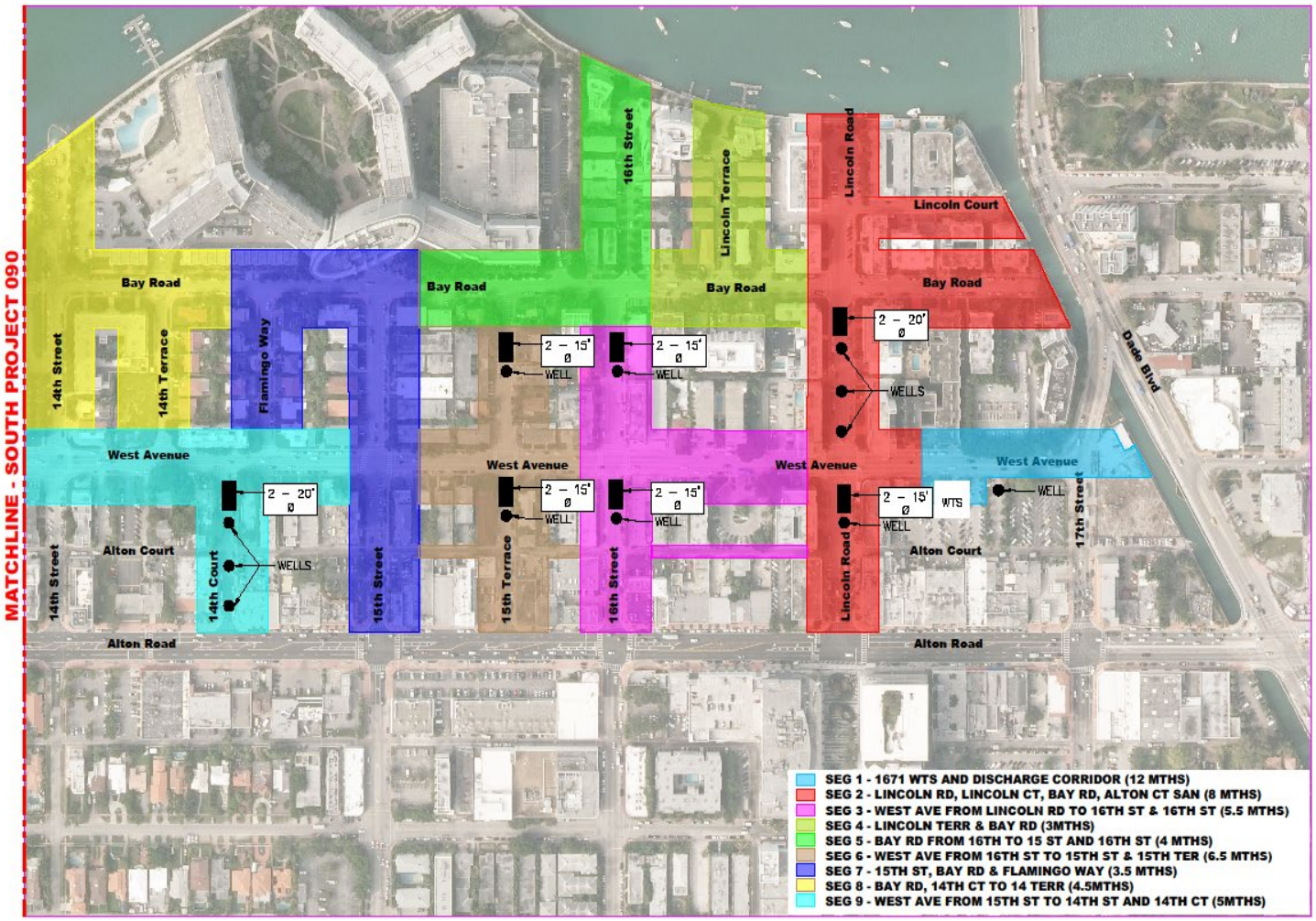
RIC-MAN CONST. FL, INC.
DEERFIELD BEACH, FLORIDA

Secant Pile Walls Supplemental Safety Plan

For

17-KB91 West Avenue North of 14th

WEST AVE - PROPOSED CONSTRUCTION SEGMENTS - NORTH 091



COFFERDAMS with Secant Pile Walls

Scope

Secant pile walls are formed by constructing intersecting reinforced concrete piles. Secant pile walls are reinforced with either steel rebar or with steel beams and are constructed by drilling under mud. Primary secant piles are installed first with secondary reinforced secant piles constructed in between primary piles once the latter gain sufficient strength. Pile overlap is typically in the order of 3 inches (8 cm).

This plan applies to the construction, modification, and major, any other aspect of Cofferdam construction. This plan does not apply to routine maintenance of an existing structure; excavation and trenching operations.

Definitions:

Atmospheric pressure means the pressure of air at sea level, usually 14.7 p.s.i. (1 atmosphere) or zero p.s.i.
Auger tunnel means a tunnel that is excavated by use of a continuous flight auger system, with or without a sleeve or other type of liner.
Bulkhead means an airtight structure separating the working chamber from free air or from another chamber under a lesser pressure than the working pressure.
Caisson means either a generally vertical foundation unit below grade or a chamber placed in the ground or water for excavating earth and in which it is possible for a person to work under air pressure greater than atmospheric pressure to excavate material below water level.
Cofferdam means a temporary structure used to control the flow of water and other material during construction operations.
Competent person means a person who is experienced and capable of identifying existing and predictable hazards in the surroundings or under working conditions which are hazardous or dangerous to an employee, and who has the authority and knowledge to take prompt corrective measures to eliminate hazards.
Compressed air means an environment that has a pressure greater than atmospheric pressure.
Decanting means a method used for decompressing under emergency circumstances. In this procedure, the employees are brought to atmospheric pressure with a very high gas tension in the tissues and then immediately recompressed in a second and separate chamber or lock.
Emergency lock means a lock designed to hold and permit the quick passage of an entire shift of employees.

Escape-only respirator means a respirator intended to be used only for emergency exit.
High air means air pressure used to supply power to pneumatic tools and devices.
Man lock means a chamber through which employees pass from 1 air pressure environment into another.
Materials lock means a chamber through which materials and equipment pass from 1 air pressure environment into another.
Occupied tunnel means any tunnel entered by 1 or more employees.
Pressure means a force acting on a unit area, usually shown as pounds per square inch (p.s.i.).
Qualified person means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.
Safety screen means an airtight and watertight diaphragm placed vertically across the upper part of a compressed air tunnel between the face and bulkhead to restrain sudden flooding of the crown of the tunnel between the safety screen and the bulkhead, thus providing a means of refuge and exit from a flooding or flooded tunnel.
Shaft means a vertical or inclined opening excavated below ground level, that is for the purpose of tunnel operations.
Tunnel means a generally horizontal excavation or facility more than l4 inches in diameter, width, or height and more than 6 feet in length below ground or water. Facilities used for the acquisition of
minerals, ores, and fossil fuels, which are commonly known as mines, are excluded from this definition.
Working chamber means the space or compartment under air pressure in which the work is being done.

GENERAL SAFETY

- The employer shall inform oncoming shifts of any hazardous occurrences or conditions that have affected or might affect employee safety, including liberation of gas, equipment failures, earth or rockslides, cave-ins, flooding, fires, or explosions.
- A safe means of egress and access to all work areas shall be provided and maintained free of hazards.
- Form scrap material, lumber that has protruding nails, and all other debris shall be kept cleared from the work areas, passageways, stairs, locks, and change houses.
- Combustible debris shall be removed daily during construction.
- When work is not being performed, access to an underground opening shall be covered, bulkheaded, fenced off, or restricted by gates or doors and appropriately posted.
- An area subject to subsidence that is hazardous to an employee shall
- be fenced and appropriately posted.
- If overtopping of the cofferdam by high waters is possible, means shall be provided for controlled flooding of the work area
- Cofferdam walkways, bridges, or ramps with at least two means of rapid exit shall be provided with guardrails as specified in subpart M of this part.
- Cofferdams located close to navigable shipping channels shall be protected from vessels in transit, where possible.
- **At least 1 employee shall be on duty above ground when an employee is working underground.**

ENTERING THE WORK AREA

All employees who enter the Cofferdam shall be instructed in the recognition and avoidance of hazards that are associated with all the following underground construction activities:

- Air monitoring.
- Ventilation.
- Illumination.
- Communications.
- Mechanical equipment.
- Personal protective equipment.
- Explosives.
- Fire prevention and protection.
- Exposure to overhead fall objects

- **All Cofferdams shall be subject to 1926.1200 Supart AA – Confined Spaces in Construction**

  Before it begins work at a worksite, each employer must ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

  Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space;

  Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee's authorized representative, must be provided an opportunity to observe the pre-entry testing required by this paragraph.

  The atmosphere within the space must be continuously monitored unless the entry employer can demonstrate that equipment for continuous monitoring is not commercially available or periodic monitoring is sufficient.

- **A Cofferdams shall be protected with a guardrail system, fall protection, or barricaded pursuant to OSHA 29 CFR 1926 Subpart M – Fall Protection.**

  This subpart sets forth requirements and criteria for fall protection in construction workplaces covered under 29 CFR part 1926. Exception: The provisions of this subpart do not apply when employees are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed.

  For wood railings: Wood components shall be minimum 1500 lb-ft/in(2) fiber (stress grade) construction grade lumber; the posts shall be at least 2-inch by 4-inch (5 cm x 10 cm) lumber spaced not more than 8 feet (2.4 m) apart on centers; the top rail shall be at least 2-inch by 4-inch (5 cm x 10 cm) lumber, the intermediate rail shall be at least 1-inch by 6-inch (2.5 cm x 15 cm) lumber. All lumber dimensions are nominal sizes as provided by the American Softwood Lumber Standards, dated January 1970.

- **Any Ladders used shall be subject to Subpart X § 1926.1051 and §1926.1053**

PROTECTIVE CLOTHING OR EQUIPMENT

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

- All Employees shall wear Personal Protective equipment as required.
- An employee working in a wet shaft, tunnel, or caisson shall wear safety toe rubber boots.

ELECTRICAL REQUIREMENTS

- A power line shall be well separated or insulated from water lines, telephone lines, and air lines.
- Lighting circuits shall be located so that the movement of personnel or equipment will not damage the circuits or disrupt service.
- All electrical power circuits that supply portable or hand-held tools, lights, or equipment shall be protected by approved ground-fault interrupters.

WELDING

Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet (6.1 m) or by a noncombustible barrier at least 5 feet (1.5 m) high having a fire-resistance rating of at least one-half hour.

When cylinders are hoisted, they shall be secured on a cradle, slingboard, or pallet. They shall not be hoisted or transported by means of magnets or choker slings.

If required, General mechanical ventilation shall be of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain welding fumes and smoke within safe limits, as defined in subpart D.

FIRE PREVENTION AND PROTECTION

Open flames are prohibited.

- Not more than a 1-day supply of diesel fuel shall be stored in a cofferdam gasoline or liquefied petroleum gas shall not be taken in a tunnel or shaft. Acetylene or methylacetylene propidine stabilized gas may be used underground solely for welding, cutting, and other hot work.
- Acetylene, liquefied petroleum gas, and methylacetylene propidine stabilized gas may be used underground only for welding, cutting, and other hot work.
- Not more than the amount of fuel gas and oxygen cylinders necessary to perform welding, cutting, or other hot work during the next 24-hour period shall be permitted underground.
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- Leaks and spills of flammable or combustible fluids shall be cleaned up immediately.
- A fire watch as described in §1926.352(e) shall be maintained when hot work is performed.

Drilling

- Drilling equipment that is to be used during a shift shall be inspected each shift by a qualified employee. Equipment defects affecting safety shall be corrected before the equipment is used.
- The drilling area shall be inspected for hazards before starting the drilling operation.
- An employee shall not be allowed on a drill mast while the drill is in operation.
- When a drill is moved from one area to another, drill steel, tools, and other equipment shall be secured, and the mast shall be placed in a safe position.
- Drills on columns or stiff legs shall be anchored firmly before drilling is started and they shall be retightened frequently thereafter.
- Drilling zones shall be protected with fall protection pursuant to OSHA 29 CFR 1926 Subpart M – Fall Protection.
- When drilling rock or concrete, appropriate dust control measures shall be taken to maintain dust levels within limits set in §1926.55. Such measures may include, but are not limited to, wet drilling, the use of vacuum collectors, and water mix spray systems.

DIVING

1910.401(a)(2)
This standard applies to diving and related support operations conducted in connection with all types of work and employments, including general industry, construction, ship repairing, shipbuilding, shipbreaking and longshoring.

Diving safety plan which includes at a minimum: Procedures covering all diving operations specific to the site; procedures for emergency care, including recompression and evacuation; and criteria for diver training and certification.

EMERGENCY PROVISIONS

Hoisting capability. The employer shall make advance arrangements for power-assisted hoisting capability and equipment (man basket, muck box) to be readily available in an emergency situation is encountered. Such hoisting means shall be designed so that the load hoist drum is powered in both directions of rotation and so that the brake is automatically applied upon power release or failure.
The contractor or subcontractor will have an audible alarm that will notify workers to evacuate in an emergency.

The evacuation procedures are to be covered in orientation.

The contractor or subcontractor shall ensure that rescue teams are familiar with conditions at the jobsite.

The following minimum rescue equipment shall be on the job site at all times

- One 2A-10BC fire extinguisher.
- One stretcher, wire basket type or equivalent with slings attached.
- One first aid kit

An employee who works alone underground in a hazardous location and who is both out of the range of natural unassisted voice communication and not under observation by other persons shall be provided with an effective means of obtaining assistance in an emergency.