranging from one to twenty inches in diameter contains very little if any fine material and therefore virtually dust free. This material is too large for reuse in it's reclaimed size, therefore the reclaimed material has to be screened and crushed to various usable aggregate sizes. The reclaimed asphalt or concrete chunks are transferred from their stockpiles by a front-end-loader into a vibrating grizzly feeder hopper where this material is sized by a screen. After being sized the material small enough to pass through the screen drops onto the conveyor belt. If the material is too large for the screen it drops into the impactor where it is crushed to a desired size and falls onto the conveyor belt. This material is then transferred by the conveyor belt to the stockpile where it is picked up by a front-end loader and stockpiled for retail sales or delivered to the asphalt plants for use in their asphaltic concrete mixes.

The majority of fugitive dust created during this process is generated by the vibrating feeder, the screening process and the impactor-crusher. The emissions at this facility will be controlled by damping the material to be crushed with just enough water to so that when these materials are processed the emissions of the fugitive will be negligible. The introduction of water into this material will be accomplished by mounting sprayer bars on the vibrating feeder and various other drop and emission points in the manner that these spray bars will dampen the material such that the dust will not be emitted. The flow of water will vary on a as needed basis and will be controlled by the operator of the crushing plant. In addition, the emissions points will be covered with a sheeting material as to prevent any fugitive dust generated to leave this source.

On location, this crushing operation will comply with all FDEP/HCEPC/SCESD rules and regulations.

IV. FLOW DIAGRAM



Central Florida Testing Laboratories

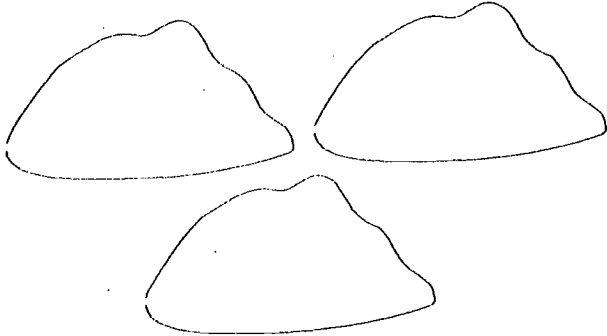
1400 STANKEY ROAD
LAJUNGO, FL 31641

SCALE: NIS APPROVED BY: [Signature] DRAWN BY: MCO

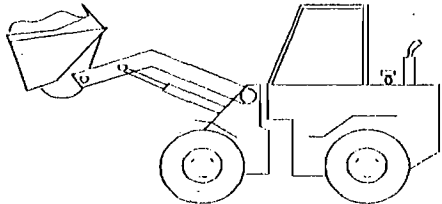
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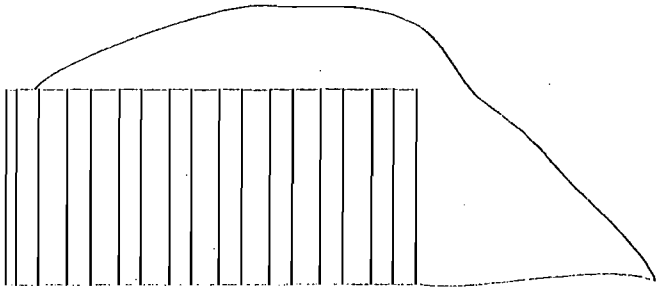
CONSTRUCTION APPLICATION



(A) RECLAIMED ASPHALT OR CEMENT



(B) LOADER



(J) FINISHED PRODUCT STOCKPILES

(C) VIBRATING SCREENS/GRIZZLY FEEDER

(E) SPRAY BARS

(I) FINISHED PRODUCT

(D) SCREENS

ELECTRIC MOTOR FOR CONVEYOR

(E) SPRAY BARS

(E) SPRAY BARS

EXHAUST

(F) CRUSHER

(H) CONTROLS

(G) SECONDARY CRUSHER

CONVEYOR-STACKER

(I) FINISHED PRODUCT

(K) 320 HP DIESEL MOTOR (CRUSHER)

(L) 270 HP DIESEL MOTOR (ELECTRIC SUPPLY)

V. CALCULATIONS OF EMISSIONS



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 FDEP/HCEPC Construction Permit Application
 Calculation of Emissions

Two Diesel Engines Utilized In Crushing Process

- 320 H.P. Caterpillar - Model 3406, Diesel Fired Motor to Power Crusher
- 270 H.P. Caterpillar - Model 3306, Diesel Fired Motor to Power Facility
- * Maximum Facility Process Rate of Facility = 150 ton/hr
- * Aggregate Storage Area = 2500 tons @ 30 feet in height and a density of 100 lbs/ft³.

DIESEL GENERATOR EMISSION PARAMETERS

Each Unit Exhaust Stack is 4 ft. high with a 5 inch (ID) opening.
 Approximate Exhaust Temperature of each unit is 415° F

Fw = 10,320 scf/million BTU (Distillate Oil EPA Ref. Method 19)

Assuming 20% excess air is needed to operate diesel engines and 37% efficiency in converting BTU input to output.

320 H.P. Diesel Motor - velocity

$$320 \text{ H.P.} \left(\frac{2547 \text{ BTU}}{\text{HP/HR}} \right) \left(\frac{10,320 \text{ scf}}{\text{million BTU}} \right) \left(\frac{1}{0.37} \right) \left(\frac{486^\circ \text{ K}}{293^\circ \text{ K}} \right) (120\% \text{ excess air})$$

1 hr.
 (-----) = 12.6 ft³/sec
 3600 sec.

270 H.P. Diesel Motor - velocity

$$270 \text{ H.P.} \left(\frac{2547 \text{ BTU}}{\text{HP/HR}} \right) \left(\frac{10,320 \text{ scf}}{\text{million BTU}} \right) \left(\frac{1}{0.37} \right) \left(\frac{486^\circ \text{ K}}{293^\circ \text{ K}} \right) (120\% \text{ excess air})$$

1 hr.
 (-----) = 10.6 ft³/sec
 3600 sec.



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320 H.P. Diesel Engine Emissions

* Emission Formula = $[(\text{Grams}/\text{hp-hr})(\text{H.P. rating})]/(453.6 \text{ g/lb}) = \text{lb/hr}$

Particulate Emissions

EPM = $[(1.00)(320)]/(453.6 \text{ g/lb}) = 0.71 \text{ lb/hr}$

Sulfur Oxide Emissions

ESO2 = $[(0.0931)(320)]/(453.6 \text{ g/lb}) = 0.066 \text{ lb/hr}$

Carbon Monoxide Emissions

ECO = $[(3.03)(320)]/(453.6 \text{ g/lb}) = 2.13 \text{ lb/hr}$

Hydrocarbon Emissions

EHC = $[(1.14)(320)]/(453.6 \text{ g/lb}) = 0.80 \text{ lb/hr}$

Nitrogen Oxide Emissions

ENOx = $[(14.0)(320)]/(453.6 \text{ g/lb}) = 9.88 \text{ lb/hr}$

270 H.P. Diesel Engine Emissions

Particulate Emissions

EPM = $[(1.00)(270)]/(453.6 \text{ g/lb}) = 0.60 \text{ lb/hr}$

Sulfur Oxide Emissions

ESO2 = $[(0.0931)(270)]/(453.6 \text{ g/lb}) = 0.055 \text{ lb/hr}$

Carbon Monoxide Emissions

ECO = $[(3.03)(270)]/(453.6 \text{ g/lb}) = 1.80 \text{ lb/hr}$

Hydrocarbon Emissions

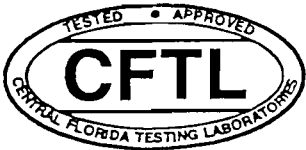
EHC = $[(1.14)(270)]/(453.6 \text{ g/lb}) = 0.68 \text{ lb/hr}$

Nitrogen Oxide Emissions

ENOx = $[(14.0)(270)]/(453.6 \text{ g/lb}) = 8.33 \text{ lb/hr}$

Notes:

- 1) Emission factors used for calculations based on Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines in Table 3.3-1 of AP-42 and in AP-40.



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PARTICULATE EMISSIONS FROM FACILITY (TSP & PM10)

* Each emission point has an area of ~ 100 ft³ and an emission height of ~15 feet, with the exception of the storage pile.

#1 - Primary or Secondary Crushing of Moistened Material

$$\text{TSP} = (0.018 \text{ lb/ton})(150 \text{ ton/hr})(1-0.90 \text{ enclosure eff.}) = 0.27 \text{ lb/hr}$$

#2 - Crusher Hopper Loading Operations

$$\text{TSP} = (0.0003 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.007 \text{ lb/hr}$$

$$\text{PM10} = (0.00002 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.0005 \text{ lb/hr}$$

#3 - Conveying System

$$\text{TSP} = (0.0003 \text{ lb/ton})(150 \text{ ton/hr}) = 0.045 \text{ lb/hr}$$

$$\text{PM10} = (0.0001 \text{ lb/ton})(150 \text{ ton/hr}) = 0.015 \text{ lb/hr}$$

#4 - Screening Unit

$$\text{TSP} = (0.16 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 3.6 \text{ lb/hr}$$

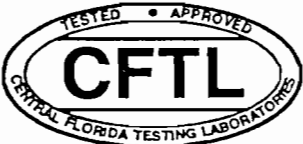
$$\text{PM10} = (0.12 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 2.7 \text{ lb/hr}$$

#5 - Continuous Drop Transfer Station

$$\text{PM10} = (0.029 \text{ lb/ton})(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.65 \text{ lb/hr}$$

Notes:

- 1) Control Efficiencies based on efficiency ratings in Section 8.19.2-4 of AP-42 also in AP-40.
- 2) Emission factors based on emission factors found in Section 8.19.2, and 8.19.1 of AP-42 also in AP-40.



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EMISSIONS FROM AGGREGATE HANDLING AND STORAGE PILES

(includes continuous drop, equipment traffic, wind erosion and load outs)

$$E \text{ (lb/ton)} = K(0.0032) \frac{(u/5)^{1.3}}{(m/2)^{1.4}}$$

K (particle size multiplier) = 0.74 (TSP) & 0.35 (PM10)

U (mean wind speed) = 10 mph

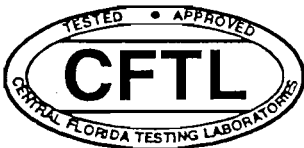
M (material moisture content) = 7%

$$\begin{aligned} E(\text{TSP}) &= [0.74(0.0032)][(10/5)^{1.3}/(0.7/2)^{1.4}] = 0.02535 \text{ lb/ton} \\ &= 0.02535 \text{ lb/ton}(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.57 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} E(\text{PM10}) &= [0.35(0.0032)][(10/5)^{1.3}/(0.7/2)^{1.4}] = 0.01199 \text{ lb/ton} \\ &= 0.01199 \text{ lb/ton}(150 \text{ ton/hr})(1-0.85 \text{ wet spray eff.}) = 0.27 \text{ lb/hr} \end{aligned}$$

Notes:

- 1) Emission Factors based on emission factors found in Section 11.3.3 of AP-42.



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TOTAL HOURLY EMISSIONS FROM FACILITY

Particulate

$$E_{p_{total}} = (E \text{ crushing}) + (E \text{ Hopper Loading}) + (E \text{ conveying}) + (E \text{ screening}) + (E \text{ transfer station}) + (E \text{ storage pile \& traffic}) + (E \text{ diesel engines})$$

$$E_{p_{total}} = (0.0270) + (0.007) + (0.045) + (3.60) + (0.65) + (0.57) + (1.31)$$

$$E_{p_{total}} = 6.21 \text{ lb/hr}$$

Sulfur Dioxide - (Diesel Engines)

$$ESO_2 = (0.066 + 0.055 \text{ lb/hr}) = 0.121 \text{ lb/hr}$$

Carbon Monoxide - (Diesel Engines)

$$ECO = (2.13 + 1.80 \text{ lb/hr}) = 3.93 \text{ lb/hr}$$

Hydrocarbons - (Diesel Engines)

$$EHC = (0.80 + 0.68 \text{ lb/hr}) = 1.48 \text{ lb/hr}$$

Nitrogen Oxides - (Diesel Engines)

$$ENOX = (9.88 + 8.33 \text{ lb/hr}) = 18.21 \text{ lb/hr}$$



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TOTAL YEARLY EMISSIONS

Particulate

$$E_p = (6.21 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 9.69 \text{ ton/yr}$$

Sulfur Dioxides

$$E_{SO_2} = (0.066 + 0.055 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 0.19 \text{ ton/yr}$$

Carbon Monoxide Emissions

$$E_{CO} = (2.13 + 1.80 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 6.13 \text{ ton/yr}$$

Hydrocarbons

$$E_{HC} = (0.80 + 0.68 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 2.31 \text{ ton/yr}$$

Nitrogen Oxides

$$E_{NO_x} = (9.88 + 8.33 \text{ lb/hr})(3120 \text{ hr/yr})/2000 \text{ lb/ton} = 28.41 \text{ ton/yr}$$

VI. FUEL ANALYSIS

central  company, inc.

PETROLEUM PRODUCTS

NO. 2 FUEL OIL SPECIFICATIONS

API Gravity @ 60 Degrees F	15.58
Viscosity, SSU @ 100 Degrees F	744 Sec
Sulphur, Wt. %	.90
Flash Point	175 Degrees F
B.S. & W.	.08%
Ash, Wt. %	.03