MEETING AGENDA
PLANNING AND ZONING BOARD
CITY OF RIVIERA BEACH, FL

LOCAL PLANNING AGENCY
Department of Community Development: (561)845-4060 / comdev@rivierabch.com

Commencement – 7:00 PM
Thursday, December 15, 2016

Council Chambers – Municipal Complex
600 West Blue Heron Boulevard, 33404

If you wish to speak on any item(s) on this agenda, please complete a pink public comment card and provide it to Planning and Zoning Staff. Cards must be submitted prior to Board discussion of an item. Thank you.

I. MOMENT OF SILENCE AND PLEDGE OF ALLEGIANCE

II. ROLL CALL

Rena James, Chairperson	Tradrick McCoy, Vice-Chair
Zedrick Barber II, Board Member	Edward Kunuty, Board Member
Margaret Shepherd, Board Member	Julius Whigham, Sr., Board Member
Vacant, Board Member	
Vacant, 1st Alternate Member	Vacant, 2nd Alternate Member

III. ADDITIONS AND DELETIONS TO THE AGENDA

IV. DISCLOSURE BY BOARD MEMBERS AND ADOPTION OF THE AGENDA

V. APPROVAL OF MINUTES – December 8, 2016.

VI. UNFINISHED BUSINESS – None.

VII. NEW BUSINESS

A. A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF RIVIERA BEACH, PALM BEACH COUNTY, FLORIDA, APPROVING THE SITE PLAN AND SPECIAL EXCEPTION APPLICATION FROM ODYSSEY MANFACTURING, CO. FOR THE CONSTRUCTION OF A BLEACH STORAGE AND DISTRIBUTION FACILITY, INCLUDING EIGHT (8) 40,000 GALLON STORAGE TANKS (DEVELOPMENT PHASE I), AND A FUTURE +/-11,250 SQUARE FOOT REFRIGIRATED WAREHOUSE (DEVELOPMENT PHASE II), AND A FUTURE MATERIAL STORAGE AREA (DEVELOPMENT PHASE III), ON A +/-7.1 ACRE VACANT PARCEL OF LAND, KNOWN BY PCN: 56-43-42-32-43-001-0000, LOCATED ON THE SOUTH SIDE OF DR. MARTIN LUTHER KING JR. BLVD. (FKA WEST 8TH STREET), EAST OF 1555 DR. MARTIN LUTHER KING JR. BLVD. (STONYBROOK APARTMENTS) AND WEST OF 1489 DR. MARTIN LUTHER KING JR. BLVD. (TROPICAL SHIPPING) ; AND PROVIDING FOR AN EFFECTIVE DATE.

1. Presentation(s)
2. Public Comments
3. Board Comments

VIII. GENERAL DISCUSSION

A. PUBLIC COMMENTS
B. CORRESPONDENCE
C. PLANNING AND ZONING BOARD COMMENTS
   1. Project Updates / Upcoming Projects
   2. Upcoming P&Z Board Meetings – January 12, 2017 / January 26, 2017

IX. ADJOURNMENT

NOTICE: In accordance with the Americans with Disabilities Act, persons in need of a special accommodation to participate in this proceeding shall, within a reasonable time prior to any proceeding, contact the City of Riviera Beach, 600 West Blue Heron Boulevard, Riviera Beach, Florida 33404, Telephone 561-845-4000 or TDD 561-840-3350, www.rivierabch.com.

STAFF REPORT – CITY OF RIVIERA BEACH
CASE NUMBER SP-16-14; SE-16-01 (ODYSSEY MFG. CO.)
PLANNING AND ZONING BOARD, DECEMBER 15, 2016

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF RIVIERA BEACH, PALM BEACH COUNTY, FLORIDA, APPROVING THE SITE PLAN AND SPECIAL EXCEPTION APPLICATION FROM ODYSSEY MANFACTURING, CO. FOR THE CONSTRUCTION OF A BLEACH STORAGE AND DISTRIBUTION FACILITY, INCLUDING EIGHT (8) 40,000 GALLON STORAGE TANKS (DEVELOPMENT PHASE I), AND A FUTURE +/-11,250 SQUARE FOOT REFRIGIRATED WAREHOUSE (DEVELOPMENT PHASE II), AND A FUTURE MATERIAL STORAGE AREA (DEVELOPMENT PHASE III), ON A +/-7.1 ACRE VACANT PARCEL OF LAND, KNOWN BY PCN: 56-43-42-32-43-001-0000, LOCATED ON THE SOUTH SIDE OF DR. MARTIN LUTHER KING JR. BLVD. (FKA WEST 8TH STREET), EAST OF 1555 DR. MARTIN LUTHER KING JR. BLVD. (STONYBROOK APARTMENTS) AND WEST OF 1489 DR. MARTIN LUTHER KING JR. BLVD. (TROPICAL SHIPPING) ; AND PROVIDING FOR AN EFFECTIVE DATE.

A. Applicant: Odyssey Manufacturing Company.

B. Request: The applicant is requesting site plan and special exception approval for the construction of a bleach storage and distribution facility (warehouse and storage uses).

C. Location: Vacant property on Dr. MLK Jr Blvd.; between 1555 and 1489 Dr. MLK Jr Blvd. Please see parcel numbers below.

D. Property Description and Uses: The subject property description and uses are as follows:

Parcel Control Numbers:	56-43-42-32-43-001-0000 56-43-42-32-43-003-0000 56-43-42-33-43-004-0000
Parcel Size:	+/- 7.1 Acres.
Existing Use:	Vacant
Zoning:	General Industrial (IG)
Future Land Use:	Industrial

E. Adjacent Property Description and Uses:

North: Dr. MLK Jr. Blvd; Community Facilities (northeast); Single Family Residential (northwest); Industrial (north).

South: FDOT Property (Railway).

East: FDOT Property (Railway); 1489 MLK Jr. Blvd, Tropical Shipping; 201 Avenue 'P', Southeast Freight Lines.

West: 1555 MLK Jr. Blvd, Stonybrook Apartments; 460 Avenue 'S', RMB Custom Concrete; Various General Industrial Uses

F. Background:

Odyssey Manufacturing, Co. (hereinafter Odyssey) has submitted an application for site plan and special exception approval, which includes a three-phase development approach. Phase 1, includes eight (8) 40,000 gallon storage tanks for bleach (320,000 gallons total) and a 12' x 46' modular office building (552 square feet). Phase 2, includes a future 11,250 square foot refrigerated warehouse. Phase 3, includes a future material storage area. The associated site plan, landscape plan, and other applicable documents have been included as attachments to this document.

Odyssey has not proposed to manufacture bleach at this location. Instead, bleach will be manufactured outside of the City and transported to this site by railway. The eight (8) onsite storage tanks will be filled by railcar only. The storage tanks will then be used to fill tanker-trucks and the tanker trucks will drive from this location to distribute bleach throughout the region. This property is currently owned by Trademark Metals Recycling (since January 2006). City staff has been informed that Odyssey desires to acquire this property upon approval of site plan and special exception.

City staff has thoroughly reviewed Odyssey's proposal and staff comments have been attached to the staff report (dated December 7, 2016). Please refer to this document for open staff comments. Also, note that City Code Sec. 31-62, "Standards for granting special exceptions", provides guidance for Planning and Zoning Board review and recommendation of special exception requests to City Council (attached).

G. Staff Analysis:

Proposed Use: The proposed use (Warehouse and Storage) requires Special Exception approval per the General Industrial Zoning District.

Zoning Regulations: The proposed development location has a General Industrial Zoning Designation (IG), which requires a special exception approval for warehouse and storage uses. The proposal is consistent with maximum building height, and setbacks provided within the IG property development standards. Please note that the code is silent on providing a maximum number of gallons to be stored at an industrial location. This includes hazardous materials (which includes bleach, AKA Sodium Hypochlorite). Please reference September 2, 2016 letter from Odyssey for additional information on bleach (attached).

Comprehensive Plan: The proposed development location has a future land use of Industrial. This future land use is implemented by the General Industrial Zoning Designation which is consistent for this location as described within the Future Land Use Element of the City's Comprehensive Plan.

Compatibility: There are currently outstanding questions relating to the proposed hours of business operation and compatibility with adjacent residential uses. The traffic study indicates that "each truck will make its initial delivery leaving the site at 5:00AM." Currently, eight (8) tanker trucks are anticipated to operate from this location. Also, this development proposal includes a new rail spur running the length of the eastern property boundary which has the potential to generate additional noise and vibrations as railcars are moved. According to the response provided by Odyssey, (which is included within response number 2 in the December 7, 2016 City Letter; attached) they have proposed to utilize the new rail spur two days a week (Tuesday and Thursday) at 8:00AM and 3:00PM.

Levels of Service: City services such as roads, water, sewer, and garbage collection are currently available to the site.

Landscaping: Landscape improvements are proposed in association with the site plan application. A landscape buffer has not been provided on the eastern and southern property lines due to the proximity to the existing railway. Staff has suggested planting additional shade trees along the western property line to mitigate for the lack of the landscape buffer. This is currently an open staff comment.

Parking/Traffic: Adequate ingress and egress to the property currently exists and a traffic analysis has been provided (attached). Limited parking and storage uses are proposed.

H. Special Exception Analysis

a. Ingress to and egress from the property and the proposed structures thereon, if any, including such considerations as automotive and pedestrian safety and convenience, traffic flow and control, and access in case of fire or catastrophe.

- Ingress and Egress to and from the site is available through Dr. Martin Luther King Jr. Blvd. Odyssey has agreed to add pedestrian striping / crosswalk markings connecting the existing sidewalks on either side of the driveway (see Dec. 7, 2016, Comment No. 35).

b. Off-street parking and loading areas, where required, including consideration of relevant factors in subsection (2)a. of this section, and the economic, noise, glare or odor effects of the location of such areas on adjacent and nearby properties and properties generally in the district.

- Adequate automobile parking spaces have been proposed in accordance with the City's Land Development Regulations. Truck parking areas have also be provided. Tanker trucks and railcars are proposed to be used at this location as a primary function of business operations.

c. Refuse and service areas, including consideration of relevant factors in subsections (2)a. and b. of this section.

- A 6 foot high masonry enclosure has been proposed to hold one dumpster for onsite garbage collection.

d. Utilities, including such consideration as hook-in locations and availability and compatibility of utilities for the proposed use or structure.

- Utilities are currently available to the site and will be properly connected.

e. Screening, buffering and landscaping, including consideration of such relevant factors as type, dimensions and character to preserve and improve compatibility and harmony of use and structures between the proposed special exception and the uses and structures of adjacent and nearby properties and properties generally in the district.

- An eight (8) foot concrete wall has been proposed along the western property line, adjacent to the Stonybrook Apartments. City staff has requested that the concrete wall be shifted from the western property line and located on the east side of the retention

area. A decorative aluminum fence could then be placed on the westernmost property line to allow for visibility into the retention area. (see Dec. 7, 2016, Comment No. 17). Also, as stated above, additional landscaping has been requested along the eastern property line to mitigate for the omission of the eastern and southern landscape buffer. This is currently an open staff comment.

f. Signs, or outside displays, if any, and proposed exterior lighting, if any, with reference to glare, traffic safety and economic effects of same on properties in the district.

- No freestanding signage is currently proposed.
- A lighting plan has been provided, which demonstrates adequate lighting and no light trespass from the property.

g. Required yards and open spaces. The board shall make such recommendations as it deems necessary, guided by the factors that may be described in this zoning district, based on the nature of the request and its effect.

- Adequate yard/open space has been proposed in accordance with the City's Code of Ordinances.

h. ***Other applicable requirements such as those found in Sections 31-481 et seq., 31-566 et seq. and 31-596 et seq.***

- Please note that City staff requested a third-party analysis of the proposed development for (1) environmental impacts, (2) building and fire code analysis and (3) sound/noise impacts (see Dec. 7, 2016, Comment No. 45, 46, 47). This is currently an open staff comment.

I. Recommendation: City staff advises that the Planning and Zoning Board review and consider all information presented and provide a recommendation to the City Council. If the Planning and Zoning Board chooses to recommend approval, City staff recommends including the following conditions of approval:

1. A two-year landscaping performance bond for 110% of the value of landscaping and irrigation shall be required before a certificate of occupancy or certificate of completion is issued.

2. Construction and landscaping improvements must be initiated within 18 months of the effective date of this Resolution in accordance with Section 31-60(b), of the City Code of Ordinances. Demolition, site preparation and/or land clearing shall not be considered construction. Building permit application and associated plans and documents shall be submitted in its entirety and shall not be accepted by City staff in a partial or incomplete manner.

3. All future advertising must state that the development is located in the City of Riviera Beach. Fees and penalties in accordance with City Code Sec. 31-554 will be levied against the property owner and/or business for violation of this condition.

4. Once approved, this resolution shall supersede any previous site plan approval resolutions associated with this property, causing previous site plan approval resolutions to be null and void.

5. City council authorizes City staff to approve future amendments to this site plan administratively so long as the site plan does not deviate greater than 5% from the originally approved site plan.

6. A unity of title is required prior to the issuance of a certificate of occupancy or certificate of completion (for Parcel Numbers 56-43-42-32-43-001-0000; 56-43-42-32-43-003-0000; 56-43-42-33-43-004-0000).

7. On-site rail use or rail service, including the addition or removal of rail cars from this site, shall occur only during "day-time" hours, from 7:00AM to 8:00PM, and shall be prohibited during "night-time" hours, from 8:00 PM to 7:00 AM.

8. Activity on this property which results in offensive noise (City Code Sec. 11-141, et seq.) shall be discontinued during the time between 8:00 PM and 7:00 AM.

9. Tanker trucks may actively transport bleach from this location, however, tanker trucks shall not be utilized for long-term storage of bleach or other material on-site.

10. The eight (8) 40,000 gallon storage tanks proposed shall only be utilized for the storage of bleach and no other material or substance.

11. Approval of any future expansion request of the on-site bleach storage capacity of this facility shall require an additional special exception approval (currently eight (8) 40,000 gallon storage tanks; 320,000 gallon total storage capacity).

Sec. 31-62. - Standards for granting special exceptions.

A special exception shall not be recommended by the planning and zoning board unless and until:

(1) The planning and zoning board shall make findings that the granting of the special exception, with any appropriate conditions and safeguards that the board may deem necessary, will not adversely affect the public interest.

(2) In reaching its conclusion and in making the findings required in subsection (1) of this section, the planning and zoning board shall consider and weigh, among others, the following factors, where applicable and shall show in the record such factors as were considered and the disposition made thereof. Further, the board shall find in the case of any of these factors, where they may be relevant and applicable, that the purposes and requirements of granting the special exception have been met by the applicant and are reflected in the site plan approved concurrently with the granting of the special exception:

a. Ingress to and egress from the property and the proposed structures thereon, if any, including such considerations as automotive and pedestrian safety and convenience, traffic flow and control, and access in case of fire or catastrophe.

b. Off-street parking and loading areas, where required, including consideration of relevant factors in subsection (2)a. of this section, and the economic, noise, glare or odor effects of the location of such areas on adjacent and nearby properties and properties generally in the district.

c. Refuse and service areas, including consideration of relevant factors in subsections (2)a. and b. of this section.

d. Utilities, including such consideration as hookin locations and availability and compatibility of utilities for the proposed use or structure.

e. Screening, buffering and landscaping, including consideration of such relevant factors as type, dimensions and character to preserve and improve compatibility and harmony of use and structures between the proposed special exception and the uses and structures of adjacent and nearby properties and properties generally in the district.

f. Signs, or outside displays, if any, and proposed exterior lighting, if any, with reference to glare, traffic safety and economic effects of same on properties in the district.

g. Required yards and open spaces. The board shall make such recommendations as it deems necessary, guided by the factors that may be described in this zoning district, based on the nature of the request and its effect.

h. Other applicable requirements such as those found in sections 31-481 et seq., 31-566 et seq. and 31-596 et seq.

(Ord. No. 2152, § 3(B)(23.AA-27.II.C), 3-17-82)

CITY OF RIVIERA BEACH

DEPARTMENT OF COMMUNITY DEVELOPMENT
600 WEST BLUE HERON BLVD. • RIVIERA BEACH, FLORIDA 33404
(561) 845-4060 FAX: (561) 845-4038

OFFICE OF
COMMUNITY DEVELOPMENT

December 7, 2016

Sent by email only: pallman@odysseymanufacturing.com
lawmdbrown@aol.com

Odyssey Manufacturing Co.
Attn: Pat Allman, General Manager
1484 Massaro Blvd.
Tampa, FL 33619

RE: City Staff Review of Resubmittal for Site Plan and Special Exception Application for Odyssey Manufacturing Co. (SP-16-14; SE-16-01), PCN #56-43-42-32-43-001-0000

Questions and comments generated from City staff's review of the second submittal of the application for the Odyssey Manufacturing Co. development proposal, at the vacant land known by PCN: 56-43-42-32-43-001-0000, have been provided below (and attached):

Building Division: No additional comments at this time.

Engineering Division: Please see attached conceptual approval.

Fire Department: No additional comments at this time.

Police Department: Please see attached conceptual approval.

Utility District: Please see attached conceptual approval.

Planning and Zoning Division: Please see comments below using the following format; initial comment in regular text, *applicant response in italics*, **current staff response in bold**:

1. An environmental assessment of the site was not provided as part of the initial submittal. This document is required as specified on page 5 of the Uniform Land Use Application (Step 1, Item No. 2). The environmental assessment is required to ensure that no protected flora or fauna exist on this property.

   Enclosure (4) is an environmental assessment of the proposed site from Odyssey's Landscape Engineer stating that there is no existing landscaping on the property or any protected flora or fauna.

   Comment Satisfied.

2. Please provide documentation identifying anticipated railroad use, including frequency of railroad use, and times of use.

   CSX has agreed to provide Odyssey rail service to the property on Tuesday and Thursday

during the early morning hours to the existing railyard. The rail service is expected to consist of 2 – 8 railcars. Odyssey would spot (a.k.a. move) the railcars on the property to their final location at 0800 in the morning on Tuesday and Thursday and push them back out for pickup at 1500 on Tuesday and Thursday afternoons.

Since rail service times have been identified, would Odyssey agree to a condition of approval providing for specific hours of operation for on-site rail service during "day-time" hours, (from 7:00AM to 8:00PM) and prohibiting on-site rail service during "night-time" hours (from 8:00PM to 7:00AM)?

3. Will the railroad be utilized for only transporting bleach to this location or will other materials or equipment be transported to or from the site?

   Odyssey will only be using the railroad to transport bleach to the property. As discussed in the original submission, Odyssey has a potential use future use for the southern-most two acres of the property (a.k.a. "Phase III") which would include getting a railcar shipment each month on the existing tracks adjoining this property. Odyssey is requesting approval for a possible future use for the south two acres of the property in the back to bring in aggregates, gravel and sand which would primarily be used to make concrete. The aggregate operation would employ an additional ten people. Odyssey has been in discussion with several parties including CEMEX who leases the property adjacent to this back two-acre parcel with respect to joint use of the existing railroad lines and also with supplying materials for them.

   Since future (Phase III) use of the southernmost area of the property has not been finalized, future review and approval may be required depending on the use proposed.

4. Demonstrate how future railroad use onsite will adhere to existing City Noise Regulations since this development is adjacent to Stonybrook Apartments and railroad use is a primary component of your business model (new railroads tracks are currently proposed onsite); see City Code Chapter 11, Article IV, Division 2.

   The property is zoned for industrial use and thus Odyssey's proposed operations are consistent with that use. The property is adjacent to a major CSX railyard consisting of five parallel tracks on the east and south sides that is heavily used. Odyssey's proposed two-day per week railcar operations are not a significant addition to these operations. All of Odyssey's operations are on the south and east end of the property several hundred feet from the Stony Brook Apartments. Odyssey purposely laid out its site to maximize the distance of its operations from the Stony Brook Apartments. Odyssey has reviewed the requirements of Section 11.1 of the City of Riviera Beach municipal code with respect to noise regulations and its proposed operations in no way violates any aspect of this code.

Although this property has an Industrial Future Land Use Designation and a General Industrial Zoning Deignation, the City's sound level measurement standards apply to the adjacent property boundary. For this location, the adjacent use (to the west) is residential (Stonybrook Apartments). Residential uses have a more strict sound level measurement standard than an industrial or commercial use.

If Odyssey plans on utilizing on-site rail service on only two days during the week (Tuesday and Thursday), would Odyssey agree to a condition of approval limiting on-site rail service on only Tuesday and Thursday?

Although Section 11.1 is described in the above response, City staff previously directed the applicant to Code Chapter 11, Article IV, Division 2 ("Sound Levels", Sec. 11-171).

5. Sheet G-1, Site Construction Plans, please add the property PCN(s) under "Unaddressed Parcel".

Per your request, this information was added to Drawing G-1 (see Enclosure (2)).

Comment Satisfied.

6. Sheet C-1, Gravel Tanker Parking is described (8 spaces shown):
   a) Why is a gravel parking area proposed versus concrete?

As detailed on the plans, the vast majority of the parking area is asphalt. There is a small section of proposed tanker parking that is gravel. This parking area would only be used for emergencies (see answer to next question). We elected not to pave this area for additional drainage (percolation) on the site.

There are no other parking areas identified on the site plan for tanker parking (6 motor vehicle spaces proposed in Phase 1). Where else on site will tanker parking occur?

Judging from the site elevations and the overall area of the gravel parking, the percolation benefit appears to me minimal. Is there connectivity between the emergency catch basins surrounding the bleach storage tanks and the gravel parking area? Could there be plans for future expansion of storage tanks? If not, why not place asphalt over this area as well?

   b) What is the maximum number of tankers (18-wheel trucks) that could be stored at this location at one time?

We anticipate storing up to eight tankers on the site. Odyssey has several other locations around the State of Florida and during an approaching hurricane, we would anticipate temporarily relocating our tankers to another of our sites that would not be in the path of the hurricane (i.e., on an emergency basis). Thus, if a hurricane was approaching Tampa, Odyssey may temporarily relocate a portion of our tankers in Tampa to Riviera Beach until the hurricane passed by Tampa.

Comment Satisfied.

c) What could be stored within tanker trucks onsite; specific chemicals?

The only chemical that would be stored within tanker trucks on-site would be sodium hypochlorite (a.k.a. "bleach").

Comment Satisfied. Would Odyssey agree to a condition of approval regarding tanker trucks only storing bleach at this location and no other chemicals?

d) How long will tanker trucks be stored onsite? Will any long term storage restrictions will be implemented by Odyssey?

It is expected that the tanker trucks will be stored on-site overnight and on weekends but otherwise would be out during the day making deliveries. Odyssey does plan on any long term storage on the site since this would not be economically viable and thus there is no need for any long term storage restrictions.

Comment Satisfied; "Odyssey does [not] plan on any long term storage..."

7. Sheet C-1, A new railroad spur is proposed onsite. How will this area be gated or secured when not in use?

As shown on Drawing C-1, the new railroad spur is inside Odyssey's fence line and is accessed by CSX through a secured gate.

Comment Satisfied.

8. Please coordinate discussion and potential implementation of City accessible security cameras with RBPD.

Odyssey has previously provided a copy of its proposed security plan to the City of Riviera Beach Police Department (see Re-Submittal #1). The plan calls for security cameras to be placed around the site and monitored 24/7 by Odyssey's Operations Center in Tampa. Should there be any sort of emergency, alarm or security situation, the City of Riviera Beach Police Department would be contacted immediately.

Comment Satisfied.

9. Is an additional permit or approval from FEC Railroad required to add an additional rail spur? If so, has this been obtained?

There is no approval from the Florida East Coast (FEC) Railroad required for rail service to the Property. CSX controls the tracks adjacent to the property and has the franchise rights to serve the property. Thus, the Property is served by CSX and they have not only approved service to us but also approved Odyssey's proposed railroad track design.

Comment Satisfied.

10. Sheet C-1, Asphalt is the primary surface proposed throughout the site. Has concrete been considered at high traffic areas or within parking/storage areas?

    As shown on Drawing C-1, Odyssey used concrete for the high traffic area the trucks back into at the loading stations but otherwise all other parking and roadway surfaces are asphalt. Odyssey's original Tampa bleach facility used asphalt and this was a successful application and we did not have to re-asphalt this site until fifteen years of operations.

    Comment Satisfied.

11. Sheet C-1, Please provide an access gate detail to the northern ingress/egress point.

    Enclosure (6) provides detailed drawings for the decorative fence to be used along the north and part of the east boundaries visible from the road as well as the access gate details for the northern ingress/egress point.

    Comment Satisfied.

12. Sheet C-1, Demonstrate that an adequate vehicular stacking distance has been provided at the northern ingress/egress point.

    There is approximately 130' between the northern ingress/egress point and the crosswalk. A tractor/tanker combination is approximately 60' long. Thus, there is enough room for two tractor/tanker combinations to "stack" up. Given the maximum number of tanker trips in a day is only twenty, the chances of even two tankers being at the gate at the same time is very low.

    Comment Satisfied.

13. Is a security guard house or alternate electronic gate access system proposed?

    No security guard house or alternate electronic gate access system is proposed.

    Comment Satisfied. What are anticipated hours of operation and could trucks arrive at this location in the morning prior to the facility being open/accessible? The City has historically had an issue with 18-wheel trucks arriving to facilities prior to the location being open, causing them to park within the right-of-way. Please advise.

14. Sheet C-1, An alternate drive aisle is proposed at the NE location of the property. What is its purpose and how will it be accessed. Could this create an additional vehicular conflict point onsite?

    The purpose of the alternate drive aisle at the NE location is the property is for maintenance access. There is no plan to use this access on any sort of regular basis and thus no vehicular conflicts are expected.

    Comment Satisfied.

15. Sheet C-1, A 6 foot Chain Link Fence with 2 feet of barbed wire is currently proposed adjacent to Dr. MLK Jr. Highway. City design standards require decorative fencing visible from or directly adjacent to this roadway. A decorative climb-resistant aluminum fence (or similar) could satisfy this requirement.

    Odyssey proposes to use a decorative climb-resistant anodized black aluminum fence for the side of the property adjacent to Dr. Martin Luther King Jr Blvd. and the portion of the east side of the property that is visible from this roadway. Enclosure (6) contains cut sheets of the proposed fencing and the access gate.

    Comment Satisfied; please note the maximum allowable fence height is 8'.

16. Sheet C-1, A large open space (sodded) is provided at the NE corner of this development proposal. What is the proposed use for this area?

    Odyssey does not intend to utilize all of the land it has purchased and thus elected to place its operations toward the rear of the property to minimize any perceived impacts with the neighborhood. Also, during the design phase CSX railroad requested a lot of clear space around the tracks near the Dr. Martin Luther King Blvd Jr. Blvd road crossing for safety reasons.

    Comment Satisfied.

17. Sheet C-1, Upon further review of the proposal, it seems that the 8 foot concrete wall would be more appropriately placed just east of the dry retention area. The property line to the west of the property adjacent to residential apartments should consist of 8 foot decorative climb-resistant aluminum fence. This would allow for visibility into the landscape buffer for adjacent residents and for security and visibility from the street.

    Odyssey does not desire to change its plans for liability reasons. We feel putting an eight foot deep retention pit adjacent to residential units creates liability problems for our company. Additionally, we would be concerned with potential housekeeping issues if the area were open to public.

    Open comment. Relocating the concrete wall to an internal location (just east of the retention area) and replacing it with decorative aluminum along the property line would likely be preferable to the neighboring residences.

18. The required landscape buffer that was omitted from the eastern and southern portion of the property should be implemented where feasible. A portion of this required buffer could be relocated adjacent to the 8 foot concrete wall (west side of wall if relocated east of the dry retention area).

    The east and south sides of the property border a major railyard. There is no area on these sides that would be feasible to landscape because of site security issues and the fact we desire to offload aggregate materials along the tracks as part of our future Phase III plan.

Open comment. Additional plant material (shade trees / palms) should be added to the site to compensate for the lack of landscape buffer. There is adequate space along the western property line for additional plant material.

19. Sheet C-1, Only one dumpster enclosure is identified onsite. Is this adequate for anticipated operations (additional roll-off containers to be utilized)? Will there enough room for a recycling dumpster or only one for garbage?

    One dumpster enclosure is adequate for our anticipated operations. We will not be using a recycling dumpster and don't anticipate having any recyclable materials.

    Comment Satisfied.

20. C-1, The dimensions of the Dry Retention area appear to have been modified. Are additional approvals required from the SFWMD or has the modification already been approved?

    The dimensions of the dry retention area where increased from the preliminary drawings we provided you in July. Our formal submittal in September showed the revised size of the retention area and these were the plans that were submitted and have been approved by SFWMD.

    Comment Satisfied.

21. The PBC Property Appraiser's Website currently identifies three separate parcels of land within the proposed development area. How will these parcels be unified; replat or unity of title (PCN: 56434232430010000, 56434232430030000, 56434232430040000)?

    Odyssey intends on unifying the three parcels by unity of title.

    Comment Satisfied. Unity of title will be required as a condition of approval.

22. Sheet C-1, Please verify that all ADA accessible spaces are located at the point closest to the primary building entrance.

    We have revised the drawings to relocate the ADA accessible spaces at the point closest to the primary building entrance (see Enclosure (2)).

    Comment Satisfied.

23. Sheet C-1, Multiple development phases are identified, however, no phase lines are provided so there is no way to identify what project elements correspond with each phase. Please provide an additional phasing sheet or identify all elements within each development phase proposed.

    Per your request, Phase Lines have been added to the drawings (see Enclosure (2)).

    Comment Satisfied.

24. Sheet C-1, No details are provided for Phase III. Without details, the applicant will be required to resubmit a separate future site plan amendment for City Council Review for this phase. Is this the applicant's intent?

    The details for the Phase III were provided in our cover letter submitted in September. Basically, we do not intend on doing any construction for Phase III which is why nothing is shown on the drawings. Instead, we are simply using the land for material storage.

    Since future (Phase III) use of the southernmost area of the property has not been finalized, (currently shown as grassed open space) future review and approval may be required depending on the use proposed.

25. Sheet C-1, Verify that the data utilized within Site Plan Data #4, "Flood Data", is the most current available for this area.

    We verified that the data utilized within Site Plan #4, "Flood Data", is the most current available for this area.

    Comment Satisfied.

26. Proposed automobile parking spaces do not adhere to City Code requirements; proposed 9'x18', required 10'x20'.

    Odyssey has amended the site drawings to change all non-ADA parking spaces to 10' x 20' (see Enclosure (2)).

    Comment Satisfied.

27. Sheet C-1, (center of plan) References the location of a wall or fence on the plan which potentially should read "West of the length of the Cement Co. to the South". Please review and amend accordingly.

    Per your request, Odyssey fixed this typographical error on the drawings (see Enclosure (2)).

    Comment Satisfied.

28. There are conflicts with the proposed location of the water utility lines and shade trees (oaks) within landscape islands adjacent to the Phase II Warehouse structure. Please revise to eliminate the utility line conflict and review to ensure no additional conflicts exist.

    Per your request, Odyssey relocated the water utility lines to eliminate their conflict with the proposed shade trees (see Enclosure (2)).

    Comment Satisfied.

29. Sheet C-3, Industrial Process Wastewater Pumped Discharge location identified. Please describe the pretreatment process required prior to discharge into City sewer.

As a follow-up to my phone conversation with Jeff Odoms who is the Pre-Treatment Coordinator for the City of West Palm Beach, there is no pre-treatment process that is required as of now. Odyssey has proposed in its Industrial Use permit application to submit to periodic sampling by the City of West Palm Beach and to sample its wastewater tank for pH and chloride prior to each discharge and maintain a log of the discharge and its results. This would be good engineering practice but according to Mr. Odoms may not be required.

Comment Satisfied.

30. Landscape Plan Sheet 1 of 2, References Code Sec. "31-618". This appears to be a typo. Please review.

This was a typographical error and the plans have been revised (see Enclosure (5)).

Comment Satisfied.

31. Landscape Plan Sheet 2 of 2, Identifies pigeon plum trees abbreviation as "CD" versus "CO". Please revise.

The landscaping plans have been revised to correct this typographical error (see Enclosure (5)).

Comment Satisfied.

32. Sight lighting was omitted from the proposal. Please incorporate into the landscape plans or provide separate sight lighting plan for review with photometric data.

Per your request, Odyssey has enclosed its site lighting plan. As you can see from the photometric data, there is no light trespass issues on the adjacent properties (see Enclosure (7)).

Comment Satisfied.

33. Please review the project for compliance with City Code Sec. 31-611, "Turf areas", which allows a maximum percentage of turfgrass for landscaping purposes (45%).

We have reviewed our project for compliance with the City Code Section 31-611 and are under the maximum percentage of 45% for use of turf grass for landscaping purposes. As we stated previously, we are not using a considerable portion of the site.

Comment Satisfied.

34. Please verify that curbs are provided between landscaped areas and all drive aisles, parking spaces and storage areas.

Odyssey has provided curbs as required between landscaped area and all drive aisles, parking spaces and storage areas. The drawings have been updated to annotate the location of the curbs (see Enclosure (2)).

Comment Satisfied.

35. The adjacent roadway, Dr. MLK Jr. Blvd., is utilized by pedestrians and school children. It may be beneficial to provide typical crosswalk markings connecting the existing sidewalk adjacent to the roadway.

    Per your suggestion, Odyssey agrees to provide crosswalk markings connecting the existing sidewalks on either side of our driveway. The drawings have been updated to reflect this change (see Enclosure (2)).

    Comment Satisfied.

36. Please provide building elevations for each building proposed. No Building information was provided for the Phase II Warehouse structure.

    Enclosure (8) is a drawing of the proposed warehouse structure. The warehouse will be built on a 4' tall concrete foundation and will be 20' tall. The warehouse will be a prefabricated metal building and will be open space except for a 20' x 40' open office area in the southwest corner. The office will have a handicap accessible ramp in the front of the building. There will be a loading dock on the north side of the building.

    Comment Satisfied.

37. Sheet A102, Please identify the cylindrical structure proposed between the two mechanical buildings.

    The cylindrical structure between the mechanical and electrical building is an air receiver. We use air padding on the railcars to facilitate off-loading of the bleach.

    Comment Satisfied.

38. Please provide photos or additional information on any similar sites operated by Odyssey or similar sites located in Florida.

    Odyssey is constructing a nearly identical facility in Tampa at this time. We are approximately 90% done with the construction. Per your request, attached are some pictures that show the equipment and buildings at this site (see Enclosure (9)).

    Comment Satisfied.

39. Please request and provide photos of the proposed storage tanks from the manufacturer.

Per the tank drawings submitted on 9/4/16, the tanks are approximately 40' tall. Enclosure (9) shows some pictures of the tanks.

Comment Satisfied.

40. Please confirm the specific total height of the proposed storage tanks (+/- 45 feet in height).

Per the tank drawings submitted on 9/4/16, the tanks are approximately 40' tall. Enclosure (9) shows some pictures of the tanks.

Comment Satisfied.

41. Will any odor from proposed operations be detectible from adjacent properties?

There will be no odor from the proposed operations that is detectible on the property itself much less from adjacent properties.

Comment Satisfied.

42. What safeguards are in place to regulate the types of chemicals stored onsite if Odyssey Manufacturing Co. changes their business model, or is sold to another organization?

Odyssey is in the sodium hypochlorite (a.k.a. "bleach") business and has no plans to get into another line of business. We are one of the leading providers of bleach to the Florida marketplace since our inception in 1999. As you know, both the State of Florida and the Federal Government regulate chemicals in the marketplace.

Comment Satisfied. Would Odyssey agree to a condition of approval limiting chemical storage on site to bleach only?

43. What future expansions are anticipated by Odyssey and could they result in an increased amount of chemicals stored onsite?

As part of its site plan approval, Odyssey is requesting approval for a possible future warehouse as shown on its site plan which would be used for 1-gallon jug bleach bottling operations (Phase II). There are currently no bleach bottling operations in South Florida and the nearest Clorox Bottling Plant is in Georgia. Odyssey believes that this is a potential future opportunity for its bleach product. The Bottling Operation if it is ever built would employ an additional twenty personnel. Additionally, Odyssey is requesting approval for a possible future use for the south two acres of the property in the back to bring in aggregates, gravel and sand which would primarily be used to make concrete (Phase III). The aggregate operation would employ an additional ten people. Odyssey has been in discussion with several parties including CEMEX who leases the property adjacent to this back two-acre parcel with respect to joint use of the existing railroad lines and also with supplying materials for them. Neither of these proposed operations would alter or increase the amount of chemicals stored on-site.

Comment Satisfied.

44. If approved, future construction and paving methods should be well thought, to reduce the noise and vibration to adjacent property.

    We would agree to well think out future construction and paving methods to reduce noise and vibration to the adjacent properties. Frankly, we don't anticipate the construction to make much noise or vibration.

    Comment Satisfied. (Please note: historically the roadway expansion project for adjacent SR710 resulted in vibration and noise impacts to neighboring residents (claims of cracked foundations, etc.) and this question may be asked at a future public meeting).

45. City staff is recommending that the City hire an Environmental Expert, funded by the applicant, to provide a third-party analysis of the proposal and to identify potential impacts to adjacent residents or property.

    Odyssey contends that the permitting process and all of the required permits we must obtain including those beyond required by the City of Riviera Beach along with the third party engineering that is signed and sealed provide significant assurances as to the potential environmental impacts to adjacent residents and property. We would object to paying for such an analysis and think this is highly unusual and certainly not customary. Odyssey warrants that the proposed distribution facility has been designed to ensure no or at least minimal impacts to adjacent residents and property.

    Open Comment.

46. City staff is recommending that the City hire a Building Code and Fire Code Expert, funded by the applicant, to provide a third-party analysis of the proposal and to identify compliance will all applicable codes, laws and regulations.

    Odyssey contends that the permitting process and all of the required permits we must obtain including those beyond required by the City of Riviera Beach along with the third party engineering that is signed and sealed provide significant assurances as to the compliance with all applicable codes, laws and regulations. We would object to paying for such an analysis and think this is highly unusual and certainly not customary. Odyssey warrants that the proposed distribution facility has been designed to ensure compliance with all applicable codes, laws and regulations.

    Open Comment.

47. City staff is recommending that the City hire a Sound Expert, funded by the applicant, to analyze projected noise levels and provide suggestions and site plan modifications which may mitigate noise impacts to adjacent residents or property.

Odyssey contends that the permitting process and all of the required permits we must obtain including those beyond required by the City of Riviera Beach along with the third party engineering that is signed and sealed provide significant assurances as to the compliance with all applicable codes, laws and regulations with respect to noise levels. We would object to paying for such an analysis and think this is highly unusual and certainly not customary. Odyssey warrants that the proposed distribution facility has been designed to ensure compliance with all applicable noise level codes, laws and regulations and we do not expect any or at least minimal noise impacts to adjacent residents and property.

Open Comment.

Feel free to contact us with questions or comments; (561)845-4060, jgagnon@rivierabch.com, or agoldberg@rivierabch.com.

Sincerely,

Jeff Gagnon, AICP
Assistant Director of Community Development

C: Danny D. Jones, Interim City Manager
Allison Goldberg, Senior Planner / GIS Specialist

File: Odyssey Manufacturing Co. (SP-16-14; SE-16-01)

CITY OF RIVIERA BEACH • P. O. Drawer 10682 • RIVIERA BEACH, FLORIDA 33419
DEPARTMENT OF PUBLIC WORKS INTER-DEPARTMENTAL COMMUNICATION
Tel. (561) 845-4080 **Fax (561) 840-4845**

TO: Jeff Gagnon, Assistant Director of Community Development
FROM: Terrence N. Bailey, PE
DATE: 11/23/16
RE: Odyssey Manufacturing Site Plan Review– SP-16-14 Review

==========

Engineering Division offer the following comments:

General Comment:

- All Engineering comments have been satisfied.

Terrence N. Bailey, P.E.
City Engineer

From:	Spradley, DeAndrae L.
To:	Gagnon, Jeff
Cc:	Jones, Danny
Subject:	FW: Odyssey Manufacturing Company
Date:	Wednesday, November 23, 2016 2:30:42 PM

DeAndrae Spradley, Principal Planner

From: Mitchell, Leonard
Sent: Wednesday, November 23, 2016 11:38 AM
To: Spradley, DeAndrae L. <Dspradley@Rivierabch.com>
Cc: Thomas, Steven <ssthomas@Rivierabch.com>; Mitchell, Leonard <lmitchell@Rivierabch.com>; pallman@odysseymanufacturing.com
Subject: Odyssey Manufacturing Company

Good morning,
Mr. Spradley I have met with Patrick H. Allman reference Odyssey manufacturing.
In his November 7, 2016 letter to Jeff Gagnon, Mr. Allman has address all of our concerns reference his project he has also given us a copy of his Risk Management Plan.
He has also provided a security plan, access control –plan he has also provided his safety records.

He also provided the following:

1. Perimeter Security Plan
2. Intrusion alarm plan
3. Adequate lighting plan
4. Access control plan for ingress/egress points.

He has provided all the information requested by RBPD and he can move forward with addressing our planning and zoning board.
If you have any questions please feel free to call me at 561-876-9064.

From: Spradley, DeAndrae L.
To: Walker, Leighton C
Cc: Pat Allman; Perry, Troy; Gagnon, Jeff
Subject: Re: ODYSSEY MANUFACTURING CO. PROPOSED BLEACH DISTRIBUTION FACILITY
Date: Friday, December 02, 2016 11:41:11 AM

Thanks and have a wonderful day!

DeAndrae Spradley, Principal Planner

On Dec 2, 2016, at 11:39 AM, Walker, Leighton C <Lcwalker@Rivierabch.com> wrote:

> DeAndrae:
>
> I reviewed the latest set of plans for Odyssey Manufacturing and met with Pat yesterday to discuss the comments. The 3" sewer meter shown on the plans is not shown at the property line. Pat agreed that this will be done and based on this I will approve the plans with the note that the meter shall be installed at the property line.
>
> **Leighton C. Walker**
> **Utilities Engineer**
>
> **City of Riviera Beach Utility District**
> **600 West Blue Heron Boulevard**
> **Riviera Beach, Florida 33404**
> **Office: (561) 845-4185**
> **Fax: (561) 840-7292**
> **email: lcwalker@rivierabch.com**
>
> ---
>
> **From:** Pat Allman [mailto:pallman@odysseymanufacturing.com]
> **Sent:** Thursday, October 27, 2016 4:28 PM
> **To:** Walker, Leighton C <Lcwalker@Rivierabch.com>
> **Cc:** 'Randall Granberry' <rdgranberry@gmail.com>; 'Jesus Merly' <JESUS.MERLY@5MCIVIL.COM>
> **Subject:** ODYSSEY MANUFACTURING CO. PROPOSED BLEACH DISTRIBUTION FACILITY
>
> Leighton,
>
> We got your comments (see attached):
>
> <!--[if !supportLists]-->1) <!--[endif]-->We will slide the water meter and backflow preventer assemblies to the north by 10' or so to put them on the property line. DONE
> <!--[if !supportLists]-->2) <!--[endif]-->We have verified there is an 8" water main to serve the property and it is shown on the drawings. OK
> <!--[if !supportLists]-->3) <!--[endif]-->We will obtain an industrial use permit

under the City's IPP. Can you please send me the application package and any other required information? OK

<!--[if !supportLists]-->4) <!--[endif]-->We note that any discharge of bleach and other chemicals will be governed by the City's Pre-Treatment standards. Can you please send me these standards? What we typically do at our other facilities if we were to spill any bleach in the containment we pump it to the storage tanks and re-use it. If it is an insignificant amount, we would dechlorinate it to 0 ppm chlorine in the water with sodium bisulfite before discharging it. OK

Thanks for your support in advance. Pat.

ODYSSEY
MANUFACTURING CO.

September 4, 2016

Mr. Jeff Gagnon, AICP
City of Riviera Beach
Assistant Director
Department of Community Development
600 W. Blue Huron Blvd.
Riviera Beach, Florida 33404

Re: **ODYSSEY MANUFACTURING CO. SITE PLAN APPROVAL REQUEST**
1501 MARTIN LUTHER KING JR BLVD, RIVIERA BEACH, FL 33404
PARCEL #56-43-42-32-43-001-0000

Encl: (1) Structural Plans for Concrete Dike
(2) FRP Storage Tank Drawings
(3) Containment Calculations
(4) Sodium Hypochlorite Safety Data Sheet
(5) NFPA-1: 60.1.1
(6) NFPA-1: 3.3.142.1
(7) NFPA-1: 60.3.1
(8) NFPA-1: 3.3.173.3
(9) NFPA-400: G.5.1.5 (Sodium Hypochlorite)
(10) NFPA-1: 3.3.77
(11) NFPA-1: 3.3.173.13/3.3.173.14/3.3.173.15/3.3.173.16

Dear Mr. Gagnon,

The purpose of this letter is to provide additional information on sodium hypochlorite (a.k.a. "bleach") and Odyssey's proposed storage area with regard to our request for Site Plan approval from the City of Riviera Beach for Odyssey Manufacturing Co.'s ("Odyssey") intended use of an undeveloped property located at approximately 1501 Dr. Martin Luther King Jr. Blvd. (a.k.a. "MLK") (PARCEL #56-43-42-32-43-001-0000. This information was requested by Mr. Peter Ringle of the City of Riviera Beach Building Department to facilitate his review of Odyssey's proposed plans.

As shown on its proposed site plan, Odyssey will be installing eight (8) 40,000-gallon bleach storage tanks inside an outdoor concrete dike or containment area. Odyssey proposes to unload railcars of bleach into the tanks and then ship out the hypochlorite from these storage tanks by tractors hauling tankers. Thus, Odyssey's site is a distribution center for bleach. Attached are the structural plans for the containment area and the bleach storage tanks that Odyssey proposes to turn in with the Building Permit (see Enclosures (1) and (2)). Attached are the containment calculations for the containment area (see Enclosure (3)). For comparison purposes, there are ten bleach manufacturing or distribution sites in Florida containing a total of between 250,000-gallons to 500,000-gallons each. In addition, sodium hypochlorite tanks are installed all over Florida not just at distribution or manufacturing facilities but at various end use facilities (primarily water and wastewater plants). For example, the City of Riviera Beach Water Plant solicited proposals last year to install a bleach system and Odyssey proposed to install four 8,850-gallon tanks inside a concrete containment area. The City of West

Palm Beach has six 7,300-gallon bleach tanks inside a concrete containment area at its downtown water plant (just to name a few in the area).

Sodium hypochlorite is considered a hazardous material and thus we have also enclosed the Safety Data Sheet (SDS) for this material (see Enclosure (4)). It is a liquid at atmospheric pressure and fairly inert as it is not that reactive with other substances. As one can see from the SDS, sodium hypochlorite has a "0" flammability rating meaning it is not flammable at all. The National Fire Protection Association (NFPA) publishes "NFPA-1" which is the "Fire Code" and is incorporated into all building codes in Florida including the City of Riviera Beach. NFPA-1 has specific guidelines for the Building Code as it relates to hazardous materials. Chapter 60 of NFPA-1 is applicable to and provides the regulations for all "occupancies containing high hazard contents" (60.1.1 – see Enclosure (5)). The definition of High Hazard Contents is anything that is considered a hazardous material (3.3.142.1 – see Enclosure (6)). Chapter 60.3.1 of NFPA-1 states (see Enclosure (7)):

"Hazardous Material Classification. Materials shall be classified into one or more of the following categories of hazardous materials, based on the definitions found in Chapter 3:

(1) Corrosives solids, liquids or gases
(2) Flammable Solids
(3) Flammable Gases
(4) Flammable Cryogenic Fluids
(5) Inert Cryogenic Fluids
(6) Inert Gases
(7) Organic Peroxide Formulations
(8) Oxidizer solids or liquids
(9) Oxidizing gases
(10) Oxidizing cryogenic fluids
(11) Pyrophoric solids, liquids or gases
(12) Toxic or highly toxic solids, liquids, or gases
(13) Unstable (reactive) solids, liquids, or gases
(14) Water-reactive solids or liquids (NFPA 400:4.1)"

Sodium hypochlorite is *not* a corrosive material as defined by 3.3.173.3 of NFPA-1 since it does not cause visible destruction of, or irreversible alterations in, living tissues by chemical action at the site of contact (see Enclosure (8)). Additionally, Annex G of NFPA-400 (Hazardous Materials Code) provides specific guidance for sodium hypochlorite and explicitly states that sodium hypochlorite solutions containing less than 1% excess caustic are not considered corrosives but only irritants (see G.5.1.5 – Enclosure (9)). Per Enclosure (4), Odyssey's sodium hypochlorite contains approximately 0.1% to 0.4% excess caustic which is less than 1% requirement to be a corrosive under NFPA-1. Sodium hypochlorite is *not* considered a "flammable" solid, gas or liquid since it has a zero flammability rating. Sodium hypochlorite is not considered an inert cryogenic fluid based on the definition that a cryogenic fluid has a boiling point less than 150 degrees F and the boiling point of hypochlorite is over 200 degrees F based on the attached SDS (see 3.3.77 – Enclosure (10)). Sodium hypochlorite is *not* considered an inert gas since it is a liquid. Sodium hypochlorite is *not* considered an organic peroxide since it has no carbon atom (definition of an organic substance) and contains no hydrogen peroxide. Sodium hypochlorite is *not* a solid, liquid or gas oxidizer. Annex B to NFPA-1 in B.5.2 lists over one hundred common oxidizers and sodium hypochlorite is not listed. Additionally, Annex G of NFPA-400 (Hazardous Materials Code) provides specific guidance for sodium hypochlorite and explicitly states that "sodium hypochlorite solutions are not classified as oxidizers by the NFPA" (see G.5.1.5 – Enclosure (9)). Sodium hypochlorite is *not* considered a pyrophoric

liquid since it does not have an auto-ignition temperature in air at or below 130 degrees F (3.3.173.13 – see Enclosure (11)). Since it is not flammable, sodium hypochlorite has no auto-ignition temperature. Sodium hypochlorite is *not* considered a toxic liquid in that its LD50 concentration level to kill mice or rats is 5,800 mg/kg (see Enclosure (4)) and the requirement is less than 500 mg/kg to be a "toxic material" and less than 50 mg/kg to be a "highly toxic material" as defined in 3.3.173.14 of NFPA-1 (see Enclosure (11)). Sodium hypochlorite is *not* considered to be an unstable (reactive) liquid since it does not undergo a violent chemical change under conditions of shock, pressure, or temperature as defined in 3.3.173.15 of NFPA-1 (see Enclosure (11)). Sodium hypochlorite is *not* considered to be a water-reactive liquid since it does not undergo a violent reaction or is even exothermic at all upon exposure to water or moisture as defined in 3.3.173.16 of NFPA-1 (see Enclosure (11)). In summary, while sodium hypochlorite is a hazardous material it is *not* considered to be in one of the fourteen categories listed in NFPA-1. This is further confirmed by Appendix B to NFPA-1 which lists thousands of chemicals and nowhere does it list sodium hypochlorite as an example chemical in the fourteen categories referenced above. Further, it is specifically discussed in Appendix G to NFPA-400 and only labeled an "irritant" by that document. Thus, the Maximum Allowable Quantity (MAQ) for storage of the various categories of hazardous materials specified in 60.4 of NFPA-1 does not apply to sodium hypochlorite.

However, 60.4.1.3 does state that occupancies in which high hazard contents are stored, used or handled shall also comply with Chapter 6 of NFPA 400. Odyssey agrees to meet all of the requirements of Chapter 6 of NFPA 400, including, but not limited to the following:

- 6.1.2 – SDS shall be available on the premises.
- 6.1.4 – Odyssey shall provide personnel training for its employees with respect to the sodium hypochlorite.
- 6.1.5 – Smoking shall be prohibited within 25' of the outdoor storage area.
- 6.1.8.2 – NFPA 704 placards will be provided on each storage tank and on the containment area.
- 6.1.8.3 – No smoking signs shall be provided within 25' of the storage tank area.
- 6.1.9 – Guard posts or bollards shall be used to protect the containment area from vehicles.
- 6.1.15 – The outdoor sodium hypochlorite storage area shall be kept free of weeks, debris and combustible materials as required. The outdoor storage area shall be greater than the minimum requirement of 20' from the property line. The exact distance to the closest property line (which is the railroad right of way on the east side) is 58'. The distance from the storage area to the closest structure on the west side of the property is well over 300'.
- 6.1.16.1 – Odyssey shall furnish and maintain detection and alarm systems for the sodium hypochlorite containment area.
- 6.2.1.9.3.4 – The secondary containment shall have a sump to collect and drain the sodium hypochlorite.
- 6.2.1.9.3.7 – The secondary containment shall have a monitoring system to detect hazardous materials.
- 6.3.1.2.4 – The storage tanks are equipped with liquid high level switches to prevent overfilling of the tanks.

In summary, Odyssey's proposed design meets all of the requirements of NFPA-1 (Fire Code) and NFPA-400 (Hazardous Materials Code). Additionally, Odyssey met with the City of Riviera Beach Fire Department and incorporated their requirements into its design which included: (1) Location of the on-site fire hydrant; and (2) Increased minimum driveway width to 20' around the hypochlorite storage area to allow emergency vehicles access to the buildings and equipment area from any direction.

Thank you for your consideration. Please do not hesitate to contact me at (813) 635-0339 or cellular (813) 335-3444 if I can be of further assistance. We look forward to working with the citizens and community of Riviera Beach in the future.

Sincerely,

Patrick H. Allman
General Manager

Odyssey Manufacturing Co.
1501 Dr. Martin Luther King
Riviera Bch, Florida 33404

Containment Calculations:

Total Volume = Volume of Containment − Volume of 7 tanks − Volume Hurlegg Pads

Total Volume = $\left[(76' \times 45' \times 2.975)^{(1)} + (2' \times 2' \times 1') - 2(10.5' \times 3' \times .67) - 3(2' \times 4' \times 1') - 8\right.$
$\left.(((15' \times 15') - 4(1/2 \times 4.5' \times 4.5')) \times .83') - 7(3.14 \times 6.5' \times 6.5' \times 2.67')^{(1)}\right]$

Total Volume = $[10{,}179\ ft^3 - 42\ ft^3 - 24\ ft^3 - 1{,}225\ ft^3 - 1{,}894\ ft^3] = 6{,}994\ ft^3$

Total Volume = $\left[(6{,}994\ ft^3) \times 7.48\ \frac{gallons}{ft^3}\right] = 52{,}315$ gallons

Nominal Tank Volume 40,000 gallons ⇒ 130% Total

(1) Assumes 1% Slope West to East

MICHAEL P. AZZARELLA
LICENSE No. 52427
STATE OF FLORIDA
PROFESSIONAL ENGINEER
11/4/16

MICHAEL P. AZZARELLA
FL PE # 52427
ODYSSEY ENGINEERING COMPANY, LLC
CA # 30049

ODYSSEY
MANUFACTURING CO.

SAFETY DATA SHEET

REVISED 8/01/16

SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: Ultra-CHLOR
Product code(s): 8 (As classified by 49 CFR 173 due to destruction over time of steel and aluminum)
Synonyms: Sodium Hypochlorite Solution, Bleach Solution, Bleach Liquor, Hypo-solution, Bleach, Liquid Bleach
REACH Registration Number: The materials in this product have been registered according to Regulation (EC) 1907/2006.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Uses: Cleaner, Disinfectant, Biocide and Sanitizer
Uses Advised Against: None

1.3 Details of the Supplier and of the Safety Data Sheet (SDS)

Odyssey Manufacturing Co.
1484 Massaro Boulevard
Tampa, Florida 33619
+1-813-635-0339 (24 hours)

1.4 Emergency telephone number:

1-800-ODYSSEY (Florida)
1-813-635-0339 (Outside Florida)
1-813-340-9093 (Control Room Cell Phone)

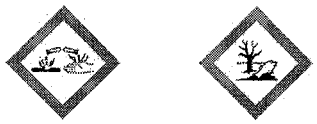
SECTION II - HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Classification REGULATION (EC) No 1272/2008
Skin Corrosiveness: 1B; Skin Irritant: 2
Eye Irritant: 2
Aquatic Acute: 1
Description: Clear, greenish-yellow liquid; chlorine-like odor. Irritating to eyes, skin and respiratory system. Can cause burns to all areas contacted.

2.2 Label elements

Labeling Regulation (EC) No 1272/2008
Hazard pictograms



Signal word: **DANGER**
Hazard statements:

H314 – Causes severe skin burns and eye damage
H319 – Causes serious eye irritation
H400 – Very toxic to aquatic life
[Prevention] P260 – Do not breathe dusts or mists.
P264 – Wash hands or any exposed skin areas thoroughly after handling.
P273 – Avoid release to the environment.

P280 – Wear protective gloves/protective/clothing/eye protection/face protection.

[Response] P301 + P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 – Wash contaminated clothing before reuse.
P304 + 340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 – Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 – If eye irritation persists: Get medical advice/attention.
P391 – Collect spillage.
[Storage] P405 – Store locked up.
[Disposal] P501 – Dispose of container in accordance with local/regional/national/international regulations.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC


Risk phrases: R31 – Contact with acids liberates toxic gas.
R34 – Causes burns.
R36/38 – Irritating to eyes and skin.
R50 – Very toxic to aquatic organisms.

Safety phrases: S1/2 – Keep locked up and out of the reach of children.
S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28 – After contact with skin, wash immediately with plenty of soap-suds.
S37/39 – Wear suitable gloves and eye/face protection.
S45 – In case of accident or if you feel unwell, seek medical advice immediately (Show the label whenever possible).
S50 – Do not mix with acids or other incompatible materials (refer to section 10).
S60 – This material and its container must be disposed of as hazardous waste.

Additional labeling: EUH031 – Contact with acids liberates toxic gas.

SECTION III - COMPOSITION, INFORMATION ON INGREDIENTS

3.1 Substances
Chemical nature: Sodium hypochlorite, aqueous solution

% by Weight	Ingredient	CAS Number	EC Number	Index Number	EC Classification
10.0 – 20.0	Sodium Hypochlorite	7681-52-9	231-668-3	017-011-00-1	C, R34; R31: N, R50
0.1 – 0.4	Sodium Hydroxide	1310-73-2	215-185-5	011-002-00-6	Xi, 36/38
79.7 89.9	Water	7732-18-5	231-791-2		

3.2 Mixtures - Not applicable

SECTION IV - FIRST AID MEASURES

4.1 Description of first aid measures
Inhalation: If product vapors or mists cause respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. If symptoms persist, seek medical attention immediately.

Eyes: Immediately flush eyes with large amounts of water for 15 minutes, occasionally lifting upper and lower lids. Remove contact lenses after the first 5 minutes and continue washing. Obtain immediate medical attention, preferably from an ophthalmologist.

Skin: Flush skin with large amounts of water while removing contaminated clothing. Wash affected area with soap and water. Wash contaminated clothing and shoes thoroughly before reuse. Seek prompt medical attention if rash develops.

Ingestion: Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Potential health symptoms and effects

Eyes: Causes severe eye irritation and burns. Symptoms include redness, pain, itching, burning sensation and tearing. Material is extremely destructive to eyes, mucous membranes and surrounding tissues.

Skin: Causes severe skin irritation and burns. Symptoms include redness, pain, itching and burning sensation. May be harmful if absorbed through the skin.

Inhalation: Vapors and mists may be harmful is inhaled, causing sore throat and cough. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion: May cause severe gastrointestinal tract irritation with abdominal pain, burning sensation, cough, diarrhea, sore throat and vomiting. May cause burns and irritation to mucous membranes of the mouth and to tissues of the digestive tract.

Chronic: Repeated or prolonged contact with spray mist may produce chronic eye irritation, severe skin irritation and/or respiratory tract irritation leading to frequent attacks of bronchial infection.

SECTION V - FIRE FIGHTING MEASURES

5.1 Extinguishable media

Suitable methods of extinction: Material does not burn. Use fire extinguishing media appropriate for surrounding materials.

Unsuitable methods of extinction: None listed

5.2 Special hazards arising from the substance or mixture

Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat. During emergency conditions overexposure to toxic decomposition products may cause a health hazard. Fire may cause the evolution of chlorine, hydrogen chloride gas and chlorine oxides. Symptoms may not be immediately apparent. Obtain immediate medical attention.

5.3 Advice for firefighters

Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat. If possible, firefighters should control run-off water to prevent environmental contamination.

SECTION VI - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapors/mists. Avoid contact with skin and eyes. Wear appropriate protective clothing designated in Section 8. Ventilate the area. Evacuate personnel to safe areas.

6.2 Environmental precautions

Avoid dispersal of spilled material or run-off and prevent contact with soil and entry into drains, sewers or waterways. Contain and recover liquid when possible.

6.3 Methods and materials for containment and cleaning up

Cover drains. Cover with a large quantity of inert absorbent (e.g. sand, vermiculite, kitty litter, dry earth). Do not use combustible materials such as saw dust. Collect product using a shovel and place into approved container for proper disposal as hazardous waste. For large spills use water spray to divert vapor drift. Observe possible material restrictions (section 7.2 and 10.5). Clean contaminated area with water. Do not mix with other cleaning agents that may liberate chlorine gas vapors.

US Regulations (CERCLA) require reporting spills and releases to soil water and air in excel of reportable quantities. Reportable quantity (RQ) for hypochlorite solutions is 45.36 kg (100 lbs).

Reportable Quantity (RQ): 100 lbs or 45.36 kg (approximately 100 gal or 378.5 L of Odyssey Ultrachlor 12.5 Trade Percent sodium hypochlorite). In the event of a spill (e.g. defined as any release to the environment), call Odyssey Manufacturing and/or the emergency contact numbers as soon as possible for assistance.

For releases higher than the Reportable Quantity (RQ), you must notify the State Emergency Response Commission at *(800) 320-0519* ***AND the National Response Center at *(800) 424-8802 or (202) 267-2675* ***within 15 minutes***!!!***

In the event of a spill, contact either hazardous chemical response company or Odyssey Manufacturing for assistance.

6.4 Reference to other sections

For indications about waste treatment, see section 13.

SECTION VII - HANDLING AND STORAGE

7.1 Precautions for safe handling

Observe label precautions. Avoid contact with skin and eyes. Wear all appropriate protective equipment specified in Section 8. Wash thoroughly after handling. Keep containers closed when not in use. Use proper equipment for listing and transporting all containers.

Advice on protection against fire and explosion

Material is non-flammable and non-combustible.

7.2 Conditions for safe storage, including any incompatibilities

Keep in cool, dry, ventilated storage areas in closed containers. Protect against physical damage. Isolate from incompatible substances. Do not store near acids, heat, oxidizable materials or organics.

Store in a receptacle equipped with a vent. Transfer only to approved containers having correct labeling. Containers that have been opened should be carefully resealed and kept upright to prevent leakage. Do not take internally. Keep locked up and out of reach of children.

7.3 Specific end uses

Apart from the uses mentioned in section 1.2, no other specific uses are stipulated.

SECTION VIII - EXPOSURE CONTROLS AND PERSONNEL PROTECTION

8.1 Control parameters

Components	CAS Number	OSHA	ACGIH	AIHA (WEEL)
Sodium Hypochlorite	7681-52-9	2 mg/m^3 TWA; skin	0.5 ppm as CL_2 TWA; 1 ppm as CL_2 STEL, A4	2 mg/m^3 STEL
Sodium Hydroxide	1310-73-2	2 mg/m^3 TWA	2 mg/m^3 Ceiling	

8.2 Exposure controls

Engineering Measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. See section 7.1.

Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.

Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking or using the lavatory and at the end of the workday.

Eye/face protection: Wear tightly fitting protective goggles and a face shield (8-inch minimum). Refer to 29 CFR 1910.133, ANSI Z87.1 or European Standard EN 166.

Hand Protection: Wear gloves recommended by glove supplier for protection against materials in section 3. Gloves must be inspected prior to use. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.

Other protective equipment: Wear impervious, protective chemical resistant clothing including boots, gloves, lab coat, apron or coveralls as appropriate to the situation to prevent skin contact.

Respiratory Protection: Always use an approved respirator when vapor/aerosols are generated. Where risk assessment shows air-purifying respirators are appropriate use a full-faced respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Environmental exposure controls: Do not empty into drains.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Clear, greenish yellow colored liquid
Odor	Pungent, chlorine-like
Odor Threshold	No data available
Molecular Weight	74.44 (sodium hypochlorite)
Chemical Formula	NaOCl (sodium hypochlorite)
pH	11 – 13
Freezing Point	-13.9° C (7° F)
Initial Boiling Point	100° C (212° F) – lowest known value
Evaporation Rate	<1 (BuAc = 1)
Flammability (solid, gas)	No data available
Flash Point	No data available
Autoignition Temperature	No data available
Decomposition Temperature	110° C (230° F)
Lower Explosive Limit (LEL)	No data available
Upper Explosive Limit (UEL)	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Relative Density	1.15 – 1.17 g/ml (9.597 – 9.764 lb/gal) @ 60 ° F
Viscosity	No data available
Solubility in Water	Complete
Partition Coefficient: n-octanol/water	No data available
Volatiles by Volume @ 70° F	No data available; decomposes leaving salt solution

9.2 Other data - No data available

SECTION X - STABILITY AND REACTIVITY

10.1 Reactivity

Slowly decomposes on contact with air. Rate increases with the concentration and temperature. Exposure to sunlight accelerates decomposition.

10.2 Chemical stability

Stable under recommended storage conditions. Slowly decomposes on contact with air. Rate increases with the concentration and temperature. Exposure to sunlight accelerates decomposition. Sodium hypochlorite becomes less toxic with age.

10.3 Possibility of hazardous reactions

Avoid excessive heat and sources of ignition. Flammable hydrogen may be generated from contact with metals such as: aluminum, brass, tin, zinc and alloys of these metals. Avoid contact with acids, halogenated organics, organic nitro compounds and glycols. Hazardous gases may be generated from contact with acids, ammonium hydroxide (aqua ammonia) or cleaners containing ammonia compounds. Violent reactions may occur with some organic compounds. Sodium hypochlorite reacts readily with various reducing sugars (e.g. fructose, galactose, maltose, dry whey solids) to produce carbon monoxide. Precautions should be taken including atmospheric monitoring of the tank to ensure safety of personnel. Hazardous polymerization will not occur.

10.4 Conditions to avoid

Light, heat, air and contact with incompatible materials (see section 10.5).

10.5 Incompatible materials

Ammonia, amines, ammonium salts, aziridine, methanol, phenyl acetonitrile, cellulose, ethyleneimine, organic materials, oxidizable metals/powdered metals, acids, soaps and bisulfates. Forms shock-sensitive mixtures with certain other materials.

10.6 Hazardous decomposition products

Thermal decomposition products include chlorine gas, hydrogen chloride gas, hydrochloric acid, sodium oxide. Decomposition rate increases with temperature.

SECTION XI - TOXILOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Oral Toxicity (Sodium Hypochlorite)

TDLo - 1gm/ kg oral (woman)
TDLo - 45mg/kg intravenous (man)
LD_{50} - 5,800 mg/kg (mouse)
LD_{50} - 140 mg/kg - 9 week(s) continuous oral (rat)

Acute inhalation toxicity

May cause severe bronchial irritation, sore throat with possible blistering, coughing, stomatitis, nausea, labored breathing, shortness of breath and pulmonary edema. 10-20 mg/m3 causes burning of the nose and throat; 40-60 mg/m3 may be fatal. If sufficient amounts are absorbed, may cause effects as detailed in acute ingestion.

Acute dermal toxicity

Extent of damage depends on concentration, pH, and volume of solution and duration of contact. May cause redness, pain, blistering, itchy eczema and chemical burns. Sensitization reactions are possible in previously exposed persons.

Skin irritation

Skin irritation - 24 h (Rabbit)

Eye irritation

Rabbit, Adult – 10 mg, moderate irritation

May cause redness, pain, and blurred vision. Solutions of 5% splashed in human eyes have caused a burning sensation and later only slight superficial disturbance of the corneal epithelium which cleared completely in the next day or two without special treatment. However, one animal study reports a 5% solution causing only moderate irritation with clearing within 7 days. A higher concentration of 15% tested on rabbit eyes caused immediate severe pain, hemorrhages, rapid onset of ground-glass appearance of the corneal epithelium, moderate bluish edema of the whole cornea, chemosis and discharge for several days. Such eyes have sometimes healed in 2-3 weeks with slight or no residual corneal damage but they had neovascularization of the conjunctiva and distortion of the nictitating membrane by scarring.

Sensitization

May cause allergic skin reaction

Genotoxicity in vitro

No data available

Mutagenicity

Mutation in micro organisms – Salmonella typhimurium 1mg / plate (-S9)
DNA repair – Escherichiacoli 20 µg/ disc;
DNA damage – Esoherichiacoli 420 µmol/L;
Phage inhibition capacity – Esoherichiacoli 103 µg/ well
Micronucleus test - non-mammalian species multiple 200 ppb
Cytogenetic analysis - non-mammalian species multiple 120 µg/ L
Cytogenetic analysis – human lymphocyte 100 ppm 24hour(s)
Sister chromatid exchange – human embryo 149 mg/ L

Cytogenetic analysis – hamster lung 100 mg/ L

Aspiration hazard

No test data available. Risk of serious damage to lungs by aspiration.

Specific organ toxicity - single exposure

No data available

Specific organ toxicity - repeated exposure

May cause allergic skin reactions, dermatitis (allergic and contact) and asthma or bronchitis. Sensitization reactions are reported in individuals who are exposed in small amounts through their water supply. High doses have caused sperm abnormality in mice.

Additional information

RTECS: Not available

11.2 Further information

Ingestion: May cause irritation and erosion of the mucous membranes, vomiting (possibly bloody) and abdominal pain and spasms. A drop in blood pressure, shallow respiration, edema (possibly severe) of pharynx, larynx, and glottis, confusion, convulsions, delirium and coma may occur. Cyanosis and circulatory collapse are possible. Esophageal or gastric perforation and strictures are rare. Death may occur, usually due to complications of severe local injury such as toxemia, shock, perforations, hemorrhage, infection and obstruction. Massive ingestions may produce fatal hyperchloremic metabolic acidosis or aspiration pneumonitis.

Further data: Handle in accordance with good industrial hygiene and safety practice.

Chronic Effects

Persons with impaired respiratory function may be more susceptible to the effects of this substance.

Sodium Hypochlorite (hypochlorite salts) is listed by IARC as a Group 3 Carcinogen – Not classifiable as to its carcinogenicity to humans. Sodium Hydroxide is not listed by IARC. None of the components of this product are listed as carcinogens by ACGIH, IARC, NTP or OSHA. No data is available regarding its mutagenicity and/or teratogenicity of this material, nor is there any available data that indicates it causes adverse developmental and/or fertility effects.

SECTION XII - ECOLOGICAL INFORMATION

12.1 Toxicity Aquatic Ecotoxicity:

This product is very toxic to aquatic organisms.

Aquatic Ecotoxicity:

Acute and prolonged toxicity to fish:	LC_{50} – Pimephales promelas (Fathead minnow) 96 h: 0.22 – 0.62 mg/L
	LC_{50} – Oncorhynchus clarki (Cutthroat trout) 96 h: 0.94 µg/L (mortality)
Acute toxicity to aquatic invertebrates:	EC_{50} – Daphnia magna (Water flea), 96 h: 2.1 mg/L
	LC_{50} – Protozoan phylum (Protozoa), 7 h: 31.6 µg/L
Acute toxicity to aquatic plants:	LC_{50} – Algae, phytoplankton, algai mat (Algae), 96 h: 90 µg/L (mortality)
	EC_{50} – Desmodesmus subspicatus (Green algae), 24 h: 28 mg/L
Acute phytotoxicity, aquatic plants:	Biomass reduction – Potamogeton crispus (Curled pond weed), 35h: 23 µg/L
Acute toxicity, miscellaneous aquatic:	Chlorophyll Threshold, Aquatic community, 28 d: 2.1 µg/L

12.2 Persistence and degradability

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulation potential

Partition coefficient, n-octanol in water: Data not available

Bioaccumulation is not expected

12.4 Mobility in soil

Product is mobile in water.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment is not available as chemical safety assessment was not conducted.

12.6 Other adverse effects

Additional ecological information

This material is a very toxic to aquatic life. Do not allow material to run into surface waters, wastewater or soil.

SECTION XIII - DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

The generation of waste should be avoided or minimized whenever possible. This material is subject to disposal regulations under U.S. EPA 40 CFR Parts 261 and 262. Container should be disposed of in a safe way as empty containers may contain product residue. Leave chemicals in original containers. No mixing with other waste. Handle unclean containers like the product itself. Incinerate in an approved facility. Do not incinerate closed container. Dispose of in accordance with the Directive 2008/98/EC as well as other national, federal, state/provincial and local laws and regulations.

No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION XIV - TRANSPORT INFORMATION

US DOT (Domestic Ground Transportation)

Proper Shipping Name:	Hypochlorite Solutions
Hazard Class:	8 (As classified by 49 CFR 173 due to destruction over time of steel and aluminum)
Packing Group:	III
NAERG:	Guide #157
Packaging Authorizations:	Non-Bulk: 49 CFR 172.203; Bulk: 49 CFR 172.241
Packaging Exceptions:	49 CFR 173.154

IMO/IMDG (Water Transportation)

Proper Shipping Name:	Hypochlorite Solutions
Hazard Class:	8 (As classified by 49 CFR 173 due to destruction over time of steel and aluminum)
UN/NA#:	UN1791
Packing Group:	III
Marine Pollutant:	NO
EMS Number:	F-A, S-B

ICAO/IATA (Air Transportation)

Proper Shipping Name:	Hypochlorite Solutions
Hazard Class:	8 (As classified by 49 CFR 173 due to destruction over time of steel and aluminum)
UN/NA#:	UN1791
Packing Group:	III
Quantity Limitations:	49 CFR 175.75 - Cargo Aircraft Only: 60L Passenger Aircraft: 5L

RID/ADR (Rail Transportation)

Proper Shipping Name:	Hypochlorite Solutions
Hazard Class:	8 (As classified by 49 CFR 173 due to destruction over time of steel and aluminum)
UN/NA#:	UN1791
Packing Group:	III

Marine Pollutant: No
Signal Word: DANGER
Hazard Symbols: GHS05, GHS09 (GHS); C, N (EEC)

SECTION XV - REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for substance or mixture

U. S. Federal Regulations

OSHA Hazard Communication Standard: This material contains "Hazardous Chemicals" as defined by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA PSM: Not regulated under OSHA Process Safety Management Standard (PSM) 29 CFR 1910.119

EPA RMP: Not regulated under EPA Risk Management Standard (RMP) 40 CFR Part 68

EPA FIFRA: This product is a registered Pesticide under the Federal insecticide, Fungicide and Rodenticide Act (FIFRA) 40 CFR Part 150

TSCA Status: All components of this product are listed on the Toxic Substance Control Act (TSCA) Inventory. This product not subject to TSCA 12(b) Export Notification.

Superfund Amendments and Reauthorization Act (SARA)

SARA Section 311/312 Hazard Categories: This product is subject to the reporting requirements of Section 311/312 of the Emergency Planning and Community Right-to Know Act of 1986.

Acute: Yes **Chronic:** No **Fire:** No **Reactive:** No

SARA 313 Information: None of the chemicals in this product exceed the threshold (de minimis) reporting levels established by Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.

SARA 302/304 Extremely Hazardous Substance: No components of the product exceed the threshold (de minimis) reporting levels established by of these sections of Title III of SARA.

SARA 302/304 Emergency Planning & Notification: No components of the product exceed the threshold (de minimis) reporting levels established by of these sections of Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): This product contains the following CERCLA reportable substances:

Sodium Hypochlorite (CAS # 7681-52-9), RQ – 45.36 kg (100 lbs)

Sodium Hydroxide (CAS # 1310-73-2), RQ – 453.59 kg (1,000 lbs)

**Special Note: The Reportable Quantity (RQ) of Ultra-CHLOR Solution is approximately 100 gallons*

Clean Air Act (CAA)

This product does not contain any chemicals that are listed as Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b).

This product does not contain any Class 1 Ozone depletors.

This product does not contain any Class 2 Ozone depletors.

Clean Water Act (CWA)

Sodium hypochlorite, sodium hydroxide and hypochlorite solutions are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains no chemical(s) known to the state of California to cause cancer or other reproductive harm.

Other U.S. State Inventories:

Sodium hypochlorite (CAS #7681-52-9) is found on the following State Hazardous Substance Inventories and/or Right-to-Know lists: CA, DE, MA, MN, NY, NJ, PA.

Sodium hydroxide (CAS #1310-73-2) is found on the following State Hazardous Substance Inventories and/or Right-to-Know lists: CA, DE, ID, MA, MN, NY, NJ, PA, WA, WI .

Canada

WHMIS Hazard Symbol and Classification:

Class E – Corrosive material – Corrosive to skin

Canadian Controlled Products Regulations (CPR): This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations, and the MSDS contains all the information required by the Controlled Products Regulations.

Canadian Ingredient Disclosure List (IDL): Sodium hypochlorite and sodium hydroxide are listed on the IDL.

Canadian National Pollutant Release Inventory (NPRI): None of the ingredients in this product are listed on the NPRI.

European Economic Community

WGK, Germany (Water danger/protection): 2

Chemical Inventory Lists

Country	Inventory Name	Inventory Listing*
United States	Toxic Substance Control Act (TSCA)	Yes
Canada	Domestic Substance List (DSL).	Yes
Canada	Non-Domestic Substance List (NDSL)	Yes
Europe	Inventory of New and Existing Chemicals (EINECS)	Yes
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*"Yes" indicates that all components of this product are in compliance with the inventory requirements administered by the governing country.
*"No" indicates that one or more components of this product are not on the inventory and are not exempt from listing.

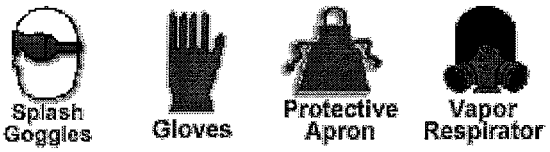
SECTION XVI - OTHER INFORMATION

Hazardous Material Information System (HMIS)

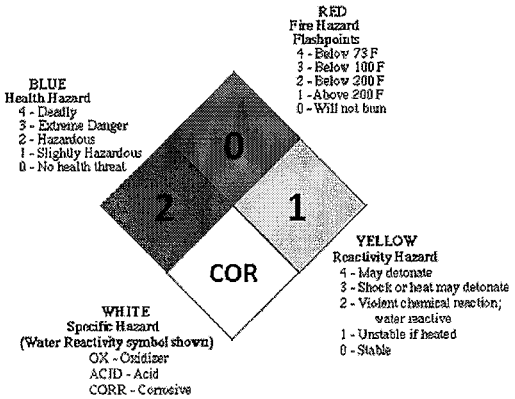
HEALTH	2
FLAMMABILITY	0
REACTIVITY	1
PERSONAL PROTECTION	H

HMIS / NFPA Hazard Rating Legend

* = Chronic Health Hazard	2 = MODERATE
0 = INSIGNIFICANT	3 = HIGH
1 = SLIGHT	4 = EXTREME



National Fire Protection Association (NFPA)



For additional information, contact our technical service department.

Information contained in this MSDS refers only to the specific material designated and does not relate to any process or use involving other materials. This information is based on data believed to be reliable, and the Product is intended to be used in a manner that is customary and reasonably foreseeable. Since actual use and handling are beyond our control, no warranty, express or implied, is made and no liability is assumed by Odyssey Manufacturing in connection with the use of this information.

(4) Room access doors shall display an approved sign stating: OZONE GAS GENERATOR — HIGHLY TOXIC — OXIDIZER.

54.3 Piping, Valves, and Fittings.

54.3.1 General. Piping, valves, fittings, and related components used to convey ozone shall be in accordance with Section 54.3.

54.3.2 Secondary Containment.

54.3.2.1 Secondary containment, such as double-walled piping or exhausted enclosures, shall be provided for piping, valves, fittings, and related components, unless otherwise permitted by 54.3.2.3.

54.3.2.2 Secondary containment shall be capable of directing a sudden release to an approved treatment system.

54.3.2.3 Secondary containment shall not be required for welded stainless steel piping and tubing.

54.3.3 Materials. Materials shall be compatible with ozone and shall be rated for the design operating pressures.

54.3.4 Identification. Piping shall be identified: OZONE GAS — HIGHLY TOXIC — OXIDIZER.

54.4 Automatic Shutdown. Ozone generators shall be designed to automatically shut down when any one of the following occurs:

(1) The dissolved ozone concentration in the water being treated is above saturation when measured at the point where the water is exposed to the atmosphere.
(2) The process using generated ozone is shut down.
(3) The ventilation system for the cabinet or ozone generator room fails.
(4) The gas detection system fails.

54.5 Manual Shutdown. Manual shutdown controls shall be provided at the ozone generator and, if in a room, within 10 ft (3 m) of the main exit or exit access door.

Chapter 55 Reserved

Chapter 56 Reserved

Chapter 57 Reserved

Chapter 58 Reserved

Chapter 59 Reserved

Chapter 60 Hazardous Materials

60.1 General Requirements.

60.1.1 Applicability. Occupancies containing high hazard contents shall comply with this chapter in addition to other applicable requirements of this *Code*. [5000:34.1.1.1]

Paragraph 60.1.2 was revised by a tentative interim amendment. (TIA). See page 1.

60.1.2 Subjects Not Regulated. Buildings, and portions thereof, containing high hazard contents limited to any of the following shall not be required to comply with this chapter:

(1) Flammable and combustible liquids associated with application of flammable finishes and complying with Chapter 43.
(2) Flammable and combustible liquids associated with wholesale and retail sales and storage in mercantile occupancies and complying with Chapter 66
(3) Class IIIA and Class IIIB combustible liquid solvents in closed systems employing listed cleaning equipment complying with Chapter 24
(4) Refrigerants and refrigerant oil contained within closed-cycle refrigeration systems complying with Chapter 53 and the building code
(5) Flammable and combustible liquid beverages in liquor stores and distributors without bulk storage
(6) High hazard contents stored or used in farm buildings or similar occupancies for on-premises agricultural use
(7) Corrosive materials in stationary batteries utilized for facility emergency power, uninterrupted power supply, or similar purposes, provided that the batteries are provided with safety venting caps and ventilation is provided in accordance with Chapter 52
(8) Corrosive materials displayed in original packaging in mercantile occupancies and intended for personal or household use or as building materials
(9) Aerosol products in storage or mercantile occupancies and complying with Chapter 61
(10) Flammable and combustible liquids storage tank buildings meeting the requirements of NFPA 30
(11) Flammable and combustible liquids storage tank vaults meeting the requirements of NFPA 30
(12) Flammable and combustible liquids process buildings meeting the requirements of NFPA 30
(13) Installation of fuel gas distribution systems and associated equipment in accordance with Section 11.4 and Chapter 69

[5000:34.1.1.2]

60.1.3 Applicability of Sections.

60.1.3.1 Quantities Not Exceeding the Maximum Allowable Quantities per Control Area. Storage, use, and handling of hazardous materials in quantities not exceeding maximum allowable quantities permitted in control areas set forth in Section 60.1.3.1 shall be in accordance with Section 60.1 through Section 60.5.

60.1.3.2 Quantities Exceeding the Maximum Allowable Quantities per Control Area. Storage, use, and handling of hazardous materials in quantities in excess of the maximum allowable quantities permitted in control areas set forth in 60.1.3.2 shall comply with Section 60.2 through Section 60.6.

60.1.3.3 Limited Applicability of this Chapter for Specific Material Classes. Chapter 60 shall apply in its entirety to all hazardous materials except where Chapters 61 through 73 of this *Code* specify that only certain sections of this chapter shall apply to a specific material classification category.

3.3.140 Ground Kettle. A container that could be mounted on wheels and is used for heating tar, asphalt, or similar substances.

3.3.141 Handling. The deliberate movement of material by any means to a point of storage or use.

3.3.142* Hazard of Contents.

3.3.142.1 ***High Hazard.*** High hazard contents shall include materials defined as hazardous materials in 3.3.173.4, whether stored, used, or handled. [**5000:**6.3.2.4.1.1]

3.3.142.1.1 ***High Hazard Level 1 Contents.*** High hazard Level 1 contents shall include materials that present a detonation hazard including, but not limited to, the following: (1) Explosives; (2) Unclassified detonable organic peroxides; (3) Class 4 oxidizers; (4) Detonable pyrophoric materials; (5) Class 3 detonable and Class 4 unstable (reactive) materials. [**5000:**6.3.2.4.2]

3.3.142.1.2 ***High Hazard Level 2 Contents.*** High hazard Level 2 contents shall include materials that present a deflagration hazard or a hazard from accelerated burning including, but not limited to, the following: (1) Class I, Class II, or Class III-A flammable or combustible liquids that are used or stored in normally open containers or systems, or in closed containers or systems at gauge pressures of more than 15 psi (103 kPa); (2) Combustible dusts stored, used, or generated in a manner creating a severe fire or explosion hazard; (3) Flammable gases and flammable cryogenic liquids; (4) Class I organic peroxides; (5) Class 3 solid or liquid oxidizers that are used or stored in normally open containers or systems, or in closed containers or systems at gauge pressures of more than 15 psi (103 kPa); (6) Nondetonable pyrophoric materials; (7) Class 3 nondetonable unstable (reactive) materials; (8) Class 3 water-reactive materials [**5000:**6.3.2.4.3]

3.3.142.1.3 ***High Hazard Level 3 Contents.*** High hazard Level 3 contents shall include materials that readily support combustion or present a physical hazard including, but not limited to, the following: (1) Level 2 and Level 3 aerosols; (2) Class I, Class II, or Class III-A flammable or combustible liquids that are used or stored in normally closed containers or systems at gauge pressures of less than 15 psi (103 kPa); (3) Flammable solids, other than dusts classified as high hazard Level 2, stored, used, or generated in a manner creating a high fire hazard; (4) Class II and Class III organic peroxides; (5) Class 2 solid or liquid oxidizers; (6) Class 3 solid or liquid oxidizers that are used or stored in normally closed containers or systems at gauge pressures of less than 15 psi (103 kPa); (7) Oxidizing gases and oxidizing cryogenic liquids; (8) Class 2 unstable (reactive) materials; (9) Class 2 water-reactive materials [**5000:**6.3.2.4.4]

3.3.142.1.4 ***High Hazard Level 4 Contents.*** High hazard Level 4 contents shall include materials that are acute health hazards including, but not limited to, the following: (1) Corrosives; (2) Highly toxic materials; (3) Toxic materials [**5000:**6.3.2.4.5]

3.3.142.1.5 ***High Hazard Level 5 Contents.*** High hazard Level 5 contents include hazardous production materials (HPM) used in the fabrication of semiconductors or semiconductor research and development. [**5000:**6.3.2.4.6]

3.3.142.2* ***Low Hazard Contents.*** Low hazard contents shall be classified as those of such low combustibility that no self-propagating fire therein can occur. [**5000:**6.3.2.2]

3.3.142.3* ***Ordinary Hazard Contents.*** Ordinary hazard contents shall be classified as those that are likely to burn with moderate rapidity or to give off a considerable volume of smoke. [**5000:**6.3.2.3]

3.3.143* Hazard Rating. The numerical rating of the health, flammability, self-reactivity, and other hazards of the material, including its reaction with water. [**55,** 2013]

3.3.144 Hazardous Material. See 3.3.173.4.

3.3.145 Hazardous Material Storage Facility. A building, a portion of a building, or exterior area used for the storage of hazardous materials in excess of exempt amounts.

3.3.146 Hazardous Materials Storage Locker. A movable prefabricated structure, manufactured primarily at a site other than the final location of the structure and transported completely assembled or in a ready-to-assemble package to the final location, and intended to meet local, state, and federal requirements for outside storage of hazardous materials. [**30,** 2015]

3.3.147* Hazardous Reaction or Hazardous Chemical Reaction. Reactions that result in dangers beyond the fire problems relating to flash point and boiling point of either the reactants or of the products. [**30,** 2015]

3.3.148 Heat Transfer Fluid (HTF). A liquid that is used as a medium to transfer heat energy from a heater or vaporizer to a remote heat consumer (e.g., injection molding machine, oven, or dryer, or jacketed chemical reactor). [**30,** 2015]

3.3.149* Heliport. An identifiable area located on land, on water, or on a structure, that also includes any existing buildings or facilities thereon, used or intended to be used for landing and takeoff of helicopters. [**418,** 2011]

3.3.150 Hogged Material. Mill waste consisting mainly of hogged bark but possibly including a mixture of bark, chips, dust, or other by-products from trees; also includes material designated as hogged fuel.

3.3.151 Home.

3.3.151.1 ***Day-Care Home.*** See 3.3.183.6.

3.3.151.2 ***Nursing Home.*** See 3.3.183.21.

3.3.152 Horizontal Exit. See 3.3.102.1.

3.3.153* Immediately Dangerous to Life and Health (IDLH). A concentration of airborne contaminants, normally expressed in parts per million (ppm) or milligrams per cubic meter, that represents the maximum level from which one could escape within 30 minutes without any escape-impairing symptoms or irreversible health effects. [**55,** 2013]

3.3.154 Imminent Danger. A condition or practice in an occupancy or structure that poses a danger that could reasonably be expected to cause death, serious physical harm, or serious property loss.

3.3.155* Incident Commander (IC). The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. [**472,** 2013]

60.1.4 Facility Closure.

60.1.4.1 Where required by the AHJ, no facility storing hazardous materials listed in 1.1.1 of NFPA 400 shall close or abandon an entire storage facility without notifying the AHJ at least 30 days prior to the scheduled closing. [**400:**1.9.1]

60.1.4.2 The AHJ shall be permitted to reduce the 30-day period specified in 60.1.4.1 when there are special circumstances requiring such reduction. [**400:**1.9.2]

60.1.4.3 Facilities Out of Service.

60.1.4.3.1 Facilities Temporarily Out of Service. Facilities that are temporarily out of service shall continue to maintain a permit and be monitored and inspected. [**400:**1.9.3.1]

60.1.4.3.2 Facilities Permanently Out of Service. Facilities for which a permit is not kept current or that are not monitored and inspected on a regular basis shall be deemed to be permanently out of service and shall be closed in accordance with 60.1.4.4.1 through 60.1.4.4.2. [**400:**1.9.3.2]

60.1.4.4 Closure Plan.

60.1.4.4.1 Where required by the AHJ, the permit holder or applicant shall submit a closure plan to the fire department to terminate storage, dispensing, handling, or use of hazardous materials at least 30 days prior to facility closure. [**400:**1.9.4.1]

60.1.4.4.2 The plan shall demonstrate that hazardous materials that were stored, dispensed, handled, or used in the facility have been transported, disposed of, or reused in a manner that eliminates the need for further maintenance and any threat to public health and safety. [**400:**1.9.4.2]

60.1.5 Emergency Planning.

60.1.5.1 Emergency Action Plan. An emergency action plan, consistent with the available equipment and personnel, shall be established to respond to fire and other emergencies in accordance with requirements set forth in this Code. [**400:**1.10.1]

60.1.5.2 Activation. The facility responsible for an unauthorized release shall activate the emergency action element of the Hazardous Materials Management Plan. [**400:**1.10.2]

60.1.6 Hazardous Materials Management Plan (HMMP).

60.1.6.1* When required by the AHJ, new or existing facilities that store, use, or handle hazardous materials covered by this *Code* in amounts above the MAQ specified in 60.4.2.1.2 through 60.4.2.1.13 and 5.4.1.2 of NFPA 400 shall submit a hazardous materials management plan (HMMP) to the AHJ. [**400:**1.11.1]

60.1.6.2 The HMMP shall be reviewed and updated as follows:

(1) Annually
(2) When the facility is modified
(3) When hazardous materials representing a new hazard category not previously addressed are stored, used, or handled in the facility [**400:**1.11.2]

60.1.6.3 The HMMP shall comply with the requirements of Section 60.5. [**400:**1.11.3]

60.1.7* Hazardous Materials Inventory Statement (HMIS).

60.1.7.1 When required by the AHJ, a hazardous materials inventory statement (HMIS) shall be completed and submitted to the AHJ. [**400:**1.12.1]

60.2 Special Definitions.

60.2.1 Chemical Name. See 3.3.43.

60.2.2 Closed System Use. See 3.3.267.1.

60.2.3 Control Area. See 3.3.14.2.

60.2.4 Dispensing. See 3.3.86.

60.2.5 Flammable Solid. See 3.3.236.2.

60.2.6 Hazardous Material. See 3.3.173.4.

60.2.7 Health Hazard Material. See 3.3.173.6.

60.2.8 Highly Toxic Material. See 3.3.173.7.

60.2.9 Incompatible Material. See 3.3.173.9.

60.2.10 Liquid. See 3.3.164.

60.2.11 Open System Use. See 3.3.267.2.

60.2.12 Organic Peroxide. See 3.3.189.

60.2.12.1 Organic Peroxide Formulation. See 3.3.189.1.

60.2.12.1.1 Class I. See 3.3.189.1.1.

60.2.12.1.2 Class II. See 3.3.189.1.2.

60.2.12.1.3 Class III. See 3.3.189.1.3.

60.2.12.1.4 Class IV. See 3.3.189.1.4.

60.2.12.1.5 Class V. See 3.3.189.1.5.

60.2.13 Oxidizer. See 3.3.192.

60.2.13.1 Class 1. See 3.3.192.1.

60.2.13.2 Class 2. See 3.3.192.2.

60.2.13.3 Class 3. See 3.3.192.3.

60.2.13.4 Class 4. See 3.3.192.4.

60.2.14 Physical Hazard Material. See 3.3.173.12.

60.2.15 Pyrophoric Material. See 3.3.173.13.

60.2.16 Solid Material. See 3.3.237.

60.2.17 Toxic Material. See 3.3.173.14.

60.2.18 Unstable (Reactive) Material. See 3.3.173.15.

60.2.19 Use. See 3.3.267.

60.2.20 Water-Reactive Material. See 3.3.173.16.

60.3 Classification of Materials, Wastes, and Hazard of Contents.

60.3.1* Hazardous Material Classification. Materials shall be classified into one or more of the following categories of hazardous materials, based on the definitions found in Chapter 3:

(1) Corrosive solids, liquids, or gases
(2) Flammable solids
(3) Flammable gases
(4) Flammable cryogenic fluids
(5) Inert cryogenic fluids
(6) Inert gases
(7) Organic peroxide formulations
(8) Oxidizer solids or liquids
(9) Oxidizing gases
(10) Oxidizing cryogenic fluids
(11) Pyrophoric solids, liquids, or gases
(12) Toxic or highly toxic solids, liquids, or gases

(13) Unstable (reactive) solids, liquids, or gases
(14) Water-reactive solids or liquids [**400:**4.1]

60.3.2 Classification of High Hazard Contents.

60.3.2.1 General.

60.3.2.1.1 High hazard contents shall include materials defined as hazardous material in Chapter 3, whether stored, used, or handled. [**400:**4.2.1.1]

60.3.2.1.2 High hazard contents shall include those materials defined as hazardous material solids, liquids, or gases limited to the hazard categories specified in 1.1.1 of NFPA 400 and classified in accordance with 60.3.2.1.2.1 through 60.3.2.1.2.4 whether stored, used, or handled. [**400:**4.2.1.2]

60.3.2.1.2.1 High Hazard Level 1 Contents. High hazard Level 1 contents shall include materials that present a detonation hazard, including, but not limited to, the following hazard categories:

(1) Class 4 oxidizers
(2) Detonable pyrophoric solids or liquids
(3) Class 3 detonable and Class 4 unstable (reactive) solids, liquids, or gases
(4) Detonable organic peroxides [**400:**4.2.1.2.1]

60.3.2.1.2.2 High Hazard Level 2 Contents. High hazard Level 2 contents shall include materials that present a deflagration hazard or a hazard from accelerated burning limited to the following hazard categories:

(1) Combustible dusts stored, used, or generated in a manner creating a severe fire or explosion hazard
(2) Class I organic peroxides
(3) Class 3 solid or liquid oxidizers that are used or stored in normally open containers or systems or in closed containers or systems at gauge pressures of more than 15 psi (103.4 kPa)
(4) Flammable gases
(5) Flammable cryogenic fluids
(6) Nondetonable pyrophoric solids, liquids, or gases
(7) Class 3 nondetonable unstable (reactive) solids, liquids, or gases
(8) Class 3 water-reactive solids and liquids [**400:**4.2.1.2.2]

60.3.2.1.2.3 High Hazard Level 3 Contents. High hazard Level 3 contents shall include materials that readily support combustion or present a physical hazard limited to the following hazard categories:

(1) Flammable solids, other than dusts classified as high hazard Level 2, stored, used, or generated in a manner creating a high fire hazard
(2) Class II and Class III organic peroxides
(3) Class 2 solid or liquid oxidizers
(4) Class 3 solid or liquid oxidizers that are used or stored in normally closed containers or systems at gauge pressures of less than 15 psi (103.4 kPa)
(5) Class 2 unstable (reactive) materials
(6) Class 2 water-reactive solids, liquids, or gases
(7) Oxidizing gases
(8) Oxidizing cryogenic fluids [**400:**4.2.1.2.3]

60.3.2.1.2.4 High Hazard Level 4 Contents. High hazard Level 4 contents shall include materials that are acute health hazards limited to the following hazard categories:

(1) Corrosive solids, liquids, or gases
(2) Highly toxic solids, liquids, or gases
(3) Toxic solids, liquids, or gases [**400:**4.2.1.2.4]

60.3.3 Mixtures. Mixtures shall be classified in accordance with the hazards of the mixture as a whole by an approved, qualified organization, individual, or testing laboratory. [**400:**4.3]

60.3.4* Multiple Hazards. Hazardous materials that have multiple hazards shall conform to the code requirements for each applicable hazard category. [**400:**4.4]

60.3.5* Classification of Waste. Waste comprised of or containing hazardous materials shall be classified in accordance with 60.3.1 through 60.3.4 as applicable. [**400:**4.5]

60.4 Permissible Storage and Use Locations.

60.4.1* General.

60.4.1.1 Control Areas or Special Protection Required. Hazardous materials shall be stored and used in any of the following:

(1) In control areas complying with 60.4.2
(2) In occupancies complying with requirements for Protection Level 1, Protection Level 2, Protection Level 3, or Protection Level 4 in accordance with 60.4.3
(3) In outdoor areas complying with 60.4.4 [**400:**5.1.1]

60.4.1.2 Weather Protection Structures. Weather protection, when provided, shall comply with 6.2.7.2 of NFPA 400. [**400:**5.1.2]

60.4.1.3 High Hazard Contents. Occupancies in which high hazard contents are stored, used, or handled shall also comply with Chapter 6 of NFPA 400. [**400:**5.1.3]

60.4.2 Control Areas.

60.4.2.1 Hazardous materials shall be permitted to be stored and used in control areas in accordance with 60.4.2.1 and 60.4.2.2. [**400:**5.2.1]

60.4.2.1.1 General.

60.4.2.1.1.1 All occupancies shall be permitted to have one or more control area in accordance with 60.4.2. [**400:**5.2.1.1.1]

60.4.2.1.1.2 The quantity of hazardous materials in an individual control area shall not exceed the maximum allowable quantity (MAQ) for the applicable occupancy set forth in 60.4.2.1.2 through 60.4.2.1.13 except as modified by Table 60.4.2.1.1.3. [**400:**5.2.1.1.2]

60.4.2.1.1.3 For all occupancies not covered by 60.4.2.1.2 through 60.4.2.1.13, the MAQ of hazardous materials per control area shall be as specified in Table 60.4.2.1.1.3. [**400:**5.2.1.1.3]

Tables 60.4.2.1.1.3, 60.4.2.1.2, 60.4.2.1.3, 60.4.2.1.4, 60.4.2.1.5, 60.4.2.1.6, 60.4.2.1.7, 60.4.2.1.8, and 60.4.2.1.10.1 were revised by a tentative interim amendment (TIA). See page 1.

60.4.2.1.2 Assembly Occupancies. The MAQ of hazardous materials per control area in assembly occupancies shall be as specified in Table 60.4.2.1.2. [**400:**5.2.1.2]

60.4.2.1.3 Educational Occupancies. The MAQ of hazardous materials per control area in educational occupancies shall be as specified in Table 60.4.2.1.3. [**400:**5.2.1.3]

60.4.2.1.4 Day-Care Occupancies. The MAQ of hazardous materials per control area in day-care occupancies shall be as specified in Table 60.4.2.1.4. [**400:**5.2.1.4]

3.3.156 Incidental Liquid Use or Storage. Use or storage as a subordinate activity to that which establishes the occupancy or area classification. [**30,** 2015]

3.3.157 Indicating Valve. See 3.3.268.1.

3.3.158 Initiating Device Circuit. A circuit to which automatic or manual initiating devices are connected where the signal received does not identify the individual device operated. [**72,** 2013]

3.3.159 Inside Liquid Storage Area. See 3.3.14.6.

3.3.160* ISO Module. An assembly of tanks or tubular cylinders permanently mounted in a frame conforming to International Organization for Standardization (ISO) requirements. [**55,** 2013]

3.3.161 Jurisdiction. A governmental unit or political division or a subdivision.

3.3.162 Limit.

3.3.162.1* *Ceiling Limit.* The maximum concentration of an airborne contaminant to which one can be exposed. [**5000,** 2015]

3.3.162.2* *Permissible Exposure Limit (PEL).* The maximum permitted 8-hour, time-weighted average concentration of an airborne contaminant. [**55,** 2013]

3.3.162.3* *Short-Term Exposure Limit (STEL).* The concentration to which it is believed that workers can be exposed continuously for a short period of time without suffering from irritation, chronic or irreversible tissue damage, or narcosis of a degree sufficient to increase the likelihood of accidental injury, impairment of self-rescue, or the material reduction of work efficiency, without exceeding the daily permissible exposure limit (PEL). [**55,** 2013]

3.3.163 Limited-Combustible (Material). *See 4.5.10.* [**5000,** 2015]

3.3.164 Liquid. A material that has a melting point that is equal to or less than 68°F (20°C) and a boiling point that is greater than 68°F (20°C) and 14.7 psia (101.3 kPa). When not otherwise identified, the term liquid shall mean both flammable and combustible liquids. [**5000,** 2015]

3.3.164.1 *Combustible Liquid.* Any liquid that has a closed-cup flash point at or above 100°F (37.8°C), as determined by the test procedures and apparatus set forth in Section 4.4 of NFPA 30, *Flammable and Combustible Liquids Code.* Combustible liquids are classified according to Section 4.3 of NFPA 30. [**30,** 2015]

3.3.164.2* *Flammable Liquid.* Any liquid that has a closed-cup flash point below 100°F (37.8°C), as determined by the test procedures and apparatus set forth in Section 4.4 of NFPA 30, *Flammable and Combustible Liquids Code,* and a Reid vapor pressure that does not exceed an absolute pressure of 40 psi (276 kPa) at 100°F (37.8°C), as determined by ASTM D 323, *Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method).* Flammable liquids are classified according to Section 4.3 of NFPA 30. [**30,** 2015]

3.3.164.3 *Highly Volatile Liquid.* A liquid with a boiling point of less than 68°F (20°C).

3.3.164.4 *Stable Liquid.* Any liquid not defined as unstable. [**30,** 2015]

3.3.165 Log. Felled tree from which all the branches have been removed.

3.3.166 Loose House. A separate detached building in which unbaled combustible fibers are stored.

3.3.167 Lumber. Wood from felled trees having a section produced by lengthwise sawing or chipping of logs or other solid wood of large dimensions and possible crosscutting and/or further machining to obtain a certain size and includes boards, dimension lumber, timber, and similar wood products.

3.3.168 Manual Emergency Shutoff Valve. A designated valve designed to shut off the flow of gases or liquids that is manually operated. [**55,** 2013]

3.3.169 Manual Fire Alarm Box. A manually operated device used to initiate a fire alarm signal. [**72,** 2013]

3.3.170 Manual Pull Station. See 3.3.169, Manual Fire Alarm Box.

3.3.171 Marine Terminal. A facility comprised of one or more berths, piers, wharves, loading and unloading areas, warehouses, and storage yards and used for transfer of people and/or cargo between waterborne and land transportation modes. [**307,** 2011]

3.3.172 Marine Vessel. A water craft or other artificial contrivance used as a means of transportation in or on the water.

3.3.173 Material.

3.3.173.1 *Combustible (Material).* See 3.3.56.

3.3.173.2 *Compatible Material.* A material that, when in contact with an oxidizer, will not react with the oxidizer or promote or initiate its decomposition.

3.3.173.3 *Corrosive Material.* A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. [**400,** 2013]

3.3.173.4 *Hazardous Material.* A chemical or substance that is classified as a physical hazard material or a health hazard material, whether the chemical or substance is in usable or waste condition. *(See also 3.3.173.6, Health Hazard Material, and 3.3.173.12, Physical Hazard Material.)* [**400,** 2013]

3.3.173.5 *Hazardous Production Material (HPM).* A solid, liquid, or gas associated with semiconductor manufacturing that has a degree-of-hazard rating of 3 or 4 in health, flammability, instability, or water reactivity in accordance with NFPA 704 and that is used directly in research, laboratory, or production processes that have as their end product materials that are not hazardous. [**5000,** 2015]

3.3.173.6 *Health Hazard Material.* A chemical or substance classified as a toxic, highly toxic, or corrosive material in accordance with definitions set forth in this *Code.* [**400,** 2013]

3.3.173.7* *Highly Toxic Material.* A material that produces a lethal dose or lethal concentration that falls within any of following categories: (1) a chemical that has a median lethal dose (LD_{50}) of 50 mg/kg or less of body weight when administered orally to albino rats weighing between 200 g and 300 g each; (2) a chemical that has a median lethal dose (LD_{50}) of 200 mg/kg or less of body weight when administered by continuous contact for 24 hours, or less if

(11) Potassium dichloro-s-triazinetrione (potassium dichloroisocyanurate)
(12) Sodium bromate
(13) Sodium chlorate
(14) Sodium chlorite (over 40 percent by weight)

G.3.5 Class 4 Oxidizers. The following are typical Class 4 oxidizers:

(1) Ammonium perchlorate (particle size greater than 15 microns)
(2) Ammonium permanganate
(3) Guanidine nitrate
(4) Hydrogen peroxide solutions (greater than 91 percent)
(5) Tetranitromethane

Ammonium perchlorate less than 15 microns is classified as an explosive and, as such, is not covered by this code. *(See NFPA 495.)*

G.4 Safety Information on Oxidizers Used in Detergents.

G.4.1 Sodium Percarbonate. Sodium percarbonate (CAS 15630-89-4), or sodium carbonate perhydrate, is a solid adduct of hydrogen peroxide (Na_2CO_3-$3/2H_2O_2$) used in detergent formulations. The active oxygen content of granular solid sodium percarbonate ranges from 12 to 14.5 percent. Granular particles are typically coated. Sodium percarbonate (99 percent) is a Class 1 oxidizer. Sodium percarbonate and sodium percarbonate–rich mixtures (>70 wt percent) are sensitive to gross contamination, heat, and reducing agents and are potentially explosive if mixed with organics. Sodium percarbonate and its formulated products have the propensity to undergo exothermic decomposition with the rapid release of oxygen, water as steam, and heat sufficient to ignite nearby combustible materials. The kinetics and decomposition reactions are complex. The self-accelerating decomposition temperature (SADT), the lowest ambient temperature at which self-accelerating decomposition can occur in a material in the packaging used for transportation, is reported to be 168°F (76°C) for 55 lb (25 kg) packages and 122°F (50°C) for 1 ton (1000 kg) bags. If improperly discarded or mixed with combustible trash, a fire can result.

G.5 Safety Information on Oxidizers Used in Swimming Pools.

G.5.1 Handling Swimming Pool Chemicals. Oxidizers and sanitizers for swimming pools are some of the most widely used, manufactured, and distributed oxidizers. Anyone handling or using swimming pool chemicals should be fully aware of proper storage and handling requirements, as well as emergency and first-aid procedures in case of an accident. Chlorinated pool chemicals are incompatible with many chemicals associated with pool care, including algaecides, pool conditioners (stabilizers), clarifiers, and other types of chlorine. It is essential to follow all storage and handling procedures to prevent conditions that might cause emergencies, such as a fire or explosion. This section includes specific information on pool oxidizers.

Calcium hypochlorite (cal hypo), lithium hypochlorite, and chlorinated isocyanurates (dichlor and trichlor) are not combustibles. They are oxidizers. Some oxidizers can cause the spontaneous ignition and increase the burning rate of combustible materials, including the majority of their packaging material. Some oxidizers decompose rapidly and undergo self-sustained decomposition, which can result in an intense fire or explosion. The decomposition of dry chlorinated pool chemicals can also produce toxic and corrosive gases.

Because of the composition and properties of calcium hypochlorite, lithium hypochlorite, and chlorinated isocyanurates, special precautions are required to prevent contact and reaction with each other and other chemicals. Reactions will occur if they are physically mixed together.

Emergency responders should be aware of oxidizers being stored in their area of response, visit the facilities, and obtain copies of the SDS associated with the chemicals being stored. Knowledge of the facility and the chemicals being stored makes any response more efficient and effective.

Containers should be stored away from combustible or flammable products, and product packaging should be kept clean and free of all contamination, including other pool treatment products, acids, organic materials, nitrogen-containing compounds, dry-powder fire extinguishers (containing mono-ammonium phosphate), oxidizers, all corrosive liquids, flammable or combustible materials, and so forth.

G.5.1.1 Calcium Hypochlorite. Calcium hypochlorite, commonly known as cal hypo, decomposes above 350°F (177°C). The decomposition will generate oxygen and heat, possibly resulting in a fire of great intensity if combustible materials are present. Direct-exposure fire could cause the materials to decompose, the container to erupt, and the fire to reach vastly higher levels of intensity. Decomposition leaves an inert residue consisting mainly of calcium chloride. Cal hypo (over 50 percent by weight) is classified as a Class 3 oxidizer. Cal hypo (50 percent or less by weight) is classified as a Class 2 oxidizer.

G.5.1.2 Lithium Hypochlorite. Lithium hypochlorite decomposes at 275°F (135°C), producing oxygen, lithium hydroxide, lithium chlorates, and hazardous gases. Contamination with moisture, organic matter, or other chemicals can start a chemical reaction that generates heat, hazardous gases, fire, and explosion. Lithium hypochlorite (available chlorine of 39 percent or less) is classified as a Class 1 oxidizer. Lithium hypochlorite (more than 39 percent available chlorine) is classified as a Class 2 oxidizer.

G.5.1.3 Sodium Dichloroisocyanurate. Sodium dichloroisocyanurate is commonly known as dichlor. It decomposes in the range of 428°F to 482°F (220°C to 250°C) and can generate enough heat to ignite items such as paper and wood. Dichlors will sustain thermal decomposition above 428°F (220°C), even in the absence of oxygen. Decomposition results in a yellow or brown porous inert residue. Anhydrous dichlor is classified as a Class 2 oxidizer in accordance with testing criteria found in G.1.2. Dichlor dihydrate is classified by NFPA as a Class 1 oxidizer.

G.5.1.4 Trichloroisocyanuric Acid. Trichloroisocyanuric acid is commonly known as trichlor. It decomposes in the range of 428°F to 482°F (220°C to 250°C). Decomposition of trichlor requires a continuous source of heat. Once the heat source is removed, trichlor will not continue to decompose. Partial decomposition leaves a yellow or brown residue. Complete decomposition leaves only traces of residue. Trichlor is classified by NFPA as a Class 1 oxidizer.

G.5.1.5 Sodium Hypochlorite. Sodium hypochlorite (7681-52-9) solutions are not classified as oxidizers by NFPA. Sodium hypochlorite is manufactured by reacting chlorine with dilute sodium hydroxide solution. Solutions are generally formulated in the range of 3–20 percent sodium hypochlorite by weight. The balance of the solution consists of water, sodium chloride, and sodium hydroxide. Depending upon the re-

sidual quantity of sodium hydroxide in the finished product, it is classified as an irritant material or a corrosive material as those terms are defined in OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Generally speaking, solutions with less than 1 percent residual caustic are irritants, while solutions containing more than 1 percent residual caustic are classified as corrosives. Total evaporation of sodium hypochlorite solutions yields water and sodium chloride. Unlike calcium hypochlorite, sodium hypochlorite does not exist outside of solution. Sodium hypochlorite solutions do not readily yield oxygen or other oxidizing gases and do not initiate or promote combustion of combustible materials. The major decomposition pathway of hypochlorite ion evolves chlorite ion which combines with additional hypochlorite ion to form chlorates, which in turn form chlorides. The formation of oxygen from decomposing hypochlorite ion is a very slow side reaction, although the rate can increase with exposure to transition metals. Other oxidizing gases, for example, chlorine, are not evolved in the decomposition.

G.5.2 Specific Response Information for Chlorinated Isocyanurates (Dichlor, Trichlor). It is necessary for emergency responders to be aware of the properties of chlorinated isocyanurates (dichlor, trichlor) that can create hazardous conditions. The reaction of these chemicals or mixtures containing these chemicals with other materials can lead to the generation of hazardous gases and fire.

When stored correctly and not exposed to other materials, these chemicals are safe to transport, store, handle, and use. However, in emergencies, conditions can occur that will cause containers to rupture and material to spill or become contaminated. It is important that correct actions be taken quickly in response to these conditions.

The best approach to dealing with the reactivity of these chemicals is to assume that they will react with anything they contact. Some of the reactions, particularly those with fuels (kerosene, diesel oil, etc.) and some other organic materials, are very fast and violent. Others take some time to happen. An example of this is when spilled material is placed in a dumpster with no apparent reaction. Hours later, a fire occurs because of a slow reaction with other material.

Other oxidizers, particularly cal hypo, also react with chlorinated isocyanurates. Wet mixtures of chlorinated isocyanurates and calcium hypochlorite react vigorously, releasing large volumes of chlorine (Cl_2) gas.

The following suggested actions and precautions should be taken during an emergency where chlorinated isocyanurates are present:

(1) Emergency responders need to know their capabilities and limitations. If you are not completely sure that you can deal effectively with an emergency, get help from other responders or the manufacturer of the chemical. Contact chemical manufacturers directly or through Chemtrec® at 800-424-9300.
(2) During an emergency, only allow necessary personnel in the affected area.
(3) Because hazardous gases might be present, be sure to have self-contained breathing apparatus (SCBA) available and wear when necessary. Other personal protective equipment might also be necessary to use.
(4) Do not flush these chemicals or otherwise allow them to go into waterways or sewers without clearance from the appropriate officials.
(5) If there is any sign of a reaction taking place, cordon off and do not approach the area until a complete assessment has taken place.
(6) Breached containers of chlorinated isocyanurate products that become wet can generate nitrogen trichloride (NCl_3), a potential explosion hazard in confined environments. Contact the manufacturer for detailed instructions when handling wet chlorinated isocyanurate products. Do not repackage a wet product.
(7) Do not put spilled material back into its original container or any trash receptacle.
(8) Read the SDS and product label for additional safety information.

Chlorinated isocyanurate products should be stored in sealed original containers in a cool, dry, well-ventilated area. If the product has been contaminated, decomposition can occur. Signs of decomposition are heat product discoloration, gas formation, or package degradation. *(See G.7 for additional information.)*

G.5.3 Specific Response Information for Calcium Hypochlorite. It is necessary for emergency responders to be aware of the properties of calcium hypochlorite that can create hazardous conditions. The reactions of calcium hypochlorite or mixtures containing calcium hypochlorite with other materials can lead to fire and hazardous gases. When stored correctly and not exposed to other materials, these chemicals are safe to transport, store, handle, and use. However, in emergencies, conditions can occur that will cause containers to rupture and material to spill or become contaminated. It is important that correct actions be taken quickly in response to these conditions.

In its initial stage, the decomposition of calcium hypochlorite [$Ca(OCl)_2$] proceeds to calcium chloride and oxygen and calcium chlorate. This reaction is an exothermic reaction, which can produce sufficient heat to decompose the product and ignite surrounding materials. Thermal runaway reaction does not occur as long as material is at equilibrium, where the heat generated is equal to the heat lost to the surroundings. A secondary reaction can give off chlorine gas.

Other oxidizers, particularly chlorinated isocyanurates, also react with calcium hypochlorite. Wet mixtures of calcium hypochlorite and chlorinated isocyanurates react vigorously, releasing large volumes of chlorine (Cl_2) gas.

The following suggested actions and precautions should be taken during an emergency where calcium hypochlorite is present:

(1) Emergency responders need to know their capabilities and limitations. If you are not completely sure that you can deal effectively with an emergency, get help from other responders or the manufacturer of the chemical. Contact chemical manufacturers directly or through Chemtrec® at 800-424-9300.
(2) During an emergency, allow only necessary personnel in the affected area.
(3) Because hazardous gases might be present, be sure to have self-contained breathing apparatus (SCBA) available and wear when necessary. Other personal protective equipment might also be necessary to use.
(4) Do not flush these chemicals or otherwise allow them to go into waterways or sewers without clearance from the appropriate officials.

3.3.53.4 ***Plumbing Code.*** The plumbing code referenced in Section 2.2.

3.3.54 Cold Deck. A single ranked pile of logs with individual logs of regular or irregular length usually 20 ft to 50 ft (6.1 m to 15.2 m) long, but greater than 8 ft (2.4 m) long.

3.3.55 Column (Paper). A single vertical stack of rolls of paper.

3.3.56 Combustible (Material). A material that, in the form in which it is used and under the conditions anticipated, will ignite and burn; a material that does not meet the definition of noncombustible or limited-combustible. [***101,*** 2015]

3.3.57* Combustible Dust. A finely divided combustible particulate solid that presents a flash fire hazard or explosion hazard when suspended in air or the process-specific oxidizing medium over a range of concentrations. [**654,** 2013]

3.3.58* Combustible Fiber. Any material in a fibrous or shredded form that readily ignites when heat sources are present.

3.3.59 Combustible Liquid. See 3.3.164.1.

3.3.60 Combustible Particulate Solid. See 3.3.236.1.

3.3.61 Combustible Refuse. All combustible or loose rubbish, litter, or waste materials generated by an occupancy that are refused, rejected, or considered worthless and are disposed of by incineration on the premises where generated or periodically transported from the premises.

3.3.62* Combustible Waste. Combustible or loose waste material that is generated by an establishment or process and, if salvageable, is retained for scrap or reprocessing on the premises where generated or transported to a plant for processing.

3.3.63 Combustion. A chemical process of oxidation that occurs at a rate fast enough to produce heat and usually light in the form of either a glow or flame.

3.3.64 Commodity. The combination of products, packing material, and container that determines commodity classification. [**13,**2013]

3.3.65* Common Path of Travel. The portion of exit access that must be traversed before two separate and distinct paths of travel to two exits are available. [***101,*** 2015]

3.3.66 Compartment.

3.3.66.1* ***Fire Compartment.*** A space within a building that is enclosed by fire barriers on all sides, including the top and bottom. [***101,*** 2015]

3.3.66.2* ***Smoke Compartment.*** A space within a building enclosed by smoke barriers on all sides, including the top and bottom. [***101,*** 2015]

3.3.67 Condition, Existing. See 3.3.101.

3.3.68 Construction Documents. Documents that consist of scaled design drawings and specifications for the purpose of construction of new facilities or modification to existing facilities. *(See also 3.3.227, Shop Drawings.)*

3.3.69 Container. A vessel, including cylinders, tanks, portable tanks, and cargo tanks, used for transporting or storing materials.

3.3.69.1 ***ASME Container.*** A container constructed in accordance with the ASME Code. [**58,** 2014]

3.3.69.2 ***Closed Container.*** A container as herein defined, so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures. [**30,** 2015]

3.3.69.3 ***Compressed Gas Container.*** A pressure vessel designed to hold compressed gas at an absolute pressure greater than 1 atmosphere at 68°F (20°C) that includes cylinders, containers, and tanks. [**55,** 2013]

3.3.69.4* ***Container (Flammable or Combustible Liquid).*** Any vessel of 119 gal (450 L) or less capacity used for transporting or storing liquids. [**30,** 2015]

3.3.69.5 ***Cryogenic Fluids Container.*** A cryogenic vessel used for transportation, handling, or storage.

3.3.69.6 ***Intermediate Bulk Container.*** Any closed vessel having a liquid capacity not exceeding 3000 L (793 gal) and intended for storing and transporting liquids, as defined in Title 49, Code of Federal Regulations, Parts 100 through 199 or in Part 6 of the United Nations *Recommendations on the Transport of Dangerous Goods.* [**30,** 2015]

3.3.69.7 ***[LP-Gas] Container.*** Any vessel, including cylinders, tanks, portable tanks, and cargo tanks, used for the transporting or storing of LP-Gases. [**58,** 2014]

3.3.70 Control Area. See 3.3.14.2.

3.3.71* Conventional Pallets. A material-handling aid designed to support a unit load with openings to provide access for material-handling devices. *(See Figure A.3.3.71.)* [**13,** 2013]

3.3.72 Cooking Fire. The noncommercial, residential burning of materials not exceeding 3 ft (0.9 m) in diameter and 2 ft (0.6 m) in height, other than rubbish in which the fuel burned is contained in an outdoor fireplace, a barbecue grill, or a barbecue pit for the purpose of preparing food.

3.3.73 Cordwood. Logs 8 ft (2.4 m) or less in length customarily intended for pulpwood or fuel uses.

3.3.74 Core. The central tube around which paper is wound to form a roll. [**13,** 2013]

3.3.75* Corrosive Material. See 3.3.173.3.

3.3.76 Crude Petroleum. Hydrocarbon mixtures that have a flash point below 150°F (65.6°C) and that have not been processed in a refinery. [**30,** 2015]

3.3.77 Cryogenic Fluid. A fluid with a boiling point lower than –130°F (–90°C) at an absolute pressure of 14.7 psi (101.3 kPa). [**55,** 2013]

3.3.77.1 ***Flammable Cryogenic Fluid.*** A cryogenic fluid that forms flammable mixtures in air when in its vapor state. [**55,** 2013]

3.3.77.2 ***Inert Cryogenic Fluid.*** A cryogenic fluid that vaporizes to produce an intert gas when in its vapor state. [**55,** 2013]

3.3.77.3 ***Oxidizing Cryogenic Fluid.*** An oxidizing gas in the cryogenic state. [**55,** 2013]

3.3.78* Cultural Resource Properties. Buildings, structures, or sites, or portions thereof, that are culturally significant, or that house culturally significant collections. [**914,** 2010]

3.3.79 Cylinder. A pressure vessel designed for absolute pressures higher than 40 psi (276 kPa) and having a circular cross-section. It does not include a portable tank, multiunit tank car tank, cargo tank, or tank car. [**55,** 2013]

death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 kg and 3 kg each or albino rats weighing 200 g to 300 g each; (3) a chemical that has a median lethal concentration (LC_{50}) in air of 200 parts per million by volume or less of gas or vapor, or 2 mg/L or less of mist, fume, or dust, when administered by continuous inhalation for 1 hour, or less if death occurs within 1 hour, to albino rats weighing between 200 g and 300 g each. [**400**, 2013]

3.3.173.8 ***Hogged Material.*** See 3.3.150.

3.3.173.9* ***Incompatible Material.*** Materials that, when in contact with each other, have the potential to react in a manner that generates heat, fumes, gases or by-products that are hazardous to life or property. [**400**, 2013]

3.3.173.10 ***Limited-Combustible Material.*** See 4.5.10. [**5000**, 2015]

3.3.173.11 ***Noncombustible Material.*** See 4.5.9. [**5000**, 2015]

3.3.173.12 ***Physical Hazard Material.*** A chemical or substance classified as a combustible liquid, explosive, flammable cryogen, flammable gas, flammable liquid, flammable solid, organic peroxide, oxidizer, oxidizing cryogen, pyrophoric, unstable (reactive), or water-reactive material. [**400**, 2013]

3.3.173.13 ***Pyrophoric Material.*** A chemical with an autoignition temperature in air at or below 130°F (54.4°C). [**400**, 2013]

3.3.173.14* ***Toxic Material.*** A material that produces a lethal dose or a lethal concentration within any of the following categories: (1) a chemical or substance that has a median lethal dose (LD_{50}) of more than 50 mg/kg but not more than 500 mg/kg of body weight when administered orally to albino rats weighing between 200 g and 300 g each; (2) a chemical or substance that has a median lethal dose (LD_{50}) of more than 200 mg/kg but not more than 1000 mg/kg of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 kg and 3 kg each; (3) a chemical or substance that has a median lethal concentration (LC_{50}) in air of more than 200 parts per million but not more than 2000 parts per million by volume of gas or vapor, or more than 2 mg/L but not more than 20 mg/L, of mist, fume, or dust when administered by continuous inhalation for 1 hour, or less if death occurs within 1 hour, to albino rats weighing between 200 g and 300 g each. [**400**, 2013]

3.3.173.15* ***Unstable (Reactive) Material.*** A material that, in the pure state or as commercially produced, will vigorously polymerize, decompose or condense, become self-reactive, or otherwise undergo a violent chemical change under conditions of shock, pressure, or temperature. [**400**, 2013]

3.3.173.16* ***Water-Reactive Material.*** A material that explodes, violently reacts, produces flammable, toxic, or other hazardous gases; or evolves enough heat to cause self-ignition or ignition of nearby combustibles upon exposure to water or moisture. [**400**, 2013]

3.3.174 Material Safety Data Sheet (MSDS). Written or printed material concerning a hazardous material that is prepared in accordance with the provisions of OSHA 29 CFR 1910.1200.

3.3.175* Maximum Allowable Quantity (MAQ). The quantity of hazardous material permitted in a control area.

3.3.176* Means of Egress. A continuous and unobstructed way of travel from any point in a building or structure to a public way consisting of three separate and distinct parts: (1) the exit access, (2) the exit, and (3) the exit discharge. [*101*, 2015]

3.3.177 Means of Escape. A way out of a building or structure that does not conform to the strict definition of means of egress but does provide an alternate way out. [*101*, 2015]

3.3.178 Mezzanine. An intermediate level between the floor and the ceiling of any room or space. [*101*, 2015]

3.3.179* Mobile Supply Unit. Any supply source that is equipped with wheels so it is able to be moved around. [**55**, 2013]

3.3.180 Motor Vehicle Fluid. A fluid that is a flammable, combustible, or hazardous material, such as crankcase fluids, fuel, brake fluids, transmission fluids, radiator fluids, and gear oil.

3.3.181 Nesting. A method of securing cylinders upright in a tight mass using a contiguous three-point contact system whereby all cylinders in a group have a minimum of three contact points with other cylinders or a solid support structure (e.g., a wall or railing). [**55**, 2013]

3.3.182* Normal Temperature and Pressure (NTP). A temperature of 70°F (21°C) at an absolute pressure of 14.7 psi (101.3 kPa). [**55**, 2013]

3.3.183 Occupancy. The purpose for which a building or other structure, or part thereof, is used or intended to be used. [**ASCE/SEI 7**:1.2]

3.3.183.1* ***Ambulatory Health Care Occupancy.*** An occupancy used to provide services or treatment simultaneously to four or more patients that provides, on an outpatient basis, one or more of the following: (1) treatment for patients that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others; (2) anesthesia that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others; (3) emergency or urgent care for patients who, due to the nature of their injury or illness, are incapable of taking action for self-preservation under emergency conditions without the assistance of others [*101*, 2015]

3.3.183.2* ***Apartment Building.*** A building or portion thereof containing three or more dwelling units with independent cooking and bathroom facilities. [*101*, 2015]

3.3.183.3* ***Assembly Occupancy.*** An occupancy (1) used for a gathering of 50 or more persons for deliberation, worship, entertainment, eating, drinking, amusement, awaiting transportation, or similar uses; or (2) used as a special amusement building, regardless of occupant load. [*101*, 2015]

3.3.183.4 ***Bulk Merchandising Retail Building.*** A building in which the sales area includes the storage of combustible materials on pallets, in solid piles, or in racks in excess of 12 ft (3660 mm) in storage height. [*101*, 2015]

McMAHON ASSOCIATES, INC.
2090 Palm Beach Lakes Boulevard, Suite 400
West Palm Beach, FL 33409
p 561-840-8650 | f 561-840-8590

PRINCIPALS
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Dean A. Carr, P.E.

August 3, 2016

VIA E-MAIL

Pat Allman
Odyssey Manufacturing Co.
1484 Massaro Blvd.
Tampa, FL 33619

RE: Riviera Beach Manufacturing Facility Traffic Analysis
McMahon Project No. M16470.01

Dear Mr. Allman:

McMahon Associates, Inc. (McMahon) has completed a traffic analysis for the development of a parcel of land located at 1500 Dr. Martin Luther King Jr. Boulevard, in the City of Riviera Beach. The site is currently vacant. The proposed development will include a manufacturing facility. The proposed manufacturing building size will be 912 square feet. The following is traffic information in support of a driveway permit application with the Florida Department of Transportation (FDOT).

Project Description

I understand that a manufacturing use is proposed on the site. The site plan includes a single driveway along SR 710/Martin Luther King Jr Boulevard. The driveway will be located approximately 150 feet west of the CSX railroad tracks that are adjacent to the east property line of the site. The driveway will provide right turn in and right turn out access only. As indicated by the Client, the site will be operated by eight (8) trucks, making deliveries throughout the day. Each truck will make its initial delivery leaving the site at 5:00 AM. Each truck will make approximately two (2) deliveries each day.

Trip Generation Analysis

Trip generation estimates were developed for the proposed land use based on rates and/or equations from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition. **Table 1** summarizes the daily, AM peak hour trips, and PM peak hour trips for the 912 square foot manufacturing use. These results are less than anticipated for the site.

Therefore, we have prepared a trip generation analysis based on the expected operations of the site. Accordingly, **Table 2** assumes eight (8) trucks per day, making two (2) deliveries each. In addition, we have included two (2) trips per day for the drivers to arrive and depart the facility. This translates to

six (6) trips per day for each truck. Understanding most trips will occur during non-peak hours, including half of the trips occurring before 6:00 AM, this analysis conservatively assumes 10 percent of the daily trip during each of the AM and PM peak hours. This analysis results in 48 total daily trips, five (5) AM peak hour trips, and five (5) PM peak hour trips.

TABLE 1
TRIP GENERATION ANALYSIS - BASED ON ITE RATES
ODYSSEY MANUFACTURING FACILITY TRAFFIC ANALYSIS

LAND USE	ITE CODE	INTENSITY	TRIP GENERATION RATE [1]	IN	OUT	TOTAL TRIPS		
						IN	OUT	TOTAL
DAILY								
Manufacturing	140	912 SF	T = 3.82 (X)	50%	50%	2	1	3
AM PEAK HOUR								
Manufacturing	140	912 SF	T = 0.73 (X)	78%	22%	1	0	1
PM PEAK HOUR								
Manufacturing	140	912 SF	T = 0.73 (X)	36%	64%	0	1	1

(1) Source: ITE Trip Generation Manual, 9th Edition

TABLE 2
TRIP GENERATION ANALYSIS - BASED ON PLANNED OPERATIONS
ODYSSEY MANUFACTURING FACILITY TRAFFIC ANALYSIS

LAND USE	ITE CODE	INTENSITY	TRIP GENERATION RATE [1]	IN	OUT	TOTAL TRIPS		
						IN	OUT	TOTAL
DAILY								
Manufacturing	140	8 Trucks	6.00	50%	50%	24	24	48
AM PEAK HOUR								
Manufacturing	140	8 Trucks	0.60	50%	50%	3	2	5
PM PEAK HOUR								
Manufacturing	140	8 Trucks	0.60	50%	50%	3	2	5

(1) Source: Owner operations

Project Access Evaluation

Based on the trip generation analysis, no more than five (5) trips per hour are anticipated to be generated by the site during the peak hours. This will have an insignificant impact on SR-710. Also, because the proposed driveway is upstream of the CSX railroad tracks, there will be no traffic impacts relative to the railroad tracks.

Other Explored Access Opportunities

The property is land-locked on all sides except for the north property line along SR-710. I understand that the Client has spoken to the property owner who borders the property to the southwest. That property owner is unwilling to grant access easements.

Multi-modal Facility

The multimodal nature of the operations is an important factor providing a positive transportation impact. Based on the operation plan, the materials used for manufacturing will be delivered to the site by freight rail (CSX).

Conclusion

Based on the operation plan and the analysis contained herein, the proposed manufacturing development minimizes vehicular traffic impacts. Furthermore, the traffic impacts that will be created will be insignificant to both the roadway and adjacent railroad.

Should you have any questions or comments regarding these findings, please do not hesitate to call me.

Sincerely,

NATALIA THAIS LERCARI LICENSE No. 68205 STATE OF FLORIDA PROFESSIONAL ENGINEER

Natalia T. Lercari, P.E.
Professional Engineer
License No. 68205
State of Florida, Board of Professional Engineers
Certificate of Authorization No. 4908

RTE/amp

F:\FL\16470M_Odyssey_RivieraBchTrfcAnlys\16470M_01\Report\LtrPA080316.doc

For Staff Use Only

City of Riviera Beach	Date:	Case Number:
Community Development Department 600 W. Blue Heron Boulevard Riviera Beach, Florida 33404	Project Title:	
Phone: (561) 845-4060 Fax : (561) 845-4038	Fee Paid:	Notices Mailed:
	1st Hearing:	2nd Hearing:
	Publication Dates (if required)	

RECEIVED
SEP 19 2016
COMMUNITY DEVELOPMENT DEPARTMENT

UNIFORM LAND USE APPLICATION

(Please attach separate sheet of paper for required additional information)
Complete appropriate sections of Application and sign.

APPLICANT

Name of Property Owner(s): Trademark Metals Recycling LLC

Mailing Address: Corporation Trust CO C/O 1209 Orange St Wilmington DE 19801

Property Address: Unaddressed

Name of Applicant (if other than owner): Odyssey Manufacturing Co

Home: (813) 335-3444 Work: (813)635-0339 Fax: ( )

E-mail Address: pallman@odysseymanufacturing.com

PLEASE ATTACH LEGAL DESCRIPTION

PROPERTY

Future Land Use Map Designation: Industrial Current Zoning Classification: IG

Square footage of site: 390,557 Property Control Number (PCN): 56-43-42-32-43-001-0000

Type and gross area of any existing non residential uses on site: None

Gross area of any proposed structure: 12,162 sf

Is there a current or recent use of the property that is/was in violation of City Ordinance? [ ] Yes [✓] No

If yes, please describe:

Have there been any land use applications concerning all or part of this property in the last 18 months? [ ] Yes [✓] No

If yes, indicate date, nature and applicant's name:

Briefly describe use of adjoining property: North: SR 710 Right of way

South: Railroad

East: Railroad

West: Residential/Industrial

REZONE

Requested Zoning Classification: Rezoning is not requested

Is the requested zoning classification contiguous with existing?

Is a Special Exception necessary for your intended use? [ ] Yes [ ] No

Is a Variance necessary for your intended use? [ ] Yes [ ] No

FUTURE LAND USE

Existing Use: Vacant
Proposed Use: Industrial

Land Use Designation: Industrial
Requested Land Use: Industrial

Adjacent Land Uses: North: ROW
South: Railroad
East: Railroad
West: Residential/Industrial

Size of Property Requesting Land Use Change: Land use change is not requested

SPECIAL EXCEPTION

Describe the intended use requiring a Special Exception: Warehouse and Storage use

Provide specific LDR ordinance section number and page number: City Municipal Code 31-61, 31-62

How does intended use meet the standards in the Land Development Code?

Intended use as distribution facility is a permitted use under Section 31-382

Demonstrate that proposed location and site is appropriate for requested use:

Proposed location is zoned for Industrial General ("IG")

Demonstrate how site and proposed building(s) have been designed so they are compatible with adjacent uses and neighborhoods: See attached Site Drawings

Demonstrate any landscaping techniques to visually screen use from adjacent uses:

See attached Site Drawings and Landscape Drawings

Demonstrate what is proposed to reduce the impact of any potential hazards, problems, public nuisances generated by use:

Operations will be conducted on the south and east sides of the property adjacent to railroad right of way areas and away from neighbors to the west

Demonstrate how utilities and other service requirements of the use can be met:

See attached Utility Drawings

Demonstrate how the impact of traffic generated will be handled:

On-site:

Off-Site:

Other: See attached Engineering Traffic Study

VARIANCE

Describe the Variance sought: None requested

Demonstrate that the Variance is needed to overcome a hardship caused by the unique physical conditions of the site:

Specify the minimum Variance requirements including: height, lot area, size of structure, size of yard, setback, buffer or open space:

Other:

SITE PLAN

Describe proposed development: Bleach Distribution Facility (Phase I & II); Aggregate Handling & Storage (Phase III)

Demonstrate that proposed use is appropriate to site: Project is in accordance with regulations and zoning conditions

Demonstrate how drainage and paving requirement will be met:
Drainage will be collected through inlets and storm drains. Runoff will be directed to a dry retention pond.

Demonstrate any landscaping techniques to visually screen use from adjacent uses:
Landscaping is proposed along the northern and western property boundaries for screening.

Demonstrate what is proposed to reduce the impact of any potential hazards, problems, public nuisances generated by use:
The site plan shows substantial separation b/w the planned improvements and residential areas.

Demonstrate how utilities and other service requirements of the use can be met:
Utilities can be provided by City of Riviera Beach

Demonstrate how the impact of traffic generated will be handled: Please see letter addressing traffic.

On-site:

Off-site:

OTHER

COMMUNICATION TOWER CO-LOCATION REQUIREMENTS:

- Three sets of signed and sealed Construction documents, elevations and all equipment shelters, cabinets, Coax, telephone and power conduits identified. These plans will then be used to obtain the Building Permit.
- Antenna manufacture cut sheets including antenna size and shape.
- Zoning map of area with site clearly marked.
- Photos of existing building or tower and surrounding uses.
- Letter of non-interference and FCC compliance from applicant's Radio Frequency Professional.
- Map of surrounding carrier existing locations in all directions with type i.e. Guyed, Self-Support, Monopole, Rooftop.
- Letter of structural capacity and building code compliance.
- Notes on plan or letter demonstrating floor area coverage not in excess of restrictions
- Provide Photo Enhancements of proposal.
- Statement that proposal is in compliance with Environmental Regulations prior to permit issue.

Confirmation of Information Accuracy

I hereby certify that the information on this application is correct. The information included in this application is for use by the City of Riviera Beach in processing my request. False or misleading information may be punishable by a fine of up to five hundred dollars ($500.00) and imprisonment of up to thirty (30) days and may result in the summary denial of this application.

Signature

9.17.16
Date

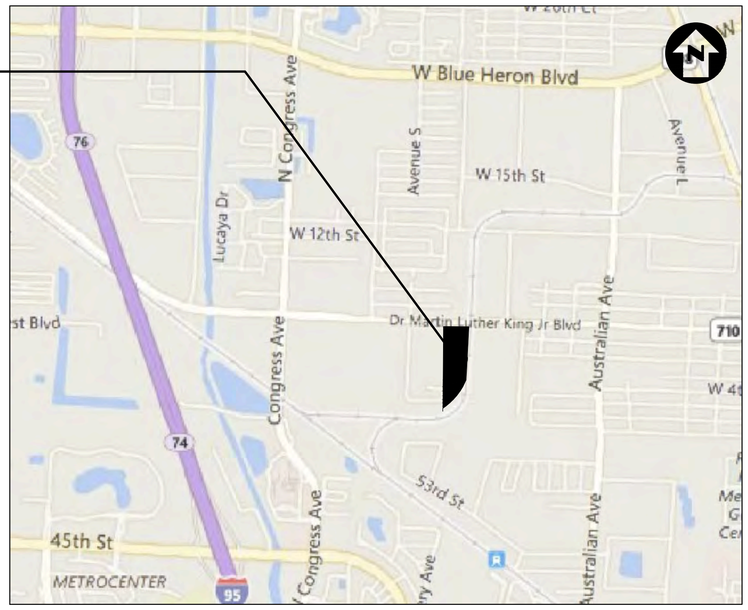
ODYSSEY MANUFACTURING CO.
DISTRIBUTION FACILITY

SITE CONSTRUCTION PLANS

Riviera Beach Resub 1
November 8, 2016

PROJECT LOCATION

Parcel No: 56434232430010000
56434232430030000
56434232430040000



VICINITY MAP
PALM BEACH COUNTY, FLORIDA
Section 32, Township 42S, Range 43E

OWNER
ODYSSEY MANUFACTURING CO.
1484 MASSARO BLVD
TAMPA, FL 33619
813-635-0339

LEGAL DESCRIPTION
TRACTS A, C AND D OF AVENUE S PROPERTIES PLAT, FILED IN PLAT BOOK 105, PAGES 193 THROUGH 195, PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA.

5M Civil LLC

Professional Civil Engineering Services
12315 Wycliff Pl
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FBPR Certificate of Authorization No: 26,929

DRAWING INDEX
(TOTAL NUMBER OF SHEETS = 8)

DATE	REVISION
11/8/16	RIVIERA BEACH RESUB 1

DISTRIBUTION FACILITY

Engineer of Record:
Jesus A. Merly, PE FL Reg No. 58113

JESUS ANTONIO MERLY LICENSE No. 58113 STATE OF FLORIDA PROFESSIONAL ENGINEER

CONSTRUCTION NOTES

GENERAL

1. Specific requirements of CITY OF RIVIERA BEACH (CITY) specifications and standards are incorporated into the contract documents by reference.
2. Specific requirements of the Florida Department of Transportation's Roadway and Traffic Design Standards, and Standard Specifications for Road and Bridge Construction are incorporated into the contract documents by reference.
3. All specifications and documents referred to in these plans shall be of the latest revision.
4. Contractor shall maintain copies of all applicable permits on-site and shall be responsible to adhere to all permit conditions during construction.
5. Contractor shall become familiar with the permit and inspection requirements specified by the various governmental agencies. The Contractor shall obtain all necessary permits prior to construction, and schedule any necessary inspections according to agency instructions.
6. All work performed shall comply with the regulations and ordinances of the various governmental agencies having jurisdiction over the work.
7. Contractor shall submit shop drawings on all precast and manufactured items to the owner's engineer for approval. Failure to obtain approval before installation may result in removal and replacement at Contractor's expense.
8. Contractor shall locate all existing utilities before ordering materials and casting structures.
9. Work performed under this contract shall interface smoothly with other work being performed on site by other Contractors and utility companies. It will be necessary for the Contractor to coordinate and schedule activities, where necessary, with other Contractors and utility companies, including electric, cable, telephone and utility company subcontractors.
10. It shall be the responsibility of the Contractor to obtain the required permits to perform work in the public right-of-way.
11. Contractor shall provide appropriate signage for construction traffic in accordance with FDOT Standard Index 600 and the United States Department of Transportation Federal Highway Administration's "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD).
12. The Contractor shall endeavor to protect private and public property. Any damage caused by the Contractor in the performance of his work shall be corrected to the satisfaction of the engineer in a timely manner. Payment shall not be made for this work.
13. Overall cleanup shall be accomplished by the Contractor in accordance with CITY standards or as directed by the engineer. Any and all expenses incurred for this work shall be included in the price bid for other items.
14. Any damage to state, county, or local roads caused by the Contractor's hauling or excavation equipment shall be repaired by the Contractor in a timely manner to the satisfaction of the Engineer. Payment shall not be made for this work.

SAFETY

1. During the construction and maintenance of this project, all safety regulations are to be enforced. The Contractor or his representative shall be responsible for the control and safety of the traveling public and the safety of Contractor's personnel.
2. Labor safety regulations shall conform to the provisions set forth by OSHA.
3. Contractor shall provide and maintain its own safety equipment in accordance with its health & safety program and all other applicable legal and health and safety requirements. The Contractor is also responsible for providing its employees and subcontractors with adequate information and training to ensure that all employees and subcontractors and subcontractors' employees comply with all applicable requirements. Contractor shall remain in compliance with all occupation safety and health regulations as well as the environmental protection laws. The following is not to be perceived as the entire safety program but just basic requirements.
4. All excavations by the Contractor shall conform to the requirements of the Department of Labor's Occupational Safety and Health Administration rules and regulations. Particular attention must be paid to the construction standards for excavations, 29 CFR Part 1926, subpart P.
5. The minimum standards as set forth in the current edition of "The State Of Florida, Manual On Traffic Control And Safe Practices For Street And Highway Construction, Maintenance and Utility Operations" shall be followed in the design application, installation, maintenance and removal of all traffic control devices, warning devices and barriers necessary to protect the public and workmen from hazards within the project limits.
6. It shall be the sole responsibility of the Contractor to comply and enforce all applicable safetyregulations. The above information has been provided for the Contractor's information only and does not imply that the owner or engineer will inspect and/or enforce safety regulations.

SURVEY

1. Contractor shall protect property markers, monuments temporary benchmarks and other survey control points. The contractor's registered surveyor shall replace to existing or better condition any disturbed property markers, monuments and temporary benchmarks to their original condition at the Contractor's expense.
2. All points and monuments shall be surveyed upon mobilization to verify their accuracy. Any discrepancies discovered must be brought to the attention of the engineer in writing.
3. Upon completion of construction, the contractor shall furnish the owner's engineer with complete "as-built" information certified by a registered land surveyor. This "as-built" information shall include invert elevations, location of fittings, location of structures for all utilities installed, as well as top of bank, toe of slope and grade break locations and elevations for pond and ditch construction. No engineer's certifications for certificate of occupancy purposes will be made until this information is received and approved by the owner's engineer.
4. The topographical survey depicted within this plan set was based on a field survey date of 6/21/2016. Existing topography and features shown are indicative of field conditions at that time.
5. All utilities depicted hereon are from visible evidence only. Surveyor did not contact subsurface utility locator service.
6. No underground foundations or footers were excavated or located for this survey.

GENERAL EROSION AND TURBIDITY CONTROL NOTES

1. The Site Subcontractor shall be responsible for installation and maintenance of all erosion and turbidity controls and the quality and quantity of offsite or wetland discharges.
2. Prior to construction, the Site Subcontractor is responsible for having his dewatering plan and turbidity control plan approved by the applicable reviewing agencies. Refer to the project's permit approvals and permit conditions for agencies requiring such review and approval. Questions concerning appropriate techniques should be addressed to those agencies and/or discussed with the project engineer and owner.
3. The appropriate turbidity and erosion control methodologies selected by the Site Subcontractor for this project should be made following assessment of the plans and project site specific factors and after consultations as needed with the project engineer and appropriate agencies. The Site Subcontractor will be responsible for obtaining any and all necessary permits for such activity; several factors to consider are listed below:
   A. Clay content in excavated materials and/or permeabilities rates
   B. Depth of cut in ponds, trenches, or utility lines
   C. Ambient ground water levels
   D. Actual rainfall amounts and time of year relative to normal rainy season
   E. Proximity to wetlands, water bodies or offsite properties
   F. 'Class' designation of receiving water bodies (i.e., Outstanding Florida Waters, shellfish harvesting areas, etc.)
   G. Density, type, and proximity of upland vegetation to be retained during construction (for use as possible filtration areas)
   H. Fill height relative to natural grade and length and steepness of the proposed slopes
   I. Existing topography and directions of surface flow
   J. Type of equipment used
   K. Project type
   L. Duration of construction activities
   M. Separation distance of onsite ponds
   N. Ambient quality of surface and groundwater
   O. Temporary stockpile locations and heights
4. At the onset of construction, the Site Subcontractor, as the party responsible for implementation of the erosion and sediment control plan, shall assess the above described conditions and factors with respect to relative cost effectiveness and select the appropriate methods of protection. A fairly extensive list of techniques are presented below but it must be stressed that any or all of the following may be necessary to maintain water quality and quantity standards. The construction sequencing should be thought out in advance of initiation to provide adequate protection of water quality.
5. Discharges which exceed 29 N.T.U.'s over the background levels are in violation of state water quality standards. Discharges of water quantities which affect offsite properties or may damage wetlands are also prohibited by regulating agencies.
6. The erosion and turbidity control measures shown hereon are the minimum required for agency approval. Additional control and measures may be required due to the Site Subcontractor's construction sequence & unforeseen weather conditions. Any additional measures deemed necessary by the Site Subcontractor shall be included in the lump sum bid with no extras for materials and labor allowed.
7. Hay bales or silt screens shall be installed prior to land clearing to protect water quality and to identify areas to be protected from clearing activities and maintained for the duration of the project until all soil is stabilized.
8. Floating turbidity barriers shall be in place in flowing systems or in open water lake edges prior to initiation of earthwork and maintained for the duration of the project until all soil is stabilized.
9. No clay material shall be left exposed in any stormwater storage facility. If clay or clay-clays are encountered during stormwater storage excavation, the Site Subcontractor shall notify the Engineer immediately before proceeding with further excavation. If the Engineer of Record has determined that such soils are non-confining and must be excavated to meet permit and design conditions, excavation may proceed after obtaining written authorization from the appropriate governing agency. If said soils are left exposed at the permitted and designed depth, the Site Subcontractor shall over-excavate the pond's bottom and side slopes by a minimum of twelve (12") inches and backfill with clean sands to help prevent suspension of fine particles in the water column.
10. The installation of temporary erosion control barriers shall be coordinated with the construction of the permanent erosion control features to the extent necessary to assure effective and continuous control of erosion and water pollution throughout the life of the construction phase.
11. The type of erosion control barriers used shall be governed by the nature of the construction operation and soil type that will be exposed. Silty and clayey material may require solid sediment barriers to prevent turbid water discharge, while sandy material may need only silt screens or hay bales to prevent erosion. Floating turbidity curtains should generally be used in open water situations. Diversion ditches or swales may be required to prevent turbid stormwater runoff from being discharged to wetlands or other water bodies. It may be necessary to employ a combination of barriers, ditches, and other erosion/turbidity control measures if conditions warrant.
12. Where pumps are to be used to remove turbid waters from construction areas, the water shall be treated prior to discharge to the wetlands. Treatment methods include, for example, turbid water being pumped into grassed swales or appropriate upland vegetated areas (other than upland preservation areas and wetland buffers), sediment basins, or confined by an appropriate enclosure such as turbidity barriers or low berms, and kept confined until turbidity levels meet State Water Quality Standards.
13. The Permittee shall schedule his operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operation, and the duration of exposed, uncompleted construction to the elements shall be as short as practicable. Clearing and grubbing shall be so scheduled and performed such that grading operations can follow immediately thereafter. Grading operations shall be so scheduled and performed that permanent erosion control features can follow immediately thereafter if conditions on the project permit.
14. Water derived from various dewatering methods should be passed through sufficiently wide areas of existing upland vegetation to filter out excess turbidity. If this is not sufficient, the water shall be retained in previously constructed permanent stormwater ponds or else retained in temporary sedimentation basins until the clarity is suitable to allow for its discharge. Plugging the outfalls from completed stormwater ponds may be needed to avoid discharge. However, such situations should be monitored closely to preclude berm failure if water levels rise too high.
15. Water can be transported around the site by the use of internal swales or by pumps and pipes.
16. Sheet flow of newly filled or scraped areas may be controlled or contained by the use of brush barriers, diversion swales, interceptor ditches or low berms. Flow should be directed toward areas where sediments can sufficiently settle out.
17. Exposed soils shall be stabilized as soon as possible, especially slopes leading to wetlands. Stabilization methods include solid sod, seeding and mulching or hydromulching to provide a temporary or permanent grass cover mulch blankets, filter fabrics, etc., can be employed to provide vegetative cover.
18. Energy dissipaters (such as rip rap, a gravel bed, hay bales, etc.) shall be installed at the discharge point of pipes or swales if scouring is observed.
19. Attempt to install roadway curb and gutters as soon as possible to reduce the surface area for erosion to occur.
20. Implement storm drain inlet protection (hay bales or gravel) to limit sedimentation within the stormwater system. Perform inspections and periodic cleaning of sediments which wash out into the streets until all soil is stabilized.
21. Water discharge velocities from impounded areas and temporary sedimentation basins shall be restricted to avoid scouring in receiving areas.
22. If water clarity does not reduce to state standards rapidly enough in holding ponds, it may be possible to use chemical agents such as alum to flocculate or coagulate the sediment particles.
23. Hay bales, silt screens, or gravel beds can be added around the pipe or swale discharge points to help clarify discharges. Spreader swales may help dissipate cloudy water prior to contact with wetlands.
24. All fuel storage areas or other hazardous storage areas shall conform to accepted state or federal criteria for such containment areas.
25. Vehicle or equipment washdown areas will be sufficiently removed from wetlands or offsite areas.
26. Fugitive dust controls (primarily by using water spray trucks) shall be employed as needed to control windborn emissions.
27. If the above controls remain ineffective in precluding release of turbid water, especially during pond or utility line dewatering, then the contractor may be compelled to use a vertical dewatering system such as well points or sock drains to withdraw groundwater which may already be clear enough to allow for direct discharge to wetlands.
28. Ongoing inspections and periodic maintenance by the Site CONTRACTOR/SUBCONTRACTOR shall occur throughout construction as necessary to insure the above methods are working suitably. This may be needed daily, if conditions so warrant. CONTRACTORS are encouraged to obtain and thoroughly review The Florida Development Manual: A Guide to Sound Land and Water Management, which was developed by the State of Florida Department of Environmental Protection in 1988. This provides fairly in-depth discussions of recommended techniques and also provides specific design and technical standards.
29. The contractor will perform daily inspections of all on-site wetlands within the construction area to ensure that water levels within those wetlands are not excessively impounded prior to the time when the permitted control structure or outfall is built. Water levels significantly above normal should be corrected at a frequency that prevents a change in the vegetative character or health of any wetlands.

STREET & DRAINAGE CONSTRUCTION NOTES:

1. Prior to construction, the Contractor shall obtain from the Engineer or Owner a copy of all pertinent permits related to this project. It is the contractor's responsibility to assure that all construction activities are in compliance with the conditions of all permits and approvals. Contractor is also responsible for having his dewatering plan approved by SWFWMD.
2. All construction and workmanship are to be in accordance with CITY Site Development Regulations, and DOT Specifications, latest editions.
3. Grass and mulch, or solid sod, all areas in existing rights- of-way disturbed by construction.
4. Contractor is to coordinate all work within, but not limited to adjacent rights-of-way with utility companies in order to prevent damage to utility lines and the making of adjustments to same, if required.
5. Fill obtained through excavation of detention pond shall be placed on site and adjacent land in accordance with the Drainage and Grading Plan as directed by the Engineer.
6. Sod/Seed & Mulch shall be placed in accordance with applicable City/County standards as well as in accordance with standard and specific conditions in the SWFWMD permit, if applicable. At a minimum this shall include sodding of all pond embankments of a slope 5:1 or greater to the NW line, as well as seeding and mulching of the balance of the pond tracts (including pond berms, excluding the area below NW), sodding at a minimum of 2' from the back of curb, and seeding and mulching of any project area with a slope of 5:1 or steeper.
7. Site clearing shall be performed per the approved construction plans and in accordance with CITY Ordinance. Installation and maintenance of the required barricading and erosion control shall be the responsibility of the site development Contractor unless otherwise designated.
8. Prior to beginning construction, Contractor shall expose all existing utility inverts to which a tie-in is proposed and have Engineer verify the elevation and adequacy of these inverts.
9. All subsurface construction shall comply with the "Trench Safety Act." The Contractor shall insure that the method of trench protection and construction is in compliance with the Occupational Safety and Health Administration (OSHA) regulations.
10. All erosion control installation and installation coordination shall be the responsibility of the Contractor. Be advised that the construction approval and maintenance of the erosion control shall be the sole responsibility of the Site Contractor.

OWNER'S INSTRUCTIONS FOR MAINTENANCE AND INSPECTION OF STORMWATER FACILITIES

The entire stormwater system should be inspected on at least a semi-annual basis. This should include a visual inspection of the pond, pond banks, bleed-down orifices, other control structures, and discharge pipes. These should be kept free of debris and cleaned on a frequency as required to keep them functional, as designed. Mowing/clearing around the structures may be required to prevent vegetation from clogging them.

Wetland plants, if intentionally installed, should be monitored and maintained as required on the approved construction plans. Areas of littoral shelving, which are required to be vegetated but not intentionally planted, should not be cleared of the wetland plants. These areas should have as high a plant coverage as possible, for maximum water filtration.

Sediment sumps, if designed and installed, should have sediment removed as necessary to allow them to efficiently remove suspended particles. They should be re-dug to the original design specifications, if silted in.

For percolation treatment ponds/swales, the owner of the facility shall inspect the pond bottom periodically after heavy rainfall events to check for persistent ponding or pooling of water. All large debris shall be removed and disposed of elsewhere.

If prolonged ponding persists, i.e., in excess of 72 hours, the owner shall rake or scarify the surface. If required, the soil in the area of ponding shall be removed and replaced with clean sandy, non-cohesive soils.

Please check the construction plans to see if written reports on monitoring or plant survival rates are required to be sent to any reviewing agencies. Written notes should always be kept which describe maintenance activities undertaken during each inspection.

Specific conditions of all permits may require additional maintenance activities above and beyond those outlined above. Please be aware of all permit conditions as issued by regulatory agencies to ensure permit compliance.

WATER AND SEWER CONSTRUCTION NOTES:

1. All construction, materials and workmanship are to be in accordance with CITY Water and Wastewater Technical Manual, latest edition.
2. Grass and mulch, or solid sod, all areas in existing rights-of-way disturbed by construction.
3. Contractor is to coordinate all work within, but not limited to, CITY rights-of-way with utility companies in order to prevent damage to utility lines and the making of adjustments to same, if required.
4. Contractor shall verify locations and depths of existing water and sewer lines prior to beginning construction.
5. Contractor shall be responsible for obtaining all road crossing and/or utility permits.
6. The existing underground utility lines shown hereon were taken from documents furnished by others and not field verified, therefore, the engineer cannot guarantee the accuracy of same nor that all are shown. The contractor shall expose all underground utility lines in coordination with the owners to his satisfaction and make adjustments to same in the event there are conflicts with new construction.
7. Adjusting manhole tops to match grade and slope of the finish paving shall be included in the respective contract unit price for manholes, payment of which will constitute full compensation for the construction and completion of the manhole, and no additional payment will be allowed or made for adjusting manhole tops.
8. The locations and elevation of all service lines are to be determined in the field by owner and/or contractor prior to construction of same.
9. All 6" sanitary sewer pipe shall be constructed at a 1.0% minimum slope.
10. All 4" sanitary sewer pipe shall be constructed at a 1.2% minimum slope.
11. All PVC pressure pipe shall have a minimum 36" cover.
12. All PVC water main pressure pipe shall conform to the requirements found in AWWA Standard C-900, latest edition at the time of plan approval. All fittings and required appurtenances shall meet the requirements of the CITY Water and Wastewater Technical Manual, latest edition, unless otherwise noted herein.
13. All water main pipe and fittings installed under this project shall be color coded or marked in accordance with subparagraph 62-555.320(21)(b)3, Florida Administrative Codes, using blue as the predominant color.
14. Sanitary sewers, force mains and storm sewers should cross under water mains. Sanitary sewers, force mains and storm sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the invert of the upper pipe and the crown of the lower pipe whenever possible.
15. When sanitary sewers, force mains and storm sewers must cross a water main with less than 18 inches vertical distance, both the sewer and the water main shall be constructed of ductile iron pipe (DIP) at the crossing. (DIP is not required for storm sewers if it is not available in the size proposed.) Sufficient lengths of DIP must be used to provide a minimum separation of 10 feet between any two joints. All joints on the water main within 20 feet of the crossing must be leak free and mechanically restrained. A minimum vertical clearance of 6 inches must be maintained at the crossing.
16. Where there is no alternative to sewer pipes crossing over a water main, the criteria for minimum separation of 18 inches between lines and 10 feet between joints shall be required.
17. All crossings shall be arranged so that the sewer pipe joints and the water main pipe joints are equidistant from the point of crossing (pipes centered on the crossing).
18. Where a new pipe conflicts with an existing pipe, the new pipe shall be constructed of DIP and the crossing shall be arranged to meet the requirements above.
19. A minimum 10-foot horizontal separation shall be maintained between any type of sewer and water main in parallel installations whenever possible.
20. In cases where it is not possible to maintain a 10-foot horizontal separation between any type of parallel sewer and water main, the water main must be laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer or force main at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer.
21. Where it is not possible to maintain a vertical clearance of 18 inches or a horizontal distance of 10 feet in parallel installations, the water main shall be constructed of DIP and the sewer or the force main shall be constructed of DIP (if available in the size proposed) with a minimum vertical distance of 6 inches. The water main should always be above the sewer. Joints on the water main shall be located as far apart as possible from joints on the sewer or force main (staggered joints).
22. All DIP shall be class 50 or higher. Adequate protective measures against corrosion shall be used.
23. Bends shall be installed in force main and/or water main to avoid unforeseen conflicts in existing or proposed structures. Thrust blocking may be used in lieu of joint restraint as approved by the Engineer of Record.
24. Fire hydrant, gate valve and blow-off valve assemblies shall consist of all pipe, valves, tees, fittings, and any and all other appurtenances comprising a complete, working unit.
25. The location of new fire hydrants shall be identified with a blue reflective pavement marker installed on the roadway. The reflective marker shall be located perpendicular to the hydrant, in the center of the lane closest to the hydrant.

TREE PROTECTION AND TREE REMOVAL

1. Trees to be protected and/or removed are to be determined during construction plan submittal.
2. All trees to remain, where indicated on the returned site plan, must be protected by tree protection barricades meeting the minimum standards shown on the attached diagram. Protective barricades shall remain in place until land alteration and construction activities are completed.
3. Pruning of a Grand Oak, with the exception of minor pruning, is prohibited unless conducted in accordance with the ANSI-A-300 Pruning Standards, and performed by an Arborist certified by the International Society of Arboriculture (ISA) or a Registered Consulting Arborist with the American Society of Consulting Arborists (ASCA). A notarized affidavit affirming an ISA Certified Arborist or an ASCA Registered Consulting Arborist will conduct or provide onsite supervision of the pruning shall be submitted to the County prior to the pruning of a Grand Oak. An ISA Certified Arborist or an ASCA Registered Consulting Arborist contracted by a property owner to prune a Grand Oak shall assume full responsibility for all pruning activities determined in non-compliance with standards specified within the Land Development Code.
4. During land alteration and construction activities, it shall be unlawful to remove vegetation by grubbing or to place soil deposits, debris, solvents, construction material, machinery or other equipment of any kind within the dripline of a tree to remain on the site unless otherwise approved by the County.
5. In order to comply with the CITY Ordinance and to minimize soil erosion, proposed land alteration activities shall not unnecessarily remove existing vegetation and alter existing topography. Adequate protection measures (i.e., hay bales, baffles, sodding and sandbagging) shall be provided, as necessary, to minimize erosion and downstream sedimentation caused by surface water runoff on exposed land surfaces.
6. Any areas subject to erosion must be adequately stabilized with vegetative material that will, within a reasonable time frame, deter soil disturbance. Sodding, plugging, sprigging or seeding is acceptable for stabilization; however, sodding may be required in areas of erosion-prone soils or where slopes are greater than 5:1. Vegetation other than grass is acceptable unless otherwise specified.
7. All tree roots existing within proposed improvement areas and originating from a protected tree shall be severed clean at the limits of the preserved area as identified on the approved construction plans. Utilization of root pruning equipment producing a clean, non-tattered cut is required.
8. All trimming undertaken on a tree protected by the provisions of the Land Development Code shall be in accordance with the American National Standards Institute (ANSI) A-300 Pruning Standards.
9. Minor Pruning: Minor Pruning is the pruning of a tree by the removing branches measured no greater than three inches in diameter at the point of connection to a supporting branch and shall be in accordance to the American National Standards.

ALL TREES SHOULD BE BARRICADED MEETING THE SPECIFICATIONS AS ILLUSTRATED ON THE ATTACHED DIAGRAM.

Protective barriers are used during land alteration and construction activities to protect trees and natural areas to be retained on a site.

Protective barriers must be erected around TREES to be retained within an area where land alteration and construction activities will occur as well as along NATURAL AREAS where such areas are adjacent to permitted land alteration and construction activities. A PROTECTIVE BARRIER must remain in place until the land alteration and construction activities are completed or until commencement of grade finishing and sodding. No ground disturbance must occur within the barricaded area.

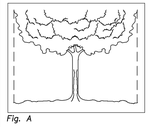


Fig. A

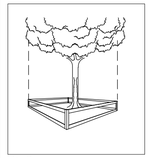


Fig. B

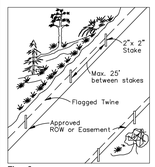


Fig. C

1. *TREES – To restrict access into the area within the DRIPLINE of a tree, a physical structure not less than 3 feet in height, comprised of wood or other suitable material, is placed around the tree at the DRIPLINE, except where land alteration or construction activities are approved within the dripline. See Ord. 87-2, Sec. 4.B.3.m.*
2. *The DRIPLINE of a tree is the imaginary, vertical line that extends downward from the outermost tips of the tree's branches to the ground. Fig. A.*

BARRIER SPECIFICATIONS FOR TREES:

Four corner upright stakes of no less than 2" x 2" lumber connected by horizontal members of no less than 1" x 4" lumber; or upright stakes spaced at 5' intervals of no less 2" x 2" lumber connected by silt screen fabric or material of comparable durability. Fig. B.

1. *NATURAL AREAS – To restrict access into areas where land alteration and construction activities are not authorized, a physical structure not less than 3 feet in height is placed along the perimeter of such areas.*

BARRIER SPECIFICATIONS FOR NATURAL AREAS:

Upright stakes of no less than 2" x 2" lumber spaced no more than 25' apart and connected by twine flagged with plastic surveying tape at regular intervals of 5-10'. Fig. C. Other methods of demarcation will be considered depending upon the characteristics of the site.

WHY A BARRIER

1. *To protect all above ground portions of trees and other significant vegetation from mechanical damage.*
2. *To protect root systems from compaction.*
3. *To provide awareness of protected areas to equipment operators.*

WHY IT WORKS

A tree's chance for survival is greatly enhanced if no construction material, heavy equipment or stockpiling of soil is allowed inside the barrier; only hand labor.

For additional information, contact the Department of Planning and Development Management. Tel.: 272-5920

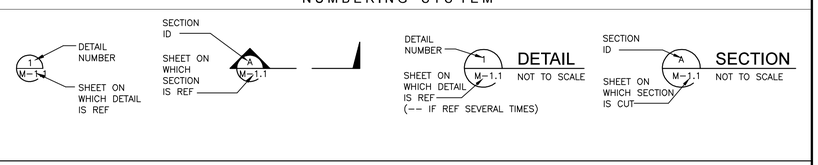
1 / G-2 TREE PROTECTION TYPICAL DETAILS
NTS

CONSTRUCTION SITE WORK TESTING

1. The Contractor is responsible for coordinating applicable testing with the soils engineer. Tests will be required pursuant with the table below. Upon completion of the work, soils Engineer will submit certifications to the Owner's Engineer stating that all requirements have been met.
2. A qualified testing laboratory shall perform all testing necessary to assure compliance of the in place materials as required by these plans and the various agencies. Should any retesting be required due to the failure of any tests to meet the requirements, the Contractor will bear all cost of said retesting.

ITEM	TEST	TEST FREQUENCY
Embankment	Optimum moisture/maximum density	Per soil type
	100% of maximum density as determined by AASHTO T, Method C	One per 500 ft
Utility Trench Backfill and Around Structures	Optimum moisture/maximum density	Per soil type
	100% of maximum density as determined by AASHTO T, Method C	One per 500 ft
Stabilized Subgrade	Optimum moisture/maximum density	Per material type
	98% of maximum density as determined by FM 1-T 180, Method D.	One per 500 ft
	LBR	One per 1000 ft
Base	Optimum moisture/maximum density	Per material type
	98% of maximum density as determined by FM 1-T 180, Method D.	One per 500 ft
	LBR	Per source
Asphaltic Concrete	Aggregate Analysis	One per design
	Design Mix	One per type
	Gradation Stability Flow	One per day
	Properties of in place materials (Marshal)	One per day
	Thickness	One per 500 ft or 1 per street
	95% of Lab Density	One per 500 ft or 1 per street

TYPICAL SECTION & DETAIL NUMBERING SYSTEM



LEGEND & SYMBOLOGY

EXISTING

ABBREVIATIONS:

(C) = CALCULATED
C.B.S. = CONCRETE BLOCK STRUCTURE
C.M.B. = COMMISSIONERS' MINUTES BOOK
CMH = CONFLICT MANHOLE
CONC. = CONCRETE
D.B. = DEED BOOK
F.H. = FIRE HYDRANT
FND. = FOUND
F.P.L. = FLORIDA POWER & LIGHT
I.P. = IRON PIPE
INV. = INVERT
I.R. = IRON ROD
LB = LICENSE BUSINESS
LP = LIGHT POLE
LS = LICENSE SURVEY
(M) = MEASURED
MH = MANHOLE
M.H.W. = MEAN HIGH WATER
MON. = MONUMENT
O.R.B. = OFFICIAL RECORD BOOK
(P) = PLAT
P.B. = PLAT BOOK
P.R.M. = PERMANENT REFERENCE MONUMENT
R.O.W. = RIGHT-OF-WAY
RCP = REINFORCED CONCRETE PIPE
R.P.B. = ROAD PLAT BOOK
(S) = SURVEY
SLP = STOP LIGHT POLE
SMH = SANITARY MANHOLE
SBTMH = SOUTHERN BELL TELEPHONE MANHOLE
STMH = STORM MANHOLE
TB = TRAFFIC BOX
TLP = TRAFFIC LIGHT POLE
TV = TELEVISION
U.E. = UTILITY EASEMENT
WP = WOOD POLE
WUP = WOOD UTILITY POLE
WV = WATER VALVE

LINETYPE	DESCRIPTION
	PROPERTY LINE
	RIGHT-OF-WAY (EXISTING)
	EASEMENT LINE
	WETLAND JURISDICTION LINE
	WETLAND SETBACK LINE
60	MAJOR CONTOUR LINE
59	MINOR CONTOUR LINE
	TOP OF BANK OR TOE OF SLOPE
	EDGE OF PAVEMENT OR CURB
	EDGE OF DIRT/GRAVEL ROAD
WM WM	EXISTING WATER MAIN

FINISHED

SYMBOL	DESCRIPTION
	TOPSOIL
	AGGREGATE OR RIP RAP
	CONCRETE
	ASPHALT
	COMPACTED FILL
	DITCH BOTTOM INLET

SYMBOL	DESCRIPTION
60.0	SPOT ELEVATION
MEG	MATCH EXISTING GRADE
	FLOW ARROW
©	CLEANOUT
	SANITARY MANHOLE
OR	MITERED END SECTION
2.0%	GRADE
4:1	SLOPE

LINETYPE	DESCRIPTION
	CENTERLINE
	SWALE
	WATER SURFACE
60	MAJOR CONTOUR LINE
59	MINOR CONTOUR LINE
	EDGE OF PAVEMENT
	CURB & GUTTER
	STORM SEWER
	C/L ROADWAY
	SANITARY SEWER
WM WM WM	WATER MAIN
RC RC	RECLAIMED WATER MAIN
WF WF	WOOD FENCE
	TREE-BARRICADE
	ROOT PRUNE
	SILT FENCE
	FLOATING TURBIDITY BARRIER

ABBREVIATIONS WITHIN THIS PLAN SET ARE IN ACCORDANCE WITH THE STANDARD ABBREVIATIONS SHOWN IN THE FDOT STANDARD DESIGN INDEX 001 SHEETS 1 AND 2.

REV	DESCRIPTION	BY	DATE
B	RIVIERA BEACH RESUB 1	JAM	11/8/16

Elevations shown within this plan set are based on NATIONAL GEODETIC VERTICAL DATUM (NGVD)

5M CIVIL LLC
12315 Wycliff Pl - Tampa, FL 33626
P:(813) 404-8872 - www.5mcivil.com
FBPR Certificate of Authorization No.: 26929

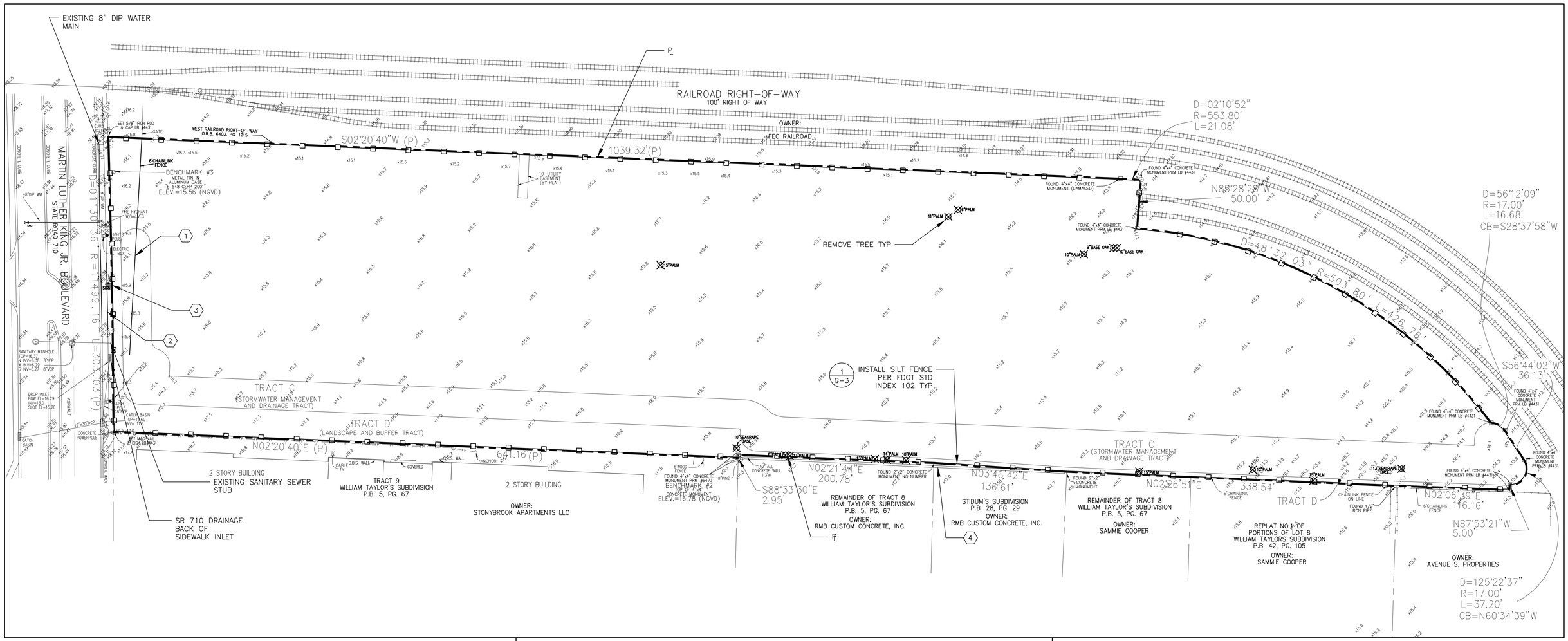
JESUS ANTONIO MERY LICENSE No. 58113 STATE OF FLORIDA PROFESSIONAL ENGINEER

CONSTRUCTION NOTES, LEGEND AND SYMBOLOGY

RIVIERA BEACH DISTRIBUTION FACILITY

ODYSSEY MANUFACTURING CO.

G-2



50 25 0 50 100

1"=50' FULL SIZE
1"=100' 11' X 17'

DEMOLITION LEGEND

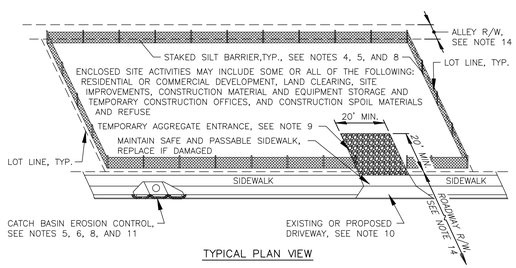
- 1 — KEY NOTE
- SILT FENCE
- TURBIDITY BARRIER
- TREE REMOVAL
- PAVEMENT AND/OR STRUCTURE REMOVAL

CALL 48 HOURS BEFORE YOU DIG
IT'S THE LAW! DIAL 811
811 Know what's below. Call before you dig.
SUNSHINE STATE ONE CALL OF FLORIDA, INC.

DEMOLITION NOTES:

1. CONTRACTOR SHALL MAINTAIN SILT FENCING AND TREE BARRICADES IN PROPER FUNCTIONING CONDITION THROUGHOUT CONSTRUCTION.
2. INSTALL OFFSITE SOIL TRACKING PREVENTION DEVICE AT CONSTRUCTION ACCESS/INGRESS. SEE DETAIL SHEET G-3
3. ALL TRIMMING UNDERTAKEN ON A TREE PROTECTED BY THE PROVISIONS OF THE LAND DEVELOPMENT CODE SHALL BE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A-300 PRUNING STANDARDS.
4. ALL DISTURBED AREAS SHALL BE SODDED UNLESS NOTED OTHERWISE ON THESE PLANS.
5. CONTRACTOR SHALL MAINTAIN TRAFFIC IN ACCORDANCE WITH FDOT TRAFFIC CONTROL STANDARD INDICES 600.

NOTE: NO WETLAND IMPACTS ASSOCIATED WITH THIS PROJECT



TYPICAL PLAN VIEW

1 G-3 SITE DEVELOPMENT AND/OR CONSTRUCTION STAGING SITE EROSION CONTROL DETAIL

NTS

NOTES:

1. NON-CONFORMANCE WITH THE ITEMS LISTED OR SHOWN ON THIS DETAIL MAY RESULT IN A "STOP WORK" ORDER.
2. THE PURPOSE OF THIS DETAIL IS TO ASSIST THE DEVELOPER, BUILDER, AND/OR CONTRACTOR TO MEET THE MINIMUM REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
3. THIS DETAIL IS APPLICABLE FOR ALL CONSTRUCTION SITES AS DESCRIBED ABOVE OF LESS THAN ONE (1) ACRE; THOSE SITES GREATER THAN ONE (1) ACRE ALSO MUST OBTAIN COVERAGE UNDER AN NPDES STORM WATER PERMIT.
4. THE SILT BARRIER SHALL BE INSTALLED ONE FOOT INSIDE THE PROPERTY LINE OR TWO FEET FROM THE SIDEWALK AS SHOWN ABOVE. FOR SILT BARRIER REQUIREMENTS AND INSTALLATION REQUIREMENTS, SEE APPLICABLE DETAIL.
5. INSPECT AND MAINTAIN ALL EROSION CONTROL DEVICES DAILY AND/OR AFTER A RAINFALL.
6. FOR CATCH BASIN FILTER REQUIREMENTS, SEE FDOT STANDARD INDEX 102.
7. EXISTING GRASS VEGETATION SHALL BE MAINTAINED AT A 10 INCH HEIGHT OR LESS
8. ALL SOIL EROSION CONTROL DEVICES MUST REMAIN IN PLACE UNTIL NEW VEGETATION IS ESTABLISHED. ALL DISTURBED AREAS SHALL BE SODDED AFTER FINAL GRADING.
9. TEMPORARY AGGREGATE ENTRANCE SHALL BE A MINIMUM 6" THICK OF STANDARD GRADATION SIZE #1 OR #2 RANGE AS PER FDOT SECTION 901, AND SHALL BE COMPACTED. AGGREGATE SHALL BE QUARTZ OR CRUSHED GRANITE. LIMEROCK, DOLOMITE OR SANDSTONE SHALL NOT BE ACCEPTABLE.
10. IF THERE IS NO EXISTING DRIVEWAY OR AN ALTERNATE INGRESS/EGRESS IS TO BE USED DURING CONSTRUCTION, THE METHOD OF ACCESS SHALL CONFORM TO THE "TEMPORARY AGGREGATE ENTRANCE" AS DESCRIBED ABOVE.
11. REGULARLY REMOVE COLLECTED SEDIMENT AND DEBRIS FROM THE SILT BARRIERS AND GUTTER FLOW LINE.
12. FOR ALL SAND AND SOIL STOCKPILES DUST/EROSION CONTROL MEASURES SHALL BE IMPLEMENTED.
13. KEEP CONSTRUCTION SITE LITTER/DEBRIS, AND LEAKING CONTAINERS IN ORDERLY CONTAINMENT AREAS.
14. SWEEP ENTRANCE AND ADJACENT ROADWAY WEEKLY TO KEEP FREE OF CONSTRUCTION DEBRIS.
15. SWEEP PAVED SURFACES ONLY. DO NOT WASH DOWN UNTIL SITE IS FINISHED.

DEMOLITION KEY NOTES	
1	REMOVE EXISTING CHAIN LINK FENCING.
2	REMOVE EXISTING SIDEWALK AND CURB FOR DRIVEWAY CONSTRUCTION. SEE SHEET C-2.
3	REMOVE AND RESET SIGN.
4	EXISTING CONCRETE WALL SHALL REMAIN UNDISTURBED.

REV	DESCRIPTION	BY	DATE
B	RIVIERA BEACH RESUB 1	JAM	11/8/16

Elevations shown within this plan set are based on NATIONAL GEODETIC VERTICAL DATUM (NGVD)

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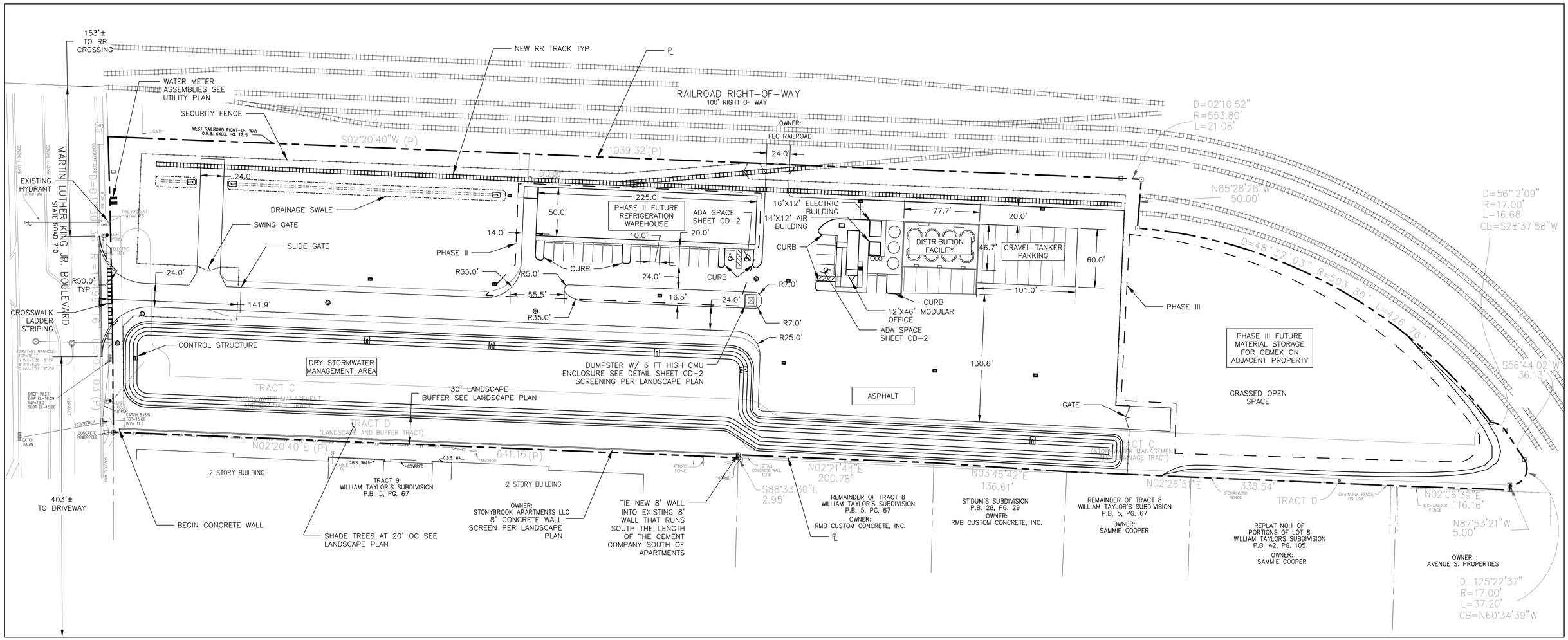
EXISTING CONDITIONS/ DEMOLITION PLAN

RIVIERA BEACH DISTRIBUTION FACILITY

ODYSSEY MANUFACTURING CO.

G-3



50 25 0 50 100

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1"=100' 11' X 17'

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SUNSHINE STATE ONE CALL OF FLORIDA, INC.

NOTE: NO WETLAND IMPACTS ASSOCIATED WITH THIS PROJECT

GENERAL NOTES

1. THE LEGAL DESCRIPTION IS PROVIDED THROUGH RECORDED DEEDS OF PURCHASE.
2. EXISTING FEATURES AND TREES ARE SHOWN PER A FIELD SURVEY PERFORMED BY LIDBERG LAND SURVEYING, INC. FIELD DATE OF JUNE 21, 2016.
3. MECHANICAL EQUIPMENT SHALL BE SCREENED PER CITY OF RIVIERA BEACH LAND DEVELOPMENT CODE.
4. THE PROJECT WILL COMPLY WITH CPTED REGULATIONS.
   - 4.1. Natural Surveillance Strategy. Well lit parking areas.
   - 4.2. Natural Access Control Strategy. Well lit interior/exterior spaces.
   - 4.3. Territorial Reinforcement Strategy. Security system signage.

SITE PLAN DATA

1. LEGAL DESCRIPTION
   TRACTS A, C AND D OF AVENUE S PROPERTIES PLAT, FILED IN PLAT BOOK 105, PAGES 193 THROUGH 195, PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA.
2. BUILDING DATA
   PROPOSED BUILDING AREA = 12,162 SF
   PROPOSED BLDG HEIGHT = 15±
3. ZONING DATA
   PARCEL NO: 56-43-42-32-43-001-0000
   ZONE: IG
4. FLOOD DATA
   THE SUBJECT PROPERTY LIES WITHIN FLOOD ZONE B, PER FLOOD INSURANCE RATE MAP NO. 125142 0003 D DATED SEPTEMBER 30, 1982
5. PARKING DATA
   MANUFACTURING 1 SP/500 SF GFA
   PHASE 1 = 912 SF
   REQUIRED = 912/500 = 2 SP (1 ADA)
   PROVIDED = 6 SP (1 ADA)
   PHASE II (TOTAL BUILDOUT)
   PHASE II = 12162 SF
   REQUIRED = 12162/500 = 24.3 SP
   PROVIDED = 25 SP (3 ADA)
6. EXISTING LAND USE DATA
   PAVEMENT AND CONCRETE = 0 SF
   BUILDINGS = 0 SF
   OPEN SPACE = 390,577 SF
   TOTAL = 390,577 SF = 8.97 AC
7. PLANNED LAND USE DATA
   PAVEMENT AND CONCRETE = 141,000 SF
   BUILDINGS = 12,162 SF
8. UTILITY DATA
   POTABLE: CITY OF RIVIERA BEACH – consists of 2" and 6" service lines with meters and backflow preventors just inside property line.
   SANITARY: CITY OF RIVIERA BEACH – consists of gravity sewer and one 3" force main for process wastewater with meter at property line.
   FIRE: Existing hydrant at roadway and private hydrant within facility.
   SOLID WASTE: Planned dumpster
   ELECTRIC: FP&L overhead electric west side of property line/Underground electric service from west side of property to 350 KVA pad-mount transformer.
9. NO LANDSCAPING ON MLK JR ROADWAY ON NE CORNER OF PROPERTY TO ALLOW ROAD VISIBILITY FOR RAILROAD AT ROAD CROSSING.
10. ALL NON ADA PARKING SPACES ARE 10'X20'. CROSS AISLE IS 24' MINIMUM
11. FENCING/WALL
    - 11.1. 8' tall decorative fencing on the north side of the property and other areas where the fencing is visible from the roadway. Decorative fencing will consist of climb resistant 6063-T6 black anodized aluminum material.
    - 11.2. 6' chained link fence with black vinyl coating w/2 ft barbed bent in on the east and south sides of the property where the fencing is not visible from the roadway.
    - 11.3. 8' wall shall be installed on the west side of the property to tie into existing wall on the west side of the property as shown herein.

REV	DESCRIPTION	BY	DATE
B	RIVIERA BEACH RESUB 1	JAM	11/8/16

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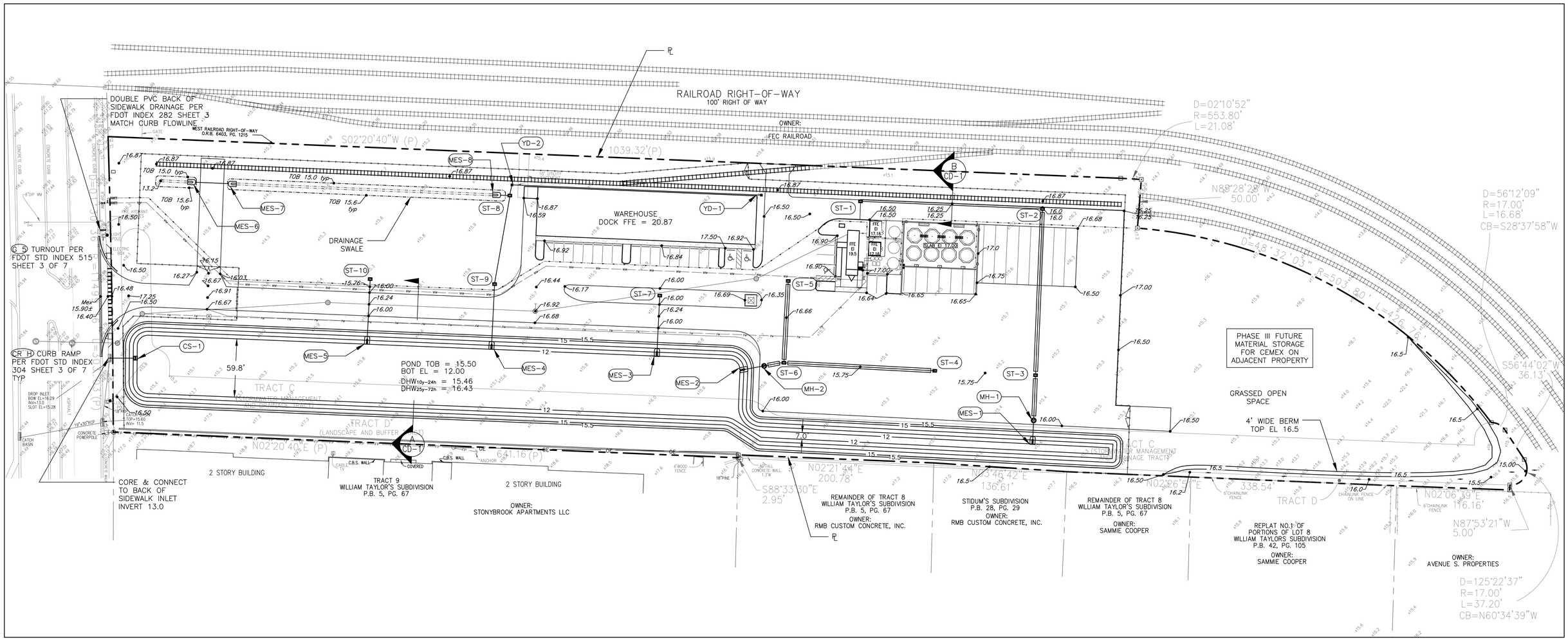
MASTER SITE PLAN

RIVIERA BEACH DISTRIBUTION FACILITY

ODYSSEY MANUFACTURING CO.

C-1



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NOTE: NO WETLAND IMPACTS ASSOCIATED WITH THIS PROJECT

PAVING, GRADING AND DRAINAGE NOTES:

1. UNLESS DESIGNATED OTHERWISE ALL CURB SHOWN SHALL BE TYPE D PER FDOT STD INDEX 300.
2. UNLESS DESIGNATED OTHERWISE ALL SPOT ELEVATIONS REFERENCE FINISHED PVMT ELEVATIONS. BACK OF CURB ELEVATIONS SHALL BE EQUAL TO THE FINISHED PAVEMENT ELEVATION PLUS THE HEIGHT OF THE PLANNED CURB (6").
3. DETECTABLE WARNING SURFACE (DWS) SHALL CONSIST OF RAISED TRUNCATED DOMES IN ACCORDANCE WITH FDOT DESIGN STANDARD INDEX 304. THE DWS SYSTEM SHALL CONSIST OF VANGUARD EPOXY SYSTEM, OR SIMILAR PRODUCT ON THE FDOT QUALIFIED PRODUCT LIST FOR SPECIFICATION SECTION 527. COLOR SHALL BE RED.
4. CENTER OF CONCRETE BUMPER GUARD (WHEEL STOP) SHALL BE SET 30" FROM END OF PARKING STALL.
5. THE SUBJECT PROPERTY LIES WITHIN FLOOD ZONE B, PER FLOOD INSURANCE RATE MAP NO. 125142 0003 D DATED SEPTEMBER 30, 1982.
6. YARD DRAINS SHALL HAVE HEAVY DUTY DROP IN GRATES. DRAINS SHALL HAVE 6" DIAMETER WEEP HOLE IN THE BOTTOM.
7. UNLESS OTHERWISE NOTED CONSTRUCT SIDEWALK IN ACCORDANCE WITH FDOT STD INDEX 310

STORM DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	TYPE	INV (N)	INV (S)	INV (W)	INV (E)	RIM OR GRT EL	DOWNSTREAM PIPE
ST-1	TYPE C DBI FDOT STD INDEX 232	---	12.35	---	---	16.00	15" PERF HDPE W/ SOCK
ST-2	TYPE C DBI FDOT STD INDEX 232	12.25	---	12.25	---	16.00	15" French Drain
ST-3	TYPE C DBI FDOT STD INDEX 232	---	---	12.00	12.00	15.50	15" French Drain
MH-1	TYPE P-8 MANHOLE PER FDOT STD INDEX 200 AND 201	---	---	11.75	12.00	15.96	18" HDPE
MES-1	MES FDOT STD INDEX 272 SHEET 1 OF 6	---	---	11.50	---	---	sump w/ rip rap
ST-4	TYPE C DBI FDOT STD INDEX 232	12.00	---	---	---	15.50	15" French Drain
ST-5	TYPE C DBI FDOT STD INDEX 232	---	---	12.00	---	16.00	15" French Drain
ST-6	TYPE C DBI FDOT STD INDEX 232	11.90	11.90	---	11.90	15.50	15" French Drain
MH-2	TYPE P-8 MANHOLE PER FDOT STD INDEX 200 AND 201	11.60	11.80	---	---	15.90	18" HDPE
MES-2	MES FDOT STD INDEX 272 SHEET 1 OF 6	11.50	---	---	---	---	sump w/ rip rap
ST-7	TYPE C DBI FDOT STD INDEX 232	---	---	11.60	---	15.50	18" HDPE
MES-3	MES FDOT STD INDEX 272 SHEET 1 OF 6	---	---	11.50	---	---	sump w/ rip rap
YD-1	15" DIAMETER YARD DRAIN PER FDOT STD INDEX 282 SHEET 3 OF 3	12.25	---	---	---	16.25	15" PERF HDPE W/ SOCK
YD-2	24" DIAMETER YARD DRAIN PER FDOT STD INDEX 282 SHEET 3 OF 3	---	12.10	12.10	---	16.25	15" HDPE

STORM DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	TYPE	INV (N)	INV (S)	INV (W)	INV (E)	RIM OR GRT EL	DOWNSTREAM PIPE
ST-8	TYPE C DBI FDOT STD INDEX 232	11.70	---	11.70	11.95	15.70	24" RCP
ST-9	TYPE C DBI FDOT STD INDEX 232	---	---	11.60	11.60	15.10	24" RCP
MES-4	MES FDOT STD INDEX 272 SHEET 1 OF 6	---	---	11.50	---	---	sump w/ rip rap
ST-10	TYPE C DBI FDOT STD INDEX 232	---	---	11.60	---	15.10	18" HDPE
MES-5	MES FDOT STD INDEX 272 SHEET 1 OF 6	---	---	11.50	---	---	sump w/ rip rap
MES-6	MES FDOT STD INDEX 272 SHEET 1 OF 6	13.10	---	---	---	---	18" RCP
MES-7	MES FDOT STD INDEX 272 SHEET 1 OF 6	---	13.00	---	---	---	---
MES-8	MES FDOT STD INDEX 272 SHEET 1 OF 6	12.75	---	---	---	---	18" RCP
CS-1	CONTROL STRUCTURE	SEE SHEET CD-1					---

REV	DESCRIPTION	BY	DATE
B	RIVIERA BEACH RESUB 1	JAM	11/8/16

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NAVD = NGVD - 1.55'

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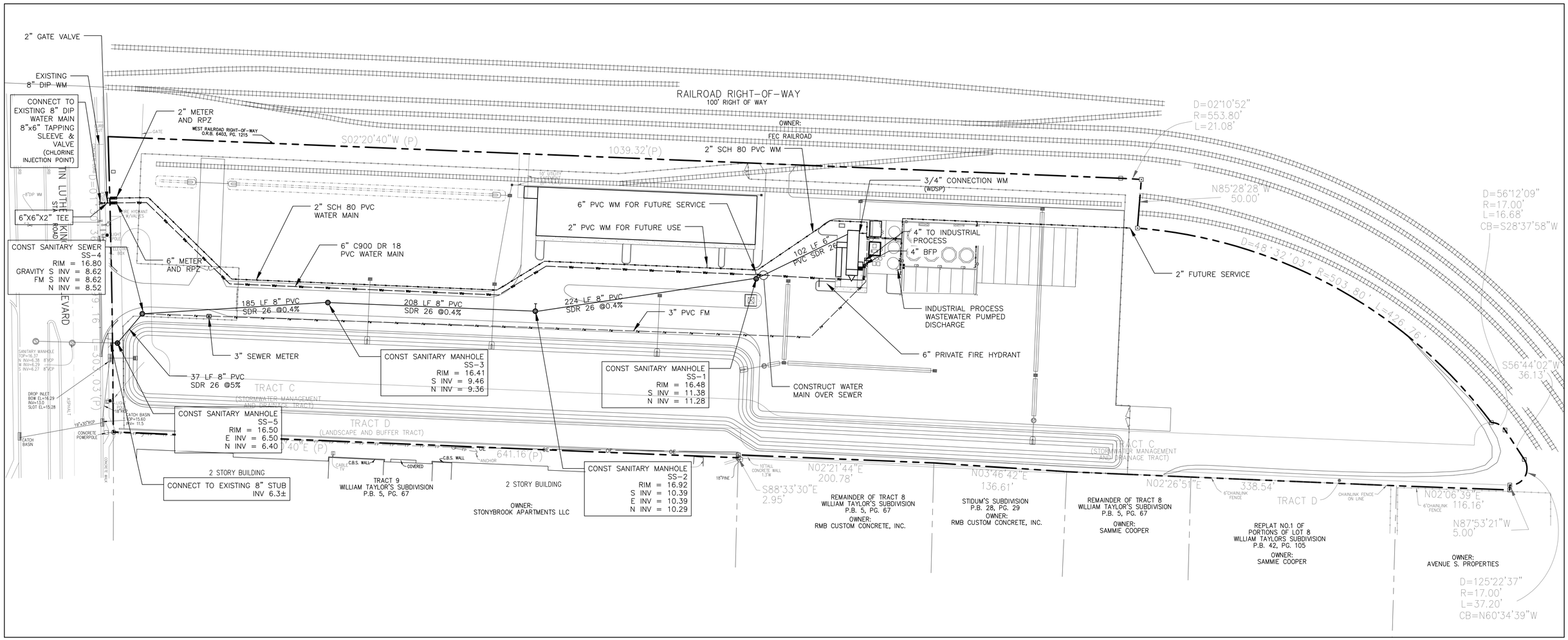
PAVING, GRADING AND DRAINAGE PLAN

RIVIERA BEACH DISTRIBUTION FACILITY

ODYSSEY MANUFACTURING CO.

C-2



50 25 0 50 100

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NOTE: NO WETLAND IMPACTS ASSOCIATED WITH THIS PROJECT

UTILITY NOTES:

1. CONTRACTOR SHALL VERIFY THE LOCATION AND INVERT OF THE DESIGNATED POINT OF CONNECTIONS BEFORE FORCE MAIN, GRAVITY SEWER OR WATER MAIN IS CONSTRUCTED.
2. ALL WATER AND SEWER SYSTEM WORK SHALL CONFORM WITH CITY OF RIVIERA BEACH SPECIFICATIONS, LATEST EDITIONS THEREOF.
3. FIRE FLOW IS PROVIDED BY THE EXISTING FIRE HYDRANT AT MLK AND PROPOSED PRIVATE HYDRANT.
4. CONTRACTOR TO EXPOSE WATER MAIN AND FURNISH TAPPING SLEEVE AND VALVE FOR WATER METER TAP.
5. CONTRACTOR TO COORDINATE WITH CITY OF RIVIERA BEACH UTILITIES DEPT. PRIOR TO THE SELECTION AND ORDERING OF THE WATER METER, BACKFLOW PREVENTION DEVICE ASSEMBLIES AND SEWER METER.
6. ALL NON-METALLIC PIPE WILL BE INSTALLED WITH 2 PAIR, 10 GAUGE, AND COPPER TRACER WIRE.
7. POTABLE: CITY OF RIVIERA BEACH – consists of 2" and 6" service lines with meters and backflow preventors just inside property line.
8. SANITARY: CITY OF RIVIERA BEACH – consists of gravity sewer and one 3" force main for process wastewater with meter at property line.

REV	DESCRIPTION	BY	DATE
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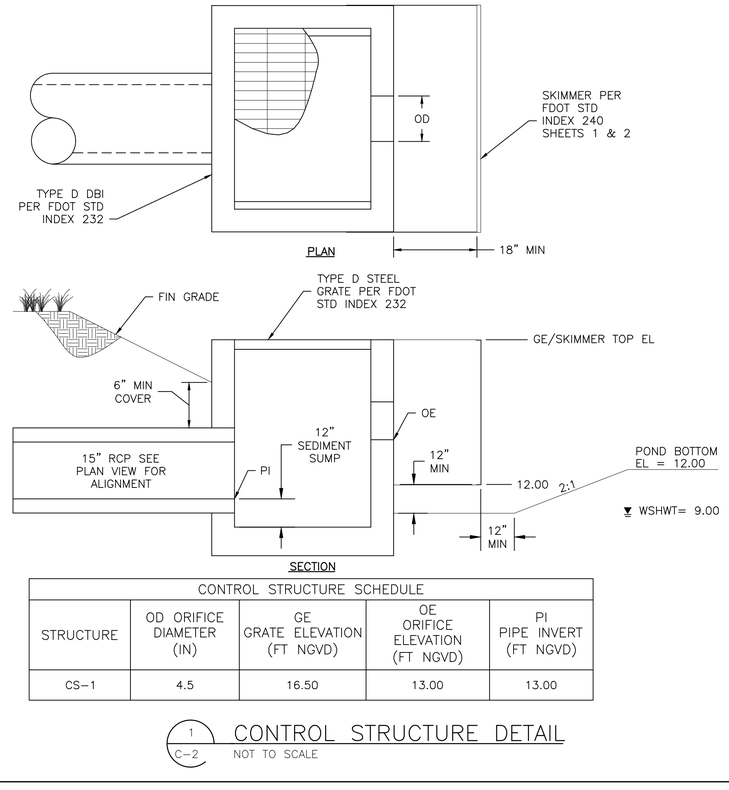
UTILITY PLAN

RIVIERA BEACH DISTRIBUTION FACILITY

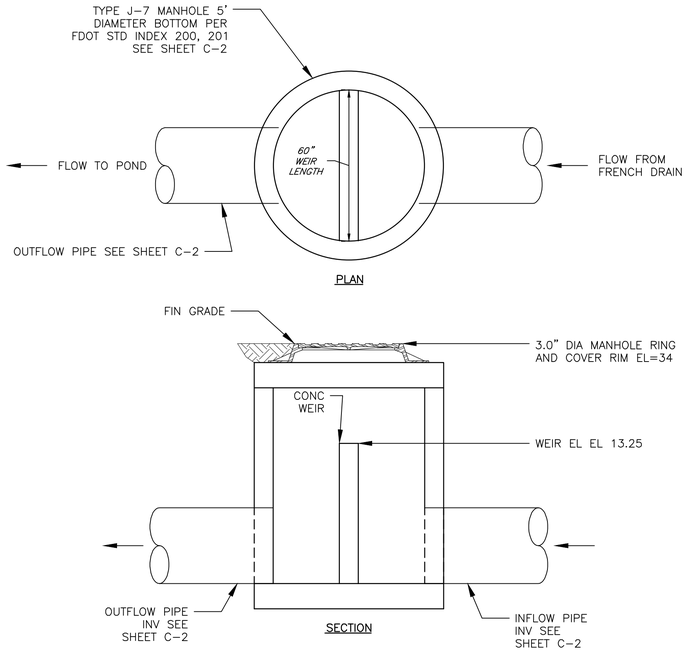
ODYSSEY MANUFACTURING CO.

C-3

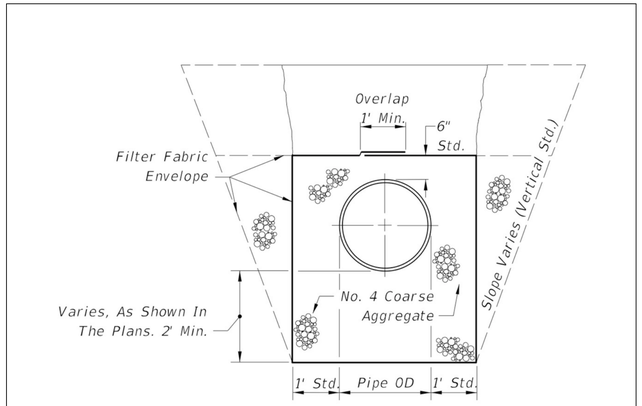


CONTROL STRUCTURE SCHEDULE				
STRUCTURE	OD ORIFICE DIAMETER (IN)	GE GRATE ELEVATION (FT NGVD)	OE ORIFICE ELEVATION (FT NGVD)	PI PIPE INVERT (FT NGVD)
CS-1	4.5	16.50	13.00	13.00

1 C-2 CONTROL STRUCTURE DETAIL
NOT TO SCALE

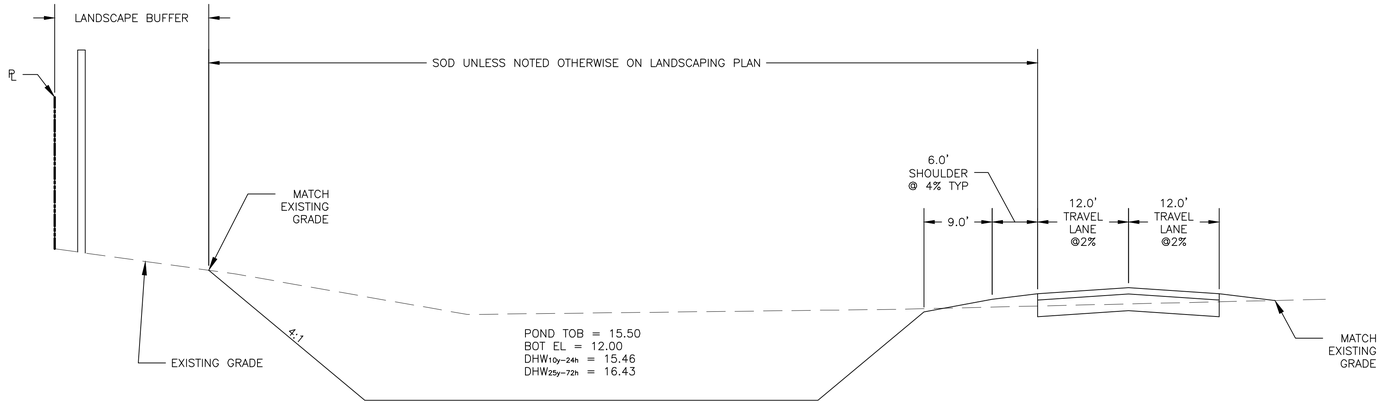


2 C-2 FRENCH DRAIN CONTROL MANHOLES
NOT TO SCALE

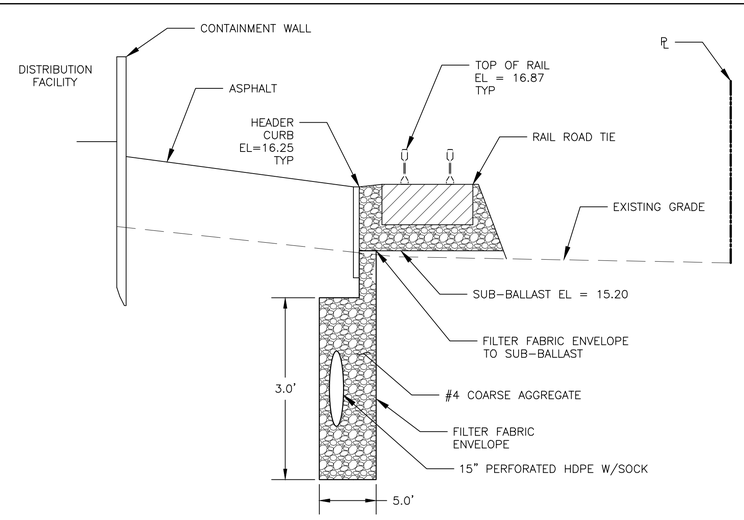


ROUND PIPE SHOWN
STANDARD CROSS SECTION (ENLARGED)

3 C-2 FRENCH DRAIN CROSS SECTION
NOT TO SCALE



A C-2 SECTION A
NOT TO SCALE



B C-2 SEC BB – UNDERDRAIN DETAIL
NOT TO SCALE

REV	DESCRIPTION	BY	DATE
E	RIVIERA BEACH RESUB 1	JAM	11/8/16

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PAVING, GRADING AND DRAINAGE DETAILS

RIVIERA BEACH DISTRIBUTION FACILITY

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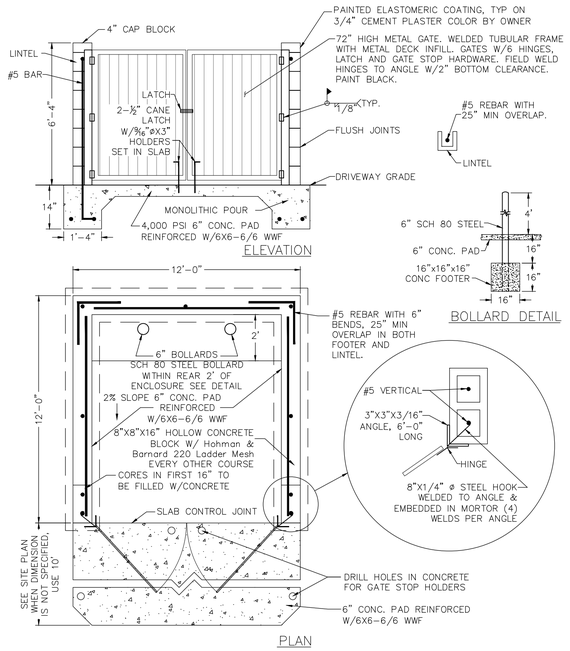
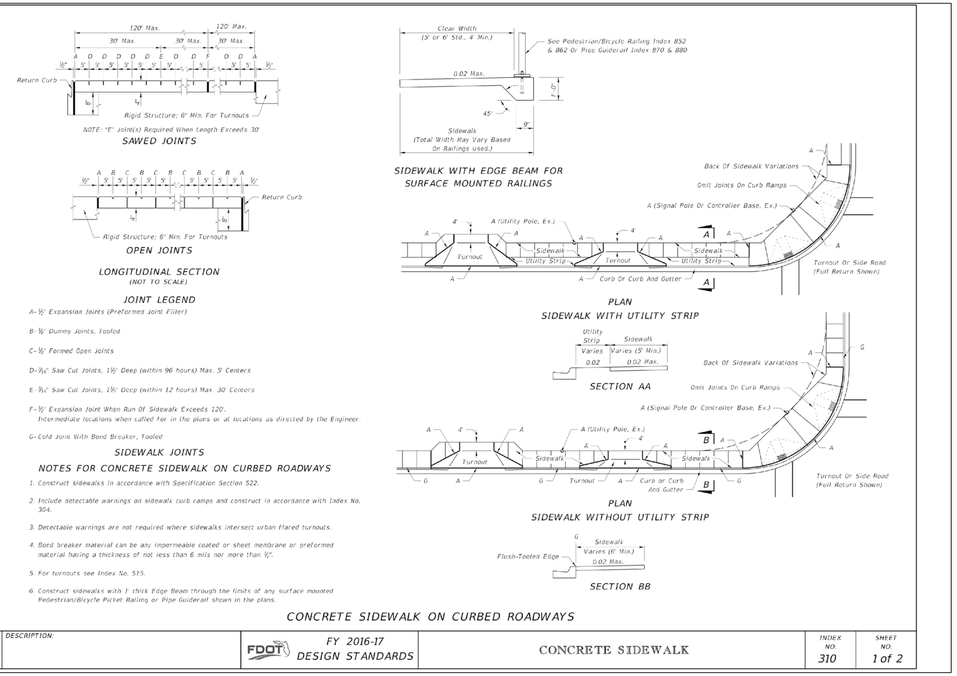
CD-1

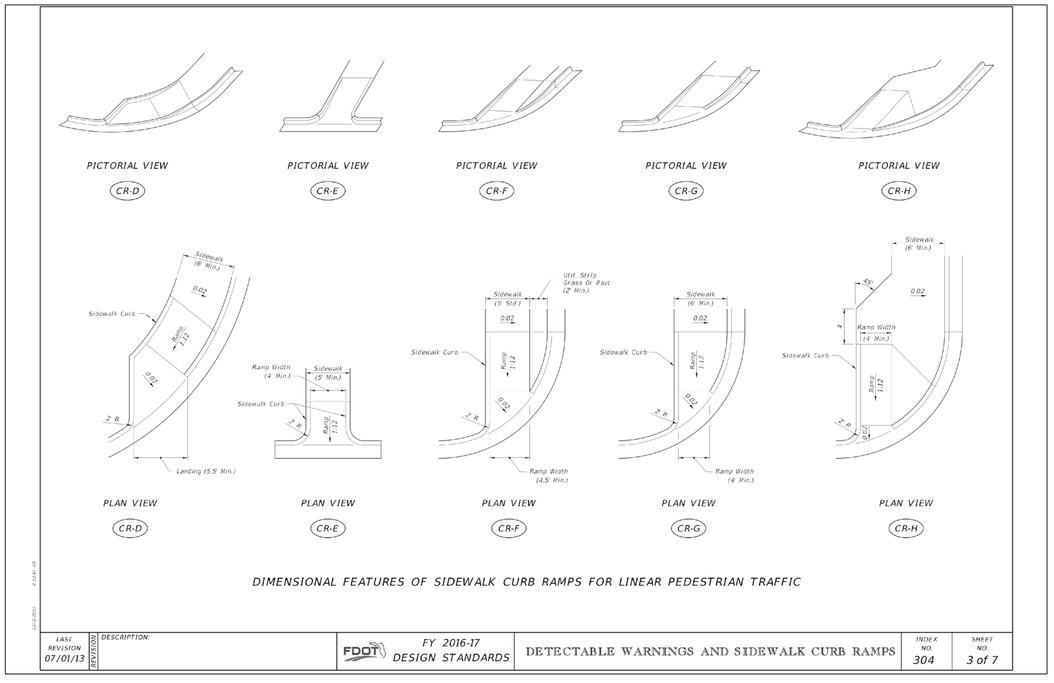


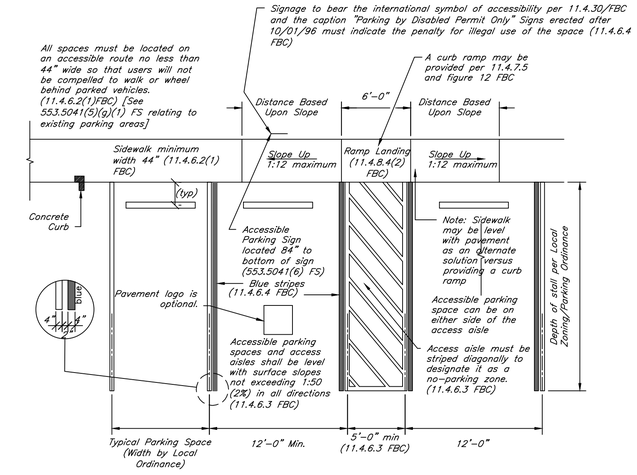
1 C-1 SINGLE DUMPSTER ENCLOSURE
NOT TO SCALE



PAVEMENT DESIGN			
LAYER	C	THICKNESS (IN)	SNI
TYPE SP-12.5 AC	0.44	2.5	1.10
CRUSHED CONCRETE (LBR 100)	0.18	8	1.44
STABILIZED SUBGRADE (LBR 40)	0.08	12	0.96
		TOTAL	3.50

4 C-2 ASPHALT PAVEMENT DESIGN
NOT TO SCALE





NOTES:
1. Citations to FBC are to the Florida Accessibility Code for Building Construction, Chapter 11 of the Florida Building Code, Citations to FS are to the Florida Statutes.

2 C-1 ACCESSIBLE PARKING SPACE DETAIL
NTS

REV	DESCRIPTION	BY	DATE
B	RIVIERA BEACH RESUB 1	JAM	11/8/16

Elevations shown within this plan set are based on NATIONAL GEODETIC VERTICAL DATUM (NGVD)

5M CIVIL LLC
12315 Wycliff Pl - Tampa, FL 33626
P:(813) 404-8872 - www.5mcivil.com
FBPR Certificate of Authorization No.: 26929

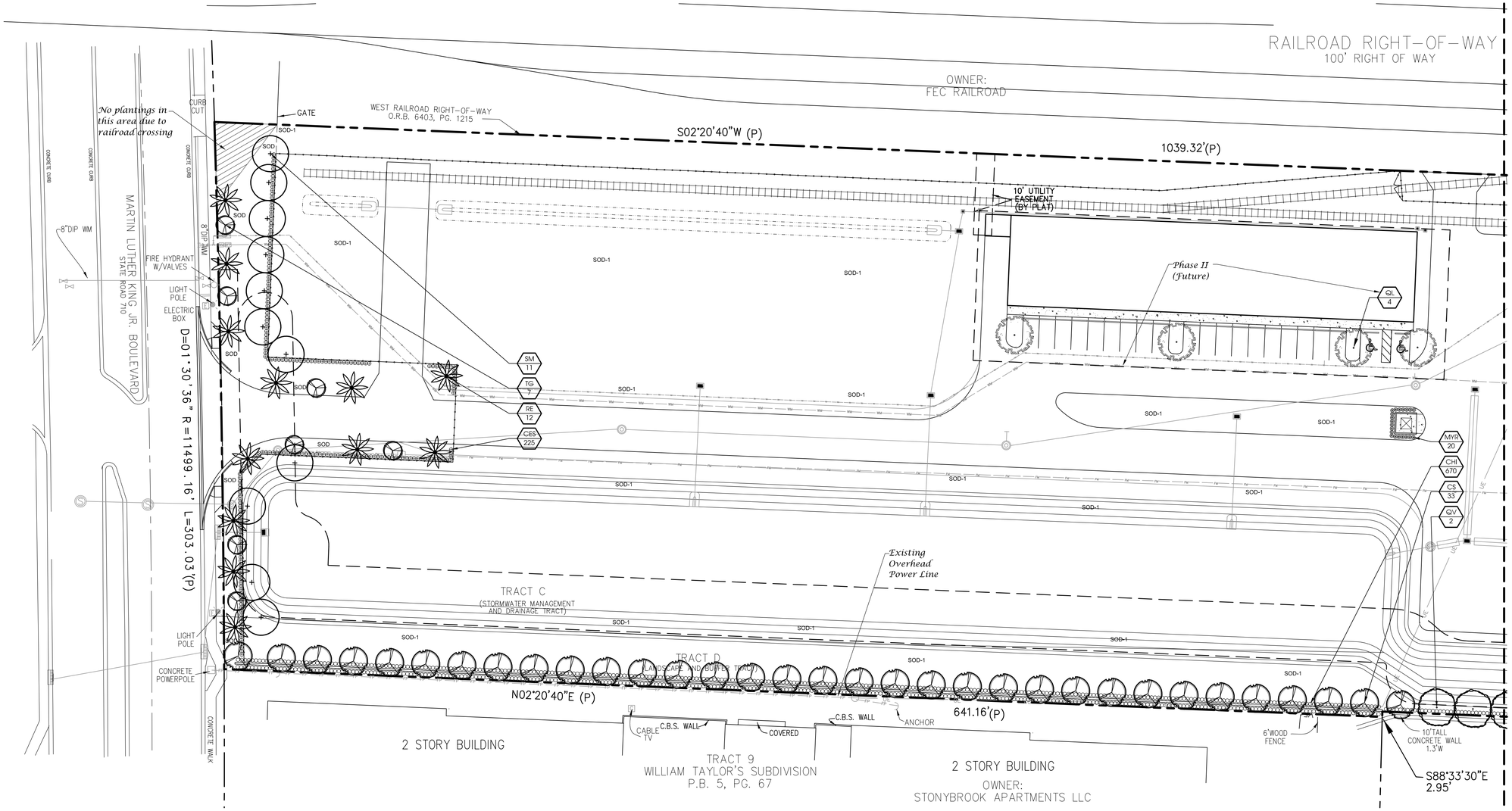
JESUS ANTONIO MERY LICENSE No. 58113 STATE OF FLORIDA PROFESSIONAL ENGINEER

PAVING, GRADING AND DRAINAGE DETAILS

RIVIERA BEACH DISTRIBUTION FACILITY

ODYSSEY MANUFACTURING CO.

CD-2



GENERAL NOTES

1. Contractor to include drainage testing for all trees and palms in bid. If drainage is inadequate and the soil specification in item #8 above is not appropriate for site conditions, the soil mixture shall be revised for this site's conditions. The Contractor shall notify the Owner and Landscape Architect of the poor drainage conditions in writing and written direction will be provided to the contractor of appropriate soil mixture specification to be used.
2. All prohibited, exotic and invasive species shall be removed from the entire area of site prior to issuance of certificate of occupancy.
3 All planting areas and sod to be irrigated to provide 100% coverage and provide adequate irrigation of landscape areas for the first full growing season and continue thereafter only as necessary to maintain required vegetation in good and healthy condition. Shop drawings to be submitted by the irrigation contractor for approval prior to installation.
4. The irrigation system shall be continuously maintained in working order.
5. All required landscape improvements must be inspected and approved by the City of Riveria Beach prior to the issuance of a Certificate of Occupancy.
6. Any new planting proposed on this plan have been designed to meet with the tree planting requirements contained within the FPL document entitled 'Plant the Right Tree in the Right Place.'
7. Planting adjacent to fire hydrants is to have a minimum clear radius of 7.5' as required by the NFPA Uniform Fire Code Florida Edition 18.3.4.1 Hydrants.
8. No substitutions, including plant materials, shall be made without written authorization from the Landscape Architect and the City of Riviera Beach.
9. Contractor shall verify the location of all underground utilities prior to commencing work.
10. Contractor shall be responsible for all permits and associated fees.
11. All landscape islands shall be free of shell rock and construction debris and excavated to a depth of 30 inches or to clean native soils and filled with the specified planting mixture.

LANDSCAPE DATA

SITE AREA: 390,685.07 S.F. (8.96 ACRES)

31-605(a):
(1) REQUIRED = MINIMUM NATIVE PLANTINGS
TREES = 70%
SHRUBS = 70%
TREES PROVIDED = 98
NATIVE = 91 / 93%
SHRUBS PROVIDED = 1,350
NATIVE = 1,350 / 100%

31-605(a):
(2) REQUIRED = MINIMUM 60% SHADE TREES
MINIMUM 10% NATIVE ACCENT TREES
MAXIMUM USE OF PALMS = 20%
TREES PROVIDED = 98
SHADE = 58 / 59%
NATIVE ACCENT TREES PROVIDED = 33
NATIVE ACCENT = 33 / 34%
NOTE: NATIVE ACCENT TREES ARE UTILIZED UNDER THE OVERHEAD UTILITIES TO MEET THE FPL PLANT THE RIGHT TREE IN THE RIGHT PLACE PROGRAM IN LIEU OF SHADE TREES AS REQUIRED
PALMS PROVIDED = 12
TREES = 98 + 12 PALMS = 110 TOTAL TREES

31-605(a):
(3) REQUIRED = MINIMUM 25% ECO FRIENDLY PLANTS
TOTAL PLANTS = 1,460
ECO FRIENDLY = 1,453 / 99.5%

31-605(a):
(7) REQUIRED = MINIMUM SHADE TREE SPECIES (OVER 75) = 6
PROVIDED = 6 SPECIES

31-610(a):
REQUIRED = 10 ' LANDSCAPE STRIP WITH 1 TREE / 20 L.F. AND HEDGE AT 2' O.C.

FRONT (NORTH) BUFFER = 303'
REQUIRED TREES = 303 / 20 = 15
PROVIDED TREES = 23 (11 TREES + 12 PALMS)
REQUIRED SHRUBS = 303 / 2 = 152
PROVIDED SHRUBS = 225

31-618:
REQUIRED = 30 ' LANDSCAPE STRIP WITH 1 TREE / 20 L.F. AND HEDGE AT 2' O.C.

SIDE (WEST) BUFFER = 1,436.47'
REQUIRED TREES = 1,436.47' / 20 = 72
PROVIDED TREES = 72
NOTE: NATIVE ACCENT TREES ARE UTILIZED UNDER THE OVERHEAD UTILITIES TO MEET THE FPL PLANT THE RIGHT TREE IN THE RIGHT PLACE PROGRAM IN LIEU OF SHADE TREES AS REQUIRED

REQUIRED SHRUBS = 1,436.47' / 2 = 718
PROVIDED SHRUBS = 1,035

31-610(c):
(8) MINIMUM 50% PARKING LOT SHADE TREES
REQUIRED = 8 TREES (8 ISLANDS)
PROVIDED = 8 SHADE TREES / 100%

31-610(c):
(6) TERMINAL PARKING LOT ISLANDS
REQUIRED = 1 SHADE TREE PER ISLAND
TREES REQUIRED = 8 ISLANDS = 8 TREES
PROVIDED = 8 TREES

31-600(o):
REQUIRED = 6' PLANTING AROUND PERIMETER OF DUMPSTER
PROVIDED = YES

NOTE:
There is no existing landscaping on the property or any protected flora or fauna.

PLANT LIST

QTY	SYM	SPECIES	COMMON NAME/DESCRIPTION	SIZE	SPACING	REMARKS	31-601(c) 20% MAXIMUM WATER USAGE	31-605(a)(8) 65% MAXIMUM OF ONE SPECIES PERCENT OF SPECIES
SHADE / NATIVE ACCENT TREES								
4	CD*	COCCOLOBA DIVERSIFOLIA	PIGEON PLUM	12' x 5', 2" DBH	A.S.	FULL CANOPY, 6' CLEAR TRUNK	LOW	4%
33	CS*	CONOCARPUS ERECTUS VAR. SERICEUS	SILVER BUTTONWOOD	10' x 5', 1.5" DBH	A.S.	FULL CANOPY, 3' CLEAR TRUNK	LOW	34%
4	QL*	QUERCUS LAURIFOLIA	LAUREL OAK	12' x 5', 2" DBH	A.S.	FULL CANOPY, 6' CLEAR TRUNK	LOW	4%
39	QV*	QUERCUS VIRGINIANA	LIVE OAK	12' x 5', 2" DBH	A.S.	FULL CANOPY, 6' CLEAR TRUNK	LOW	39%
11	SM*	SWIETENIA MAHOGANY	MAHOGANY	12' x 5', 2" DBH	A.S.	FULL CANOPY, 6' CLEAR TRUNK	LOW	11%
7	TG	TIBOUCHINA GRANULOS	TIBOUCHINA STANDARD	8' x 4', 1.5" DBH	A.S.	FULL CANOPY, 3' CLEAR TRUNK	LOW	8%
PALMS								
12	RE*	ROYSTONEA ELATA	FLORIDA ROYAL PALM	12' C.T.	A.S.	MATCHED	LOW	
SHRUBS / GROUND COVERS								
295	CES*	CONOCARPUS ERECTUS VAR. SERICEUS	SILVER BUTTONWOOD	#3, 2' x 2'	2' O.C.	FULL & THICK	LOW	
1,035	CHI*	CHRYSOBALANUS ICACO	COCOPLUM	#3, 2' x 2'	2' O.C.	FULL & THICK	LOW	
20	MYR*	MYRICANTHES FRAGRANS	SIMPSON STOPPER	#15, 6' x 2'	2' O.C.	FULL & THICK	LOW	
	SOD-1	PASPALUM NOTATUM	BAHIA SOD	SEE SPECS			LOW	
	SOD	STENOTAPHRUM SECUNDATUS	ST. AUGUSTINE SOD	SEE SPECS			MEDIUM - HIGH	

*** = FLORIDA NATIVE**

LANDSCAPE PLAN

0 15' 30' 60' 90' 120'

SCALE 1" = 30'

Conceptual Design Group. Inc.
Landscape Architecture - Site Planning
900 East Ocean Boulevard, Suite 130d
Stuart, Florida 34994
(772) 344-2340
LC: 26000198

LAND DEVELOPERS CONSORTIUM
Urban Planning . Engineering
Landscape Architecture
500 Australian Avenue, Suite 518
West Palm Beach, Florida 33401
Office: 561-932-1653
Fax: 561-683-4574

Riviera Beach Distribution Facility
Odyssey Manufacturing Company
City of Riviera Beach, Florida

PROJECT #:	16-0803
DESIGNED	JWS
DATE	8-25-2016
REVISIONS	
	11-22-2016

Conceptual Design Group, Inc.
Landscape Architecture - Site Planning
900 East Ocean Boulevard, Suite 130d
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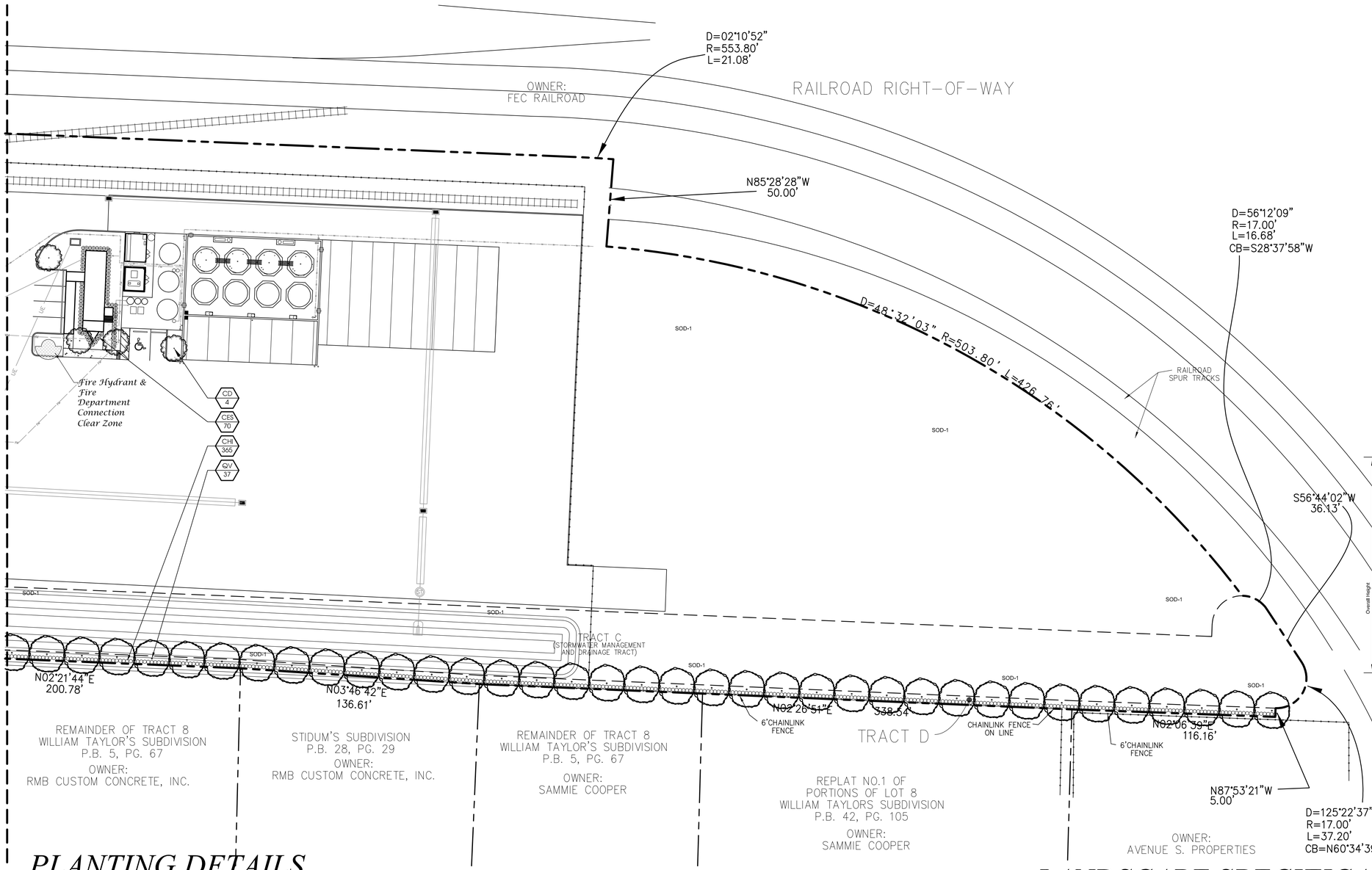
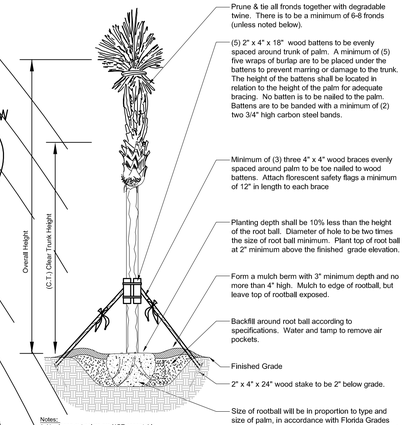
Riviera Beach Distribution Facility
Odyssey Manufacturing Company
City of Riviera Beach, Florida

LANDSCAPE PLAN

0 15' 30' 60' 90' 120'

SCALE 1" = 30'

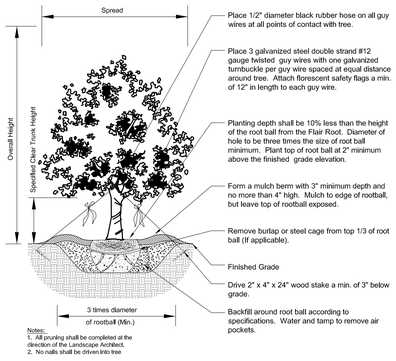




Notes:
1. Hurricane cut palms are NOT acceptable.
2. Palms with burned, marred, or damaged trunks will not be accepted.

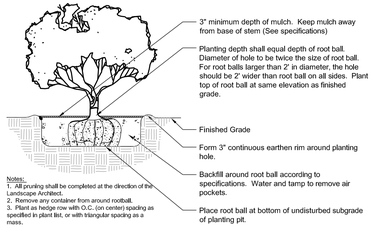
Palm Planting Detail
Not to Scale

PLANTING DETAILS



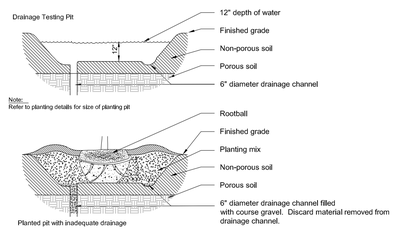
Notes:
1. All pruning shall be completed at the direction of the Landscape Architect.
2. No nails shall be driven into tree

Tree Planting Detail
Not to Scale



Notes:
1. All pruning shall be completed at the direction of the Landscape Architect.
2. Remove any container from around rootball.
3. Plant as hedge row with O.C. (on center) spacing as specified in plant list, or with triangular spacing as a mass.

Shrub Detail
Not to Scale



Note:
Refer to planting details for size of planting pit

Drainage Testing Detail
Not to Scale

LANDSCAPE SPECIFICATIONS

1. All tree and plant material to be Florida No. 1 or better, as classified in "Grades and Standards for Nursery Plants", Part 1 and Part II, State of Florida, Dept. of Agriculture, Tallahassee. All plants not listed in "Grades and Standards for Nursery Plants" shall conform to a Florida No. 1 as to: (1) health and vitality, (2) condition of foliage, (3) root system, (4) freedom from pest or mechanical damage, (5) heavily branched and densely foliated according to the accepted normal shape of the species.
2. Undersizing or substitution of one species or cultivar for another species is a breach of contract and will be "Rejected" at the time of final landscape inspection unless approved by Landscape Architect.
3. Project Warranty: All plant material shall be warranted for a period of one (1) year after date of substantial completion against defects, including death and unsatisfactory growth, except for defects resulting from abuse or damage by others or unusual phenomena or incidents which are beyond the contractor's control.
4. Any and all conditions which the contractor feels will be detrimental to the success of the planting shall be brought to the owner or representative's attention.
5. The contractor shall verify the location of underground utilities prior to commencing work on any project area.
6. Mulch planting areas with 3" layer of Melaleuca, Eucalyptus, or Enviromulch. Cypress Mulch is NOT ACCEPTABLE. Planting beds to receive mulch throughout entire bed area.
7. All plants to be set to ultimate grade. No filling will be permitted around trunks or stems. Mulch to be kept a minimum of 2" away from trunks and stems.
8. Planting trees and shrubs: Excavate hole per planting detail. When plant is set, place additional backfill consisting of a 50% mixture of Peat humus and natural soil around the base and sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Water again after placing final layer of backfill and before installing mulch.
9. Guy and stake trees in 3 directions with galvanized wire, through flexible hose chafing guards, with wooden stake anchors immediately after planting. (See Detail)
10. Trees and shrubs shall be fertilized with a complete natural organic fertilizer with a ratio of approximately 3:1:2 or 3:1:3 (e.g. one labeled 12-4-8). Similar analysis such as 16-4-8 (4:1:2) can also be used. Fertilizers that are slow release, controlled release, sulphur coated or with nitrogen as IBDU or ureaformaldehyde have extended release period. Thirty to fifty percent of the nitrogen should be water insoluble or slow release.

Palms should receive a complete granular fertilizer formulated for palms ("Palm Special") at a rate of 5 to 8 lbs. per palm.

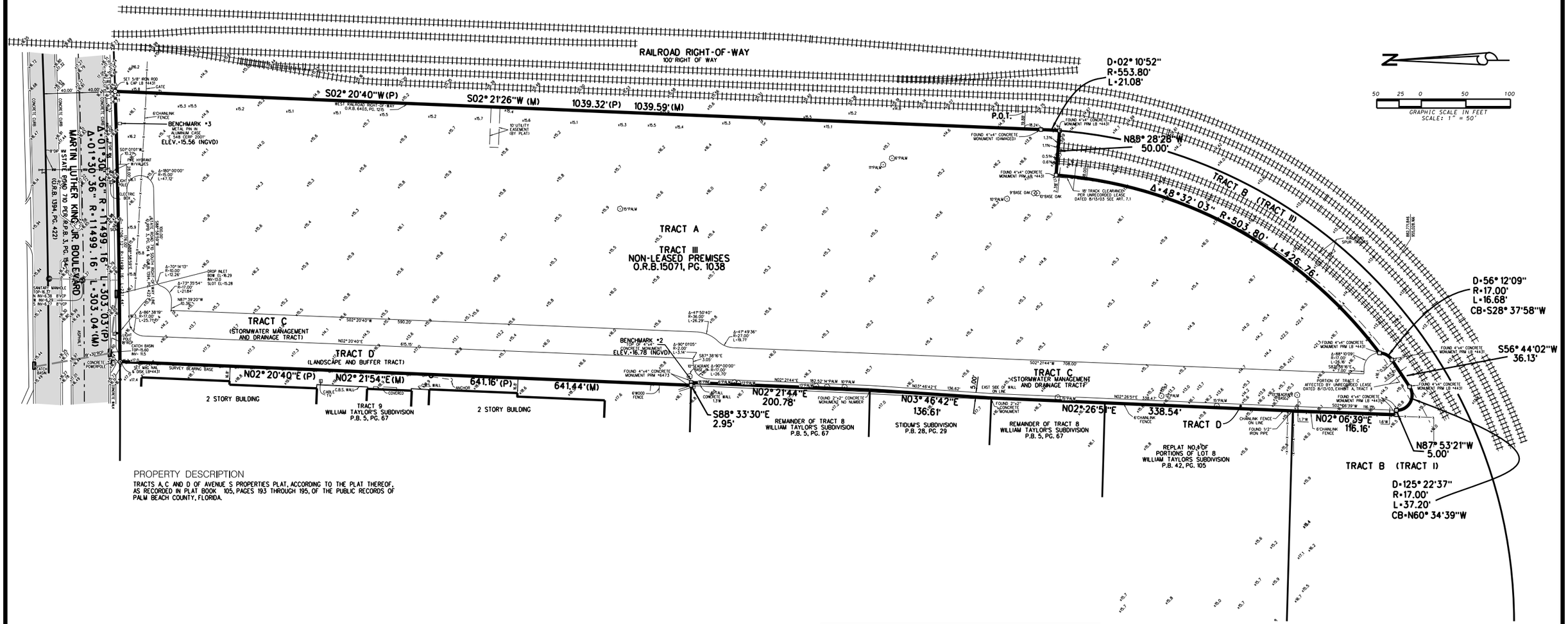
Agriform 20-10-5 twenty-one gram planting tablets may be substituted for granular fertilizer. If utilized, the following rates shall be utilized: Position plant in hole. Backfill halfway up the rootball. Place tablet(s) beside rootball about 1" from root tips. Do not place tablet(s) in bottom of hole.

1 Gallon 1 Tablet
3 Gallon 2 Tablets
25 Gallon & B&B Trees 2 per 1" caliper

11. Maintain trees, shrubs, and other plants by watering, cultivating, and weeding as required for healthy growth. Restore planting saucers and mulch. Tighten and repair stake and guying and reset trees and shrubs to proper grade or vertical position as required. Spray as necessary to keep trees and shrubs free of insects and disease. The contractor shall begin maintenance immediately after planting and shall continue maintenance through final acceptance when Certificate of Occupancy is issued to the General Contractor by Palm Beach County and project is released by the General Contractor to Client.
12. Prune trees and shrubs only to remove damaged branches.
13. Planting Lawns: Provide clean, strongly rooted, uniformly sized strips of Stenotaphrom secundatus - St. Augustine "Floritam" sod (unless otherwise noted in Plant List), machine stripped not more than 24 hours prior to laying. Grade and roll prepared lawn surface. Water thoroughly but not to create muddy soil conditions. Lay sod strips with tight joints, roll or tamp lightly, and water thoroughly.
14. Maintain positive drainage, no planting is to block drainage.
15. Drainage Testing
Prior to planting of trees, palms, and specimen material, each planting pit shall be tested in the following manner to verify adequate drainage.
A) Dig each planting pit to the minimum specified size.
B) Fill the planting pit with (12") twelve inches of water. If the water level in the planting pit drops (4") four or more inches within (4) four hours, the drainage is sufficient and a drainage channel is not required. If the water level drops less than (4") four inches within the (4) four hour period, then a drainage channel is required.
C) When a drainage channel is required, the drainage channel must extend down through the non porous soil and into porous soil. (See Drainage Testing Detail)
D) Discard all material removed from the drainage channel.
E) When backfilling the planting pit, add course gravel to the drainage channel. Also, care must be taken to keep the consistency of the soil mix the same throughout the planting pit.

PROJECT #:	16-0803
DESIGNED	JWS
DATE	8-25-2016
REVISIONS	
	11-22-2016

SHEET 2 OF 2



PROPERTY DESCRIPTION

TRACTS A,C AND D OF AVENUE S PROPERTIES PLAT, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 105, PAGES 193 THROUGH 195, OF THE PUBLIC RECORDS OF PALM BEACH COUNTY, FLORIDA.

SURVEY REPORT

1. THIS IS A BOUNDARY SURVEY AS DEFINED IN CHAPTER 5J-17.050, FLORIDA ADMINISTRATIVE CODE.
2. SURVEY BASED ON THE PLAT OF AVENUE S PROPERTIES.
3. LEGAL DESCRIPTION WAS PREPARED BY LIDBERG LAND SURVEYING, INC.
4. BEARING BASIS: N02° 20'40"E ALONG THE WEST LINE OF TRACT D
5. THE SUBJECT PROPERTY LIES WITHIN FLOOD ZONE B, PER FLOOD INSURANCE RATE MAP NO. 125142 0003 D DATED SEPTEMBER 30, 1982
6. TOTAL AREA = 390,557 SQUARE FEET, MORE OR LESS.
7. EASEMENTS AND/OR RESTRICTIONS SHOWN ON THIS SURVEY PER OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY TITLE COMMITMENT FUND FILE NO. 361362 EFFECTIVE DATE SEPTEMBER 5, 2016 @11:00 P.M.
8. THIS SURVEY FALLS WITHIN THE SUBURBAN CATEGORY AS CLASSIFIED IN CHAPTER 5J-17.051, FLORIDA ADMINISTRATIVE CODE. ALL FIELD-MEASURED CONTROL MEASUREMENTS EXCEEDED THE ACCURACY REQUIREMENTS FOR THIS CLASSIFICATION.
9. ELEVATIONS SHOWN ARE BASED ON N.G.V.D. OF 1929
10. THIS SURVEY IS PREPARED ONLY FOR THE PARTIES LISTED BELOW AND IS NOT ASSIGNABLE.
    PREPARED FOR:
    ODYSSEY MANUFACTURING CO.
    MORAITIS COFAR KARNEY AND MORAITIS
    OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
    BANK OF AMERICA, N.A.
11.
    THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES NO ITEMS OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON JUNE 21, 2016 .

LIDBERG LAND SURVEYING, INC.

DATE OF SURVEY: JUNE 21, 2016

BY: _____
DAVID C. LIDBERG
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATE No. 3613

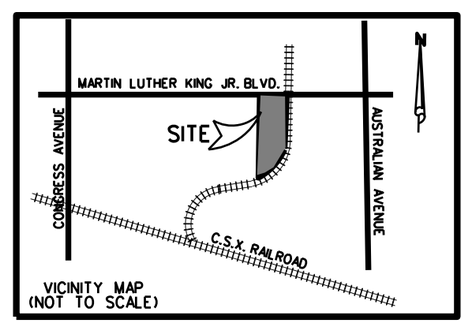
ABBREVIATIONS:
(C) = CALCULATED
C.B.S. = CONCRETE BLOCK STRUCTURE
C.M.B. = COMMISSIONERS' MINUTES BOOK
CMH = CONFLICT MANHOLE
C.O.C. = CLEAN OUT
CORR. DEED BOOK
F.H. = FIRE HYDRANT
FND. = FOUND
F.P.L. = FLORIDA POWER & LIGHT
I.P. = IRON PIPE
INV. = INVERT
I.R. = IRON ROD
L.B. = LICENSE BUSINESS
L.P. = LIGHT POLE
L.S. = LICENSED SURVEY
(M) = MEASURED
MH = MANHOLE
M.H.W. = MEAN HIGH WATER
MON. = MONUMENT
O.R.B. = OFFICIAL RECORD BOOK
(P) = PLAT
P.B. = PLAT BOOK
P.R.M. = PERMANENT REFERENCE MONUMENT
R/W = RIGHT-OF-WAY
RCP = REINFORCED CONCRETE PIPE
R.P.B. = ROAD PLAT BOOK
(S) = SURVEY
SLP = STOP LIGHT POLE
SMH = SANITARY MANHOLE
SBTMH = SOUTHERN BELL TELEPHONE MANHOLE
STMH = STORM MANHOLE
TB = TRAFFIC BOX
TLP = TRAFFIC LIGHT POLE
TLV = TELEVISION
U.E. = UTILITY EASEMENT
WP = WOOD POLE
WUP = WOOD UTILITY POLE
WV = WATER VALVE

AFFECTS PROPERTY AS SHOWN	AFFECTS PROPERTY, NOT PLOTTABLE	DOES NOT AFFECT PROPERTY	OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY TITLE COMMITMENT FUND FILE NO. 361362
●			EX. 5) PLAT BOOK 105, PAGES 193-195
		●	EX. 6) PLAT BOOK 27, PAGE 42
		●	EX. 7) PLAT BOOK 5, PAGE 67
●			EX. 8) O.R.B. 15701, PG. 1038

ZONING CODE SECTION 31-381 PERMITTED USES

(1) ANY USE PERMITTED IN THE IL DISTRICTS.
(2) MANUFACTURING OF ANY PRODUCT EXCEPT THOSE ENUMERATED AS PROHIBITED USES.
(3) OUTDOOR DRIVE-IN THEATERS.
(4) PUBLIC UTILITY STRUCTURES.
(5) RAILROAD SWITCHING AND MAKE-UP YARDS.
(6) PETROLEUM STORAGE BUT NOT IN EXCESS OF 50,000 GALLONS.
(7) LIQUID GAS STORAGE NOT IN EXCESS OF 15,000 GALLONS.
(8) ANY CUSTOMARY ACCESSORY USE TO ALL ABOVE FACILITIES.
(9) TEMPORARY LABOR EMPLOYMENT OFFICE.
(10) PAWN SHOP.

CONVERSION FROM NAVD 88 TO NGVD 29 ADD 1.553



DATE:	REVISIONS:	BY:
09/26/16	ADD TITLE INFORMATION 05-146-415	L.J.C.
07/20/16	ADD ELEVATIONS & TREE LOCATIONS 05-146-105A F.B. 700/13	K.F. L.J.C.
06/21/16	UPDATE SURVEY 05-146-104A F.B. 698/59 NOTES FILED	K.F. L.J.C.
02/21/07	ADD TOPOGRAPHY 05-146-105 F.B. 536/46 B.D.	L.J.C.
10/07/05	ADD ALTA REQUIREMENTS	L.J.C.

LIDBERG LAND SURVEYING, INC.
LB4431
675 West Indiantown Road, Suite 200,
Jupiter, Florida 33458 TEL: 561-746-8454

ALTA /NSPS LAND TITLE SURVEY
TRACTS A,C,& D, AVENUE S PROPERTIES
PREPARED FOR:
ODYSSEY MANUFACTURING CO.

CAD. K:\UST \ 324243 \ 105-193 \ 05-146100 \ 05-146100.DGN			
REF.			
FLD. B.D.	FB. PG.	JOB	05-146-100
OFF. L.J.C.	473 40	DATE	09/22/05
CKD. D.C.L.	SHEET 1 OF 1	DWG.	D05-146

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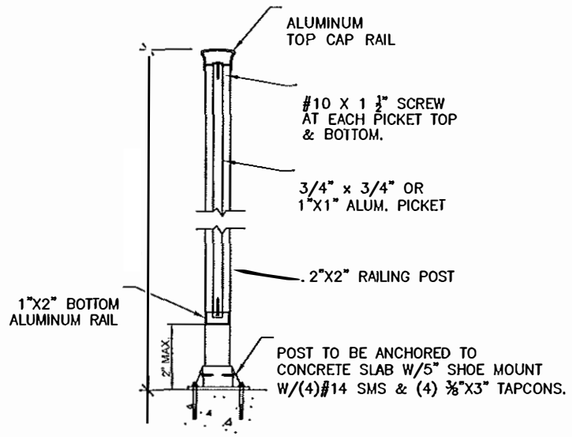

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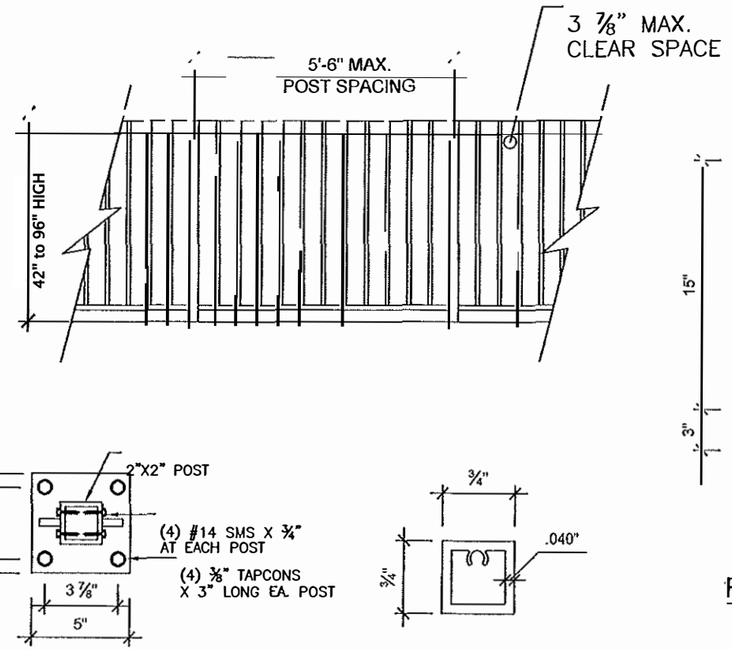
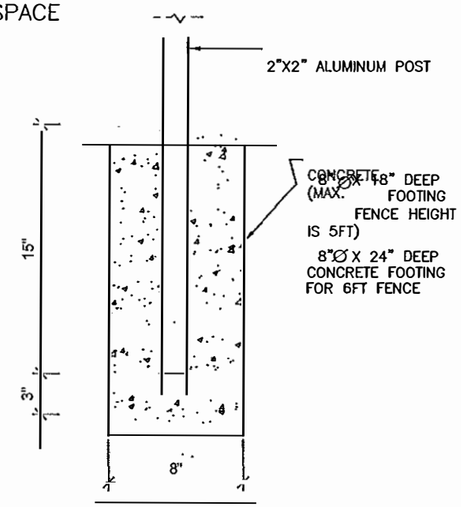
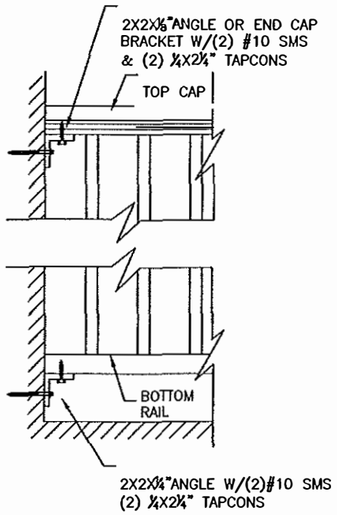


TOP VIEW

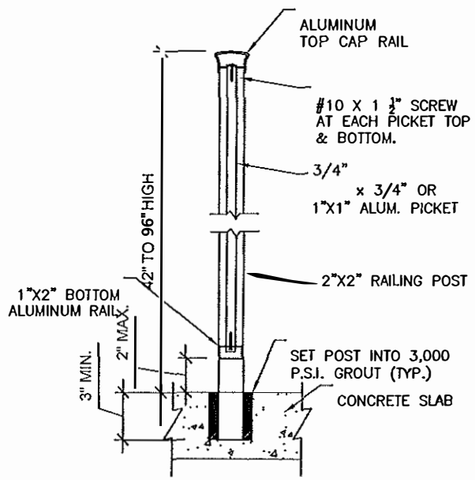
3/4" PICKET



FOOTING DETAIL
FOR FENCING



WALL CONNECTION



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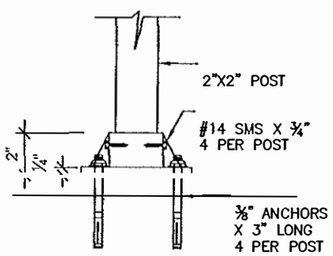
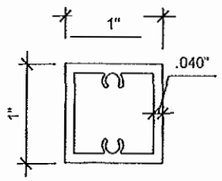
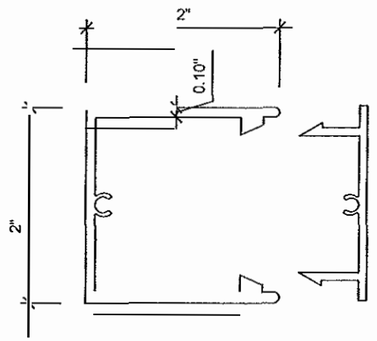


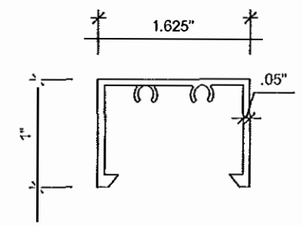
ELEVATION



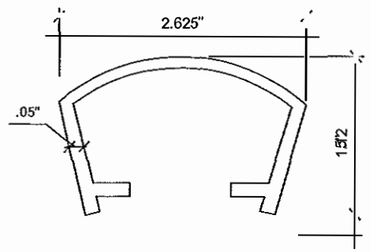
~~1" PICKET~~



2"X2" RAILING POST



BOTTOM RAIL



TOP CAP

- 170 MPH, Exposure "C"
- Aluminum to be alloy 6063-T6
- Footing concrete compressive strength shall be min 2,500 P.S.I in 28 days
- All gates to be self closing and self latching, Locking device shall not be less than 54" from the bottom of gate and open owtward. On 4ft high gate, use an approved child safety lock.
- This design complies with F.B.C. 2014 5th Edition & ASCE 7-10

Engineer Seal:

Date:

MYOUNGHO KIM, P.E. FL Reg.# 62565
Baccarat Dr. Coopercity, FL 33026
TEL: 954-559-7228 FAX: 305-816-5970

ODYSSEY MANUFACTURING

RIVIERA BEACH

BLEACH PROCESSING FACILITY

UNADDRESSED PARCEL
PARCEL #: 56434232430010000
DR. MARTIN LUTHER LING JR BLVD
RIVIERA BEACH, FL.

FOR REVIEW ONLY
NOT APPROVED FOR
CONSTRUCTION

ENGINEERED ELECTRIC SERVICES, LLC
520 Prairie Industrial PKWY, Mulberry, FL. 33860
OFFICE: (863) 425-2698 FAX: (863) 425-5187

DATE	BY	NO.	REVISION DESCRIPTION

John Leedy, P.E.
License # 45924
DRAWING INVALID UNLESS DATED, SIGNED & SEALED BY LICENSED ENGINEER

ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E. | NOVEMBER 10, 2016
DWG NO.: 50-037900 | SCALE: None

SHEET E1

General Work Scope

Odyssey Manufacturing is building a new bleach processing plant. A new service rated MCC, transformer and distribution panel will be installed to provide power to the processes and plant lighting. Provision for future expansion is considered in the electrical power plans. An office trailer will installed at a future date and is not considered in the plans.

The owner is designing and providing the process controls and components. Site lighting, not including the plant itself, will be designed and provided by TECO.

Project General Notes

1. All work is to be closely coordinated with the Owner and Utility to ensure electrical service interruptions are kept to a minimum and are scheduled for mutually agreed times and durations.
2. The prints do not detail the status of the existing service and other panels providing power to the existing facility equipment.
3. All work to be done in a professional workman like manner for an industrial/commercial environment, as indicated in the National Electrical Installation Standards, NEIS, published by NECA and in accordance with the NFPA 70 (2011 NEC), and the latest federal, state and local codes and ordinances. NECA Publications are available on line at <http://www.neca-neis.org/>.
4. All testing of cables, transformers, circuit breakers and control must be performed in accordance with NETA ATS.
5. All materials and components must be new, except as indicated otherwise.
6. Prints do not purport to indicate exact layout and installation methods. Field verify all dimensions, enclosures, conduit, wire, etc. and make appropriate decisions as to the best method of installation and support, consistent with NEIS Standards.
7. All bidders must visit the site and become familiar with current conditions. Submit all questions in writing to the Engineer for clarification.
8. Contractor to have a Qualified Construction Manger on the job to ensure complete compliance with plans and specifications.
9. Prior to pulling wire in conduit or covering underground duct banks an inspection is needed by the City/County. Provide advanced notice.
10. Any changes required due to contractors failure to meet the NEIS, 2011 NEC, state, federal and local codes and ordinances will be repaired/replaced at the contractors expense to the satisfaction of the authority having jurisdiction and/or the Engineer, without any additional expense to Owner or the Engineer.
11. Contractor is to identify to the Owner any unforeseen deficiencies with the existing installation (as-found) prior to performing any corrective work. All change orders must be submitted in writing to the Owner before any work is performed. No work is to be performed without written authorization from the Owner and/or the General Contractor.
12. Exact layout of equipment and devices to be approved by the Engineer prior to installation that differ from plans and specifications. Contractor to submit 3 copies of submittals for all layouts, switchgear, panel boards, distribution panels, wire, conduit, lugs, heat shrink tubing, poles, hardware, switches, disconnects, panels, breakers, splices, enclosures, TVSS and other items provided by the Contractor for Owners review and approval. Submittals shall have "arrows" marking the exact model, number and any accessories for each item. Do not install any items without approved, returned submittals.
13. Contractor to verify phasing and voltage of all panels and check phasing prior to energizing any equipment. Also, check the main and sub panels, note and/or correct the current imbalance between phases.
14. Any manufacturer part number referenced in the specifications or drawings, may be replaced by equal (unless specified "use no equal"), subject to review and approval through submittal process.
15. Contractor to properly dispose of all debris to the satisfaction of the customer and provide certified manifest documentation that the debris was disposed in accordance with all local, state and federal regulations.
16. When dissimilar metals are connected together, use an approved connector designed for joining cables of different materials. Use Penetrox or other approved anti-oxidizing compound as required.
17. All 600 volt power cables shall be tested at 1000 VDC to check for paths to ground and paths between cables contained within each conduit. Documentation of testing shall be provided to the Owner for review, prior to energizing any cable.
18. If any work is performed on energized equipment, the contractor shall show proof of training and is required to follow NFPA 70E - Standard for Electrical Safety in the Workplace. Paying special attention to the requirements of wearing proper Personal Protective Equipment (PPE) when working on or near energized electrical equipment. PPE includes but is not limited to 100% cotton under wear, 100% cotton clothing, arc rated (AR) clothing, AR hood and face shield, gloves, and boots. See Article 130 of the latest edition of the NFPA 70E for more details.
19. Contractor to locate all underground utilities using a locating service as needed.
20. Color code of wires shall be as follows A/B/C:

208/240 volt, 3 phase	Black/Red/Blue
480 volt, 3 phase	Brown/Orange/Yellow
Medium voltage, 3 phase	Red/White/Blue

21. All electrical equipment is to be marked with the device identification, Fed From: (and Feed To: if applicable), on plastic engraved self adhesive labels. See following examples:

Fed From Panel LP-1, Ckt: 12 Fed From MDP, Ckt: 3

22. All essential system and fire alarm conduits are to be spot painted within 6 inches of termination and every 10 feet using the following color code (or one approved by the Owner and Engineer):

Purple:	Essential Distribution no listed herein
Yellow:	Life Safety Branch
Orange:	Critical Branch
Green:	Equipment Branch
Red:	Fire Alarm System

ENGINEERED ELECTRIC SERVICES, LLC
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DATE	BY	NO.	REVISION DESCRIPTION

John Leedy, P.E.
License # 45924
DRAWING INVALID UNLESS DATED, SIGNED & SEALED BY LICENSED ENGINEER

WORKSCOPE AND GENEAL SPECIFICATIONS
ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E. | NOVEMBER 10, 2016
DWG NO.: 50-037900 | SCALE: None

SHEET E2

LIGHTING SYMBOLS

- RECESSED FLUORESCENT LIGHTING FIXTURE
- RECESSED FLUORESCENT LIGHTING FIXTURE ON NIGHT LIGHTING/EMERGENCY CIRCUIT
- RECESSED DOWNLIGHT FIXTURE
- RECESSED DOWNLIGHT FIXTURE ON NIGHT LIGHTING/EMERGENCY CIRCUIT
- SURFACE OR PENDANT MOUNTED FLUORESCENT/LED LIGHTING FIXTURE
- SURFACE OR PENDANT MOUNTED FLUORESCENT/LED LIGHTING FIXTURE ON NIGHT LIGHTING/EMERGENCY CIRCUIT
- WALL MOUNTED FLUORESCENT/LED LIGHTING FIXTURE
- WALL MOUNTED FLUORESCENT/LED LIGHTING FIXTURE ON NIGHT LIGHTING/EMERGENCY CIRCUIT
- CEILING OR PENDANT MOUNTED H.I.D. OR LED LIGHTING FIXTURE
- CEILING OR PENDANT MOUNTED H.I.D. OR LED LIGHTING FIXTURE ON NIGHT LIGHTING/EMERGENCY CIRCUIT
- SURFACE MOUNTED H.I.D. OR LED LIGHTING FIXTURE
- SURFACE MOUNTED H.I.D. OR LED LIGHTING FIXTURE ON NIGHT LIGHTING/EMERGENCY CIRCUIT
- WALL MOUNTED H.I.D. OR LED LIGHTING FIXTURE
- WALL MOUNTED H.I.D. OR LED LIGHTING FIXTURE ON NIGHT LIGHTING/EMERGENCY CIRCUIT
- WALL MOUNTED H.I.D. OR LED FLOODLIGHTING FIXTURE
- GROUND MOUNTED H.I.D. OR LED FLOODLIGHTING FIXTURE
- POLE MOUNTED H.I.D. OR LED LIGHTING FIXTURE
- POLE MOUNTED H.I.D. OR LED FLOODLIGHTING FIXTURE
- BOLLARD LIGHTING FIXTURE
- WALL MOUNTED TRUCK LOADING LIGHT FIXTURE
- WALL MOUNTED INCANDESCENT LIGHTING FIXTURE
- ILLUMINATED EXIT SIGN – DIRECTIONAL ARROWS AS INDICATED
- EMERGENCY LIGHTING BATTERY PACK WITH ILLUMINATED EXIT SIGN AND HEADS AS INDICATED
- EMERGENCY LIGHTING BATTERY PACK WITH HEADS AS INDICATED
- EMERGENCY LIGHTING REMOTE LAMP HEAD
- EMERGENCY LIGHTING REMOTE DUAL LAMP HEAD
- S SINGLE POLE TOGGLE SWITCH
- S_2 DOUBLE POLE TOGGLE SWITCH
- S_3 THREE WAY TOGGLE SWITCH
- S_4 FOUR WAY TOGGLE SWITCH
- S_D DIMMER SWITCH
- S_K KEYED SWITCH
- S_{MD} WALL MOUNTED MOTION DETECTOR SWITCH
- S_O LIGHTING OVERRIDE SWITCH, LOW VOLTAGE
- S_T TIMER SWITCH
- S_{2S} S_{3S} INDICATES DUAL-LEVEL SWITCHING
- (OS)X CEILING-MOUNTED OCCUPANCY SENSOR, "X" = TYPE
  TYPE 1 = 360° PASSIVE INFRARED, LOW VOLTAGE
  TYPE 2 = 360° DUAL TECHNOLOGY PASSIVE INFRARED WITH MICROPHONIC, SOUND SENSING, LOW VOLTAGE
  TYPE 3 = 360° DUAL TECHNOLOGY PASSIVE INFRARED, EXTENDED RANGE, WITH MICROPHONIC, SOUND SENSING, LOW VOLTAGE
- WOSX WALL-MOUNTED OCCUPANCY SENSOR, "X" = TYPE
  TYPE 3 = WIDE ANGLE PASSIVE INFRARED

ONE LINE SYMBOLS

- DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- OVERLOAD
- FEEDER CABLE
- PANEL
- UTILITY SOURCE
- FUSE
- VFD
- PLUG AND RECEPTACLE

POWER DISTRIBUTION SYMBOLS

- SIMPLEX LOCKING RECEPTACLE, 30A, 125V, 1 PHASE, 2 POLE, 3 WIRE GROUNDING
- $_{SW}$ SIMPLEX RECEPTACLE, 20, 125V, 1 PHASE, 2 POLE, 3 WIRE GROUNDING "SW" INDICATED STRETCH WRAPPER MACHINE
- DUPLEX RECEPTACLE, 20, 125V, 1 PHASE, 2 POLE, 3 WIRE GROUNDING
- DOUBLE DUPLEX RECEPTACLE, 20, 125V, 1 PHASE, 2 POLE, 3 WIRE GROUNDING
- $_{WP}$ "WP" INDICATES WEATHERPROOF COVER
- $_{GFI}$ "GFI" INDICATES GROUND FAULT INTERRUPTER
- $_{IG}$ "IG" INDICATES ISOLATED GROUND
- $_{TVSS}$ "TVSS" INDICATES TRANSIENT VOLTAGE SURGE SUPPRESSER
- $_{WC}$ "WC" INDICATES WATER COOLER
- $_{C}$ "C" INDICATES ABOVE COUNTER OR SINK
- $_{W}$ "W" INDICATES WALL MOUNT, FIELD VERIFY MOUNTING HEIGHT
- $_{R}$ "R" INDICATES ROOFTOP-MOUNT 18" ABOVE THE ROOF ON RIGID GALVANIZED STEEL CONDUIT
- $_{RF}$ "RF" INDICATES RADIO FREQUENCY WIRELESS POINT-MOUNT IN CPI THINLINE II WALL MOUNT CABINET PROVIDED AND INSTALLED BY OTHERS
- $_{RR}$ "RR" INDICATES REFRIGERATOR-FIELD VERIFY THE EXACT LOCATION WITH OWNER'S REPRESENTATION
- $_{VM}$ "VM" INDICATES VENDING MACHINE-FIELD VERIFY THE EXACT LOCATION WITH OWNER'S REPRESENTATION
- $_{A}$ "A" INDICATES CEILING MOUNTED FOR USE BY ANTENNAE EQUIPMENT, COORDINATE EXACT LOCATION WITH OWNER
- CLOCK RECEPTACLE, 15A, 125V, 1 PHASE, 2 POLE, THREE WIRE GROUNDING
- FLUSH MOUNTED OUTLET FOR POWER WIRING TO OFFICE FURNITURE
- FSB FLUSH MULTISERVICE FLOOR BOX, THREE GANG TOTAL; ONE GANG EACH FOR POWER, COMUNICATIONS AND DATA; COORDINATE THE NEED FOR WIRING DEVICES OR PARTITION FEED AT EACH LOCATION WITH THE OWNER
- FLUSH FLOOR/COUNTER BOX WITH SIMPLEX RECEPTACLE, 20A, 125V, 1 PHASE, 2 POLE, 3 WIRE GROUNDING
- FLUSH FLOOR/COUNTER BOX WITH DUPLEX RECEPTACLE, 20A, 125V, 1 PHASE, 2 POLE, 3 WIRE GROUNDING
- FLUSH FLOOR/COUNTER BOX WITH DOUBLE DUPLEX RECEPTACLE, 20A, 125V, 1 PHASE, 2 POLE, 3 WIRE GROUNDING
- PPDH POWER POLE FOR POWER, DATA AND TELEPHONE WIRING
- CORD REEL WITH DUPLEX RECEPTACLE, 15A, 125V, 1 PHASE, 2 POLE, 3 WIRE GROUNDING
- SPECIAL PURPOSE RECEPTACLE, RATING AS NOTED.
- SMR # SURFACE METAL RACEWAY, "#" INDICATES TYPE
- J OR J JUNCTION BOX
- SURFACE MOUNTED PANELBOARD – 480/277V, 3 PHASE, 4 WIRE
- FLUSH MOUNTED PANELBOARD – 480/277V, 3 PHASE, 4 WIRE
- SURFACE MOUNTED PANELBOARD – 240V, 3 PHASE, 3 WIRE OR 120/240V, 1 PHASE, 3 WIRE
- FLUSH MOUNTED PANELBOARD – 240V, 3 PHASE, 3 WIRE OR 120/240V, 1 PHASE, 3 WIRE
- SURFACE MOUNTED PANELBOARD – 208/120V, 3 PHASE, 4 WIRE
- FLUSH MOUNTED PANELBOARD – 208/120V, 3 PHASE, 4 WIRE
- T OR VOLTAGE TRANSFORMER
- CURRENT TRANSFORMER
- CONTACTOR
- CIRCUIT BREAKER
- K KEY INTERLOCK
- FUSE
- MOTOR – HORSEPOWER AS INDICATED
- DISCONNECT SWITCH
- DISCONNECT SWITCH SUPPLIED WITH CORRESPONDING EQUIPMENT (NOT BY DIVISION 16 CONTRACTOR)
- COMBINATION MOTOR STARTER
- S_M MANUAL MOTOR STARTER
- # DOOR WITH CORRESPONDING POWERED EQUIPMENT, "#" INDICATES DOOR NUMBER
- M MANHOLE
- H HAND HOLE
- DGH DOOR GASKET HEATER
- HORT OF VERT SEALOFF
- CABLE-PULL EMERGENCY STOP
  F-FLAG INDICATOR
  MANUAL RESET
  CROUSE-HIND TYPE AFU OR EQUAL

SPECIAL SYSTEMS SYMBOLS

- FSB FLUSH MULTISERVICE FLOOR BOX, THREE GANG TOTAL; ONE GANG EACH FOR POWER, COMMUNICATIONS AND DATA; COORDINATE THE NEED FOR WIRING DEVICES OR PARTITION FEED AT EACH LOCATION WITH THE OWNER
- SINGLE-GANG COMMUNICATIONS OUTLET WITH 3/4" CONDUIT STUBBED UP TO ABOVE FINISHED CEILING OR TO ROOF STEEL AND CAPPED. CONCEALED WHERE POSSIBLE
- SINGLE-GANG DATA OUTLET WITH 3/4" CONDUIT STUBBED UP TO ABOVE FINISHED CEILING OR TO ROOF STEEL AND CAPPED. CONCEALED WHERE POSSIBLE
- TWO-GANG COMMUNICATIONS/DATA OUTLET WITH TWO 3/4" CONDUITS STUBBED UP TO ABOVE FINISHED CEILING OR TO ROOF STEEL AND CAPPED. CONCEALED WHERE POSSIBLE
- $_{C}$ "C" INDICATES ABOVE COUNTER OR SINK
- $_{W}$ "W" INDICATES WALL MOUNTED, FIELD VERIFY MOUNTING HEIGHT
- BLANK JUNCTION BOX FOR DOOR MONITORING DEVICE, WITH EXPOSED 3/4" CONDUIT STUBBED UP TO ROOF STEEL AND CAPPED. FIELD VERIFY MOUNTING HEIGHT.
- 3/4" CONDUIT FOR DOOR MONITORING DEVICE, CONCEALED AND STUBBED UP TO AN ACCESSIBLE POINT ABOVE FINISHED CEILING OR TO ROOF STEEL AND CAPPED, FIELD VERIFY MOUNTING HEIGHT
- RCR RECESSED OUTLET FOR CARD READER WITH TWO 3/4" CONCEALED CONDUITS STUBBED UP TO AN ACCESSIBLE POINT ABOVE FINISHED CEILING OR TO ROOF STEEL AND CAPPED, FIELD VERIFY MOUNTING HEIGHT
- RECESSED CEILING MOUNTED SPEAKER
- SURFACE OR WALL MOUNTED SPEAKER, HORN TYPE
- VC SOUND SYSTEM VOLUME CONTROL
- CLOSED CIRCUIT TELEVISION CAMERA, FIXED FOCUS
- PTZ "PTZ" INDICATES PAN/TILT/ZOOM
- FIRE ALARM MANUAL PULL STATION
- # FIRE ALARM AUDIO/VISUAL WARNING DEVICE, WALL MOUNTED, "#" INDICATES DECIBEL LEVEL
- P # FIRE ALARM AUDIO WARNING DEVICE, RECESSED, CEILING MOUNTED, "#" INDICATES DECIBEL LEVEL
- FIRE ALARM VISUAL WARNING DEVICE, WALL MOUNTED
- FIRE ALARM AUDIO/VISUAL WARNING DEVICE, WEATHERPROOF, EXTERIOR BUILDING MOUNTED
- S FIRE ALARM SMOKE DETECTOR
- H FIRE ALARM HEAT DETECTOR
- D FIRE ALARM DUCT DETECTOR
- FS FIRE ALARM FLOW SWITCH
- TS FIRE ALARM TAMPER SWITCH
- IM FIRE ALARM ADDRESSABLE INTERFACE MODULE
- K FIRE ALARM KNOX BOX
- FACP FIRE ALARM CONTROL PANEL, SURFACE MOUNTED
- FACP FIRE ALARM CONTROL PANEL, FLUSH MOUNTED
- FARP FIRE ALARM REMOTE PANEL, SURFACE MOUNTED
- FARP FIRE ALARM REMOTE PANEL, FLUSH MOUNTED
- T THERMOSTAT
- HEAT TRACE CABLE ON PIPING
- PUSH BUTTON STATION, SINGLE BUTTON
- PUSH BUTTON STATION, TWO BUTTONS
- PUSH BUTTON STATION, THREE BUTTONS
- CH CHIME TONE INTERCOM MASTER STATION
- DS CHIME TONE INTERCOM DOOR STATION
- RACU RESCUE ASSISTANCE COMMAND UNIT, SURFACE MOUNTED
- RACU RESCUE ASSISTANCE COMMAND UNIT, FLUSH MOUNTED
- RAPU RESCUE ASSISTANCE PHONE UNIT, SURFACE MOUNTED
- RAPU RESCUE ASSISTANCE PHONE UNIT, FLUSH MOUNTED
- DA LOCAL DOOR ALARM

MISCELLANEOUS SYMBOLS

- GROUND
- CONDUIT CONCEALED IN WALL OR ABOVE CEILING
- CONDUIT INSTALLED EXPOSED
- CONDUIT INSTALLED UNDERGROUND
- HOME RUN TO POWER SOURCE
- E CONDUIT CONTAINING LOW VOLTAGE EMERGENCY WIRING ONLY
- NE CONDUIT CONTAINING NIGHT LIGHTING/EMERGENCY WIRING ONLY

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
A	AMPS
AF	AMP FRAME
AT	AMP TRIP
AFC	AVAILABLE FAULT CURRENT
AFL	AMPS FULL LOAD
AFHC	ARC FLASH HAZARD CATEGORY
AHAP	AS HIGH AS POSSIBLE
ADO	AUTOMATIC DOOR OPERATOR
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BFC	BELOW FINISHED CEILING
C	CONDUIT
CP	CONTROL PANEL OR EQUIPMENT ENCLOSURE
DO	DOOR OPERATOR
DS	DISCONNECT SWITCH
DGH	DOOR GASKET HEATER
EX	EXISTING
EXR	EXISTING RELOCATED
FDR	FEEDER CABLE
FLA	FULL LOAD AMPS
FVNR	FULL VOLTAGE NON REVERSING
FVR	FULL VOLTAGE REVERSING
G	GROUND
H-O-A	HANDS-OFF-AUTOMATIC
HP	HORSEPOWER
KAIC	KILOAMPS INTERRUPTING CURRENT
KV	KILOVOLTS
KW	KILOWATTS
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MCP	MOTOR CIRCUIT PROTECTOR
MCC	MOTOR CONTROL CENTER
MOD	MOTOR OPERATED DAMPER
MTR	MOTOR
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PE	PHOTO EYE
PH	PHASE
PR	PLUG/RECEPTACLE
ST	SHUNT TRIP
STD	STANDARD
TB	TERMINAL BLOCK
XFMR	TRANSFORMER
2S2W	TWO SPEED, TWO WINDING
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS OR WIRE

ENGINEERED ELECTRIC SERVICES, LLC

520 Prairie Industrial PKWY, Mulberry, FL. 33860
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DATE	BY	NO.	REVISION DESCRIPTION

John Leedy, P.E.
License # 45924

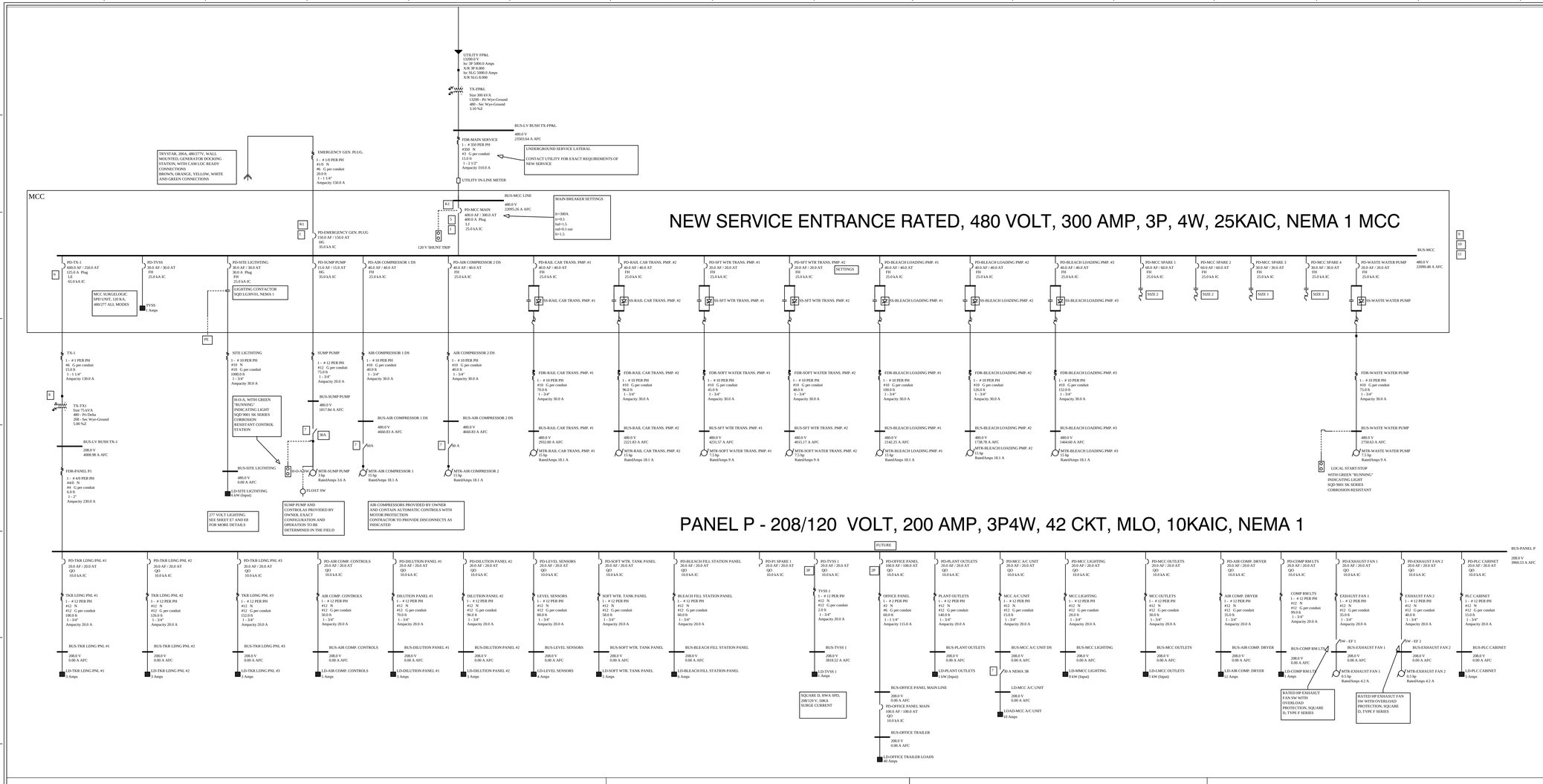
DRAWING INVALID UNLESS DATED, SIGNED & SEALED BY LICENSED ENGINEER

SYMBOLS AND LEGENDS

ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E.	NOVEMBER 10, 2016
DWG NO.: 50-037900	SCALE: None

SHEET E3



ONE LINE NOTES - X

1. K1 MAIN AND GENERATOR BREAKERS ARE TO BE MECHANICALLY INTERLOCKED TO PREVENT SIMULTANEOUS OPERATION
2. SS- SOFT START WITH BYPASS CONTACTOR
3. ALL EXTERIOR CONDUIT AND FITTINGS ARE TO BE PVC SCH 80 WITH FIBERGLASS STRUT AND STRAPS WITH SS HARDWARE
4. ALL FLEX CONDUIT TO BE PVC NON-METALIC LIQUIDTIGHT, WITH PVC CONNECTORS
5. MCC MAIN TO HAVE LSIG STATIC TRIP UNIT WITH ALL SEGMENTS ADJUSTABLE AND A 120 VOLT SHUNT TRIP. MAIN TO BE LOCATED IN THE UPPER RIGHT CORNER OF THE MCC
6. PD-TX1 SHALL BE SQUARE D, LE SERIES 3, MICROLOGIC LSI OR EQUAL TO PROVIDE FOR TRANSFORMER INRUSH AND ADJUSTMENTS FOR KEEPING THE INCIDENT ENERGY DOWN TO LEVEL ONE OR LOWER AT PANEL P
7. ALL DISCONNECTS TO BE SQUARE D, NON-FUSED, KRYDON, 30A-HU361DX OR 60A-HU362DX
8. TRANSFORMER SHALL BE SQUARE D, EE75T3HCU.
9. MCC SHALL BE SQUARE D, MODEL 6, WITH SERVICE ENTRANCE RATED BOTTOM FED MAIN. EXACT CONFIGURATION TO BE DETERMINED BASED ON TIME OF PURCHASE.
10. EACH CC BUCKET STARTER, SHALL HAVE IT'S OWN 120VAC CONTROL POWER, EXTERNAL OL RESET BUTTON AND GREEN "RUNNING" INDICATING LIGHT.
11. ALL MOTORS CONTROLLED BY OWNER SUPPLIED CONTROL CABINETS AND PLC EXCEPT SUMP PUMP AND WASTE WATER PUMP AS INDICATED
12. ALL INTERIOR CONDUIT TO BE EMT.

TOTAL SOURCE LOAD SUMMARY

LOAD DESCRIPTION	UNITS	CONNECTED LOAD	DEMAND LOAD	DESIGN LOAD	POWER FACTOR %
ENERGY AUDIT KVA	KW	12.5	12.5	12.5	
	KVAR	9.4	9.4	9.4	
	KVA	15.6	15.6	15.6	80.00 LAGGING
LARGEST KVA MTR	KW	12.0	12.0	15.0	
	KVAR	9.0	9.0	11.3	
	KVA	15.0	15.0	18.8	80.00 LAGGING
KVA TYPE MTR	KW	93.5	93.5	93.5	
	KVAR	70.1	70.1	70.1	
	KVA	116.8	116.8	116.8	80.00 LAGGING
GEN	KW	0.7	0.7	0.7	
	KVAR	0.5	0.5	0.5	
	KVA	0.8	0.8	0.8	80.00 LAGGING
LTS	KW	6.4	6.4	8.0	
	KVAR	0.1	0.1	0.1	
	KVA	6.4	6.4	8.0	99.99 LAGGING
REC	KW	2.0	2.0	2.0	
	KVAR	1.5	1.5	1.5	
	KVA	2.5	2.5	2.5	80.00 LAGGING
TOTAL LOADS	KW	127.0	127.0	131.6	
	KVAR	90.6	90.6	92.9	
	KVA	156.0	156.0	161.1	
	% PF	81.4 LAGGING	81.4 LAGGING	81.7 LAGGING	

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LOAD DEMAND TABLE

LOAD DESCRIPTION	LOAD TYPE	FIRST DEMAND KVA	FIRST DEMAND %	SECOND DEMAND KVA	SECOND DEMAND %	THIRD DEMAND KVA	THIRD DEMAND %	DESIGN FACT
GEN	K	ALL 100		ALL 100		ALL 100		1.00
LTS	K	ALL 100		ALL 100		ALL 100		1.25
REC	K	10 100		ALL 50		ALL 100		1.00
OFF EQ	K	ALL 100		ALL 100		ALL 100		1.00
HEAT	Z	ALL 100		ALL 100		ALL 100		1.25
CAP	Z	ALL 100		ALL 100		ALL 100		1.35
AC	K	ALL 100		ALL 100		ALL 100		1.00
GENERAL LOADS	K	100 100		ALL 100		ALL 100		1.00
LIGHTING	K	ALL 100		ALL 100		ALL 100		1.25
RECEPTACLES	K	10 100		ALL 50		ALL 100		1.00
OFFICE EQUIPMENT	K	ALL 100		ALL 100		ALL 100		1.00
HEATING	Z	ALL 100		ALL 100		ALL 100		1.25
CAPACITORS	Z	ALL 100		ALL 100		ALL 100		1.35
SPACE	K	ALL 100		ALL 100		ALL 100		1.00
SPARE	K	ALL 100		ALL 100		ALL 100		1.00
SPARE	K	ALL 100		ALL 100		ALL 100		1.00
SPARE	K	ALL 100		ALL 100		ALL 100		1.00
SPARE	K	ALL 100		ALL 100		ALL 100		1.00
SPARE	K	ALL 100		ALL 100		ALL 100		1.00

NOTES:
1) LARGEST MOTOR CIRCUIT IDENTIFIED AND USED TO CALCULATE DESIGN LOAD BASED ON NEC ART 430.
2) MULTI-LEVEL DEMAND AND DESIGN FACTORS APPLIED AT EACH LOAD BUS.
3) LOAD TOTALS CALCULATED USING COMPLEX ADDITION BASED ON POWER FACTOR.

MCC SCHEDULE: SCH-MCC

PANEL: SCH-MCC | DC DEVICE TYPE: Breaker | ENCLOSURE: NEMA 1 | MAINS(A): BKR | CONTINUOUS(A): 300
LOCATION: ELECTRIC ROOM | DEVICE FAMILY: Plug In | MOUNTING: Free Standing | WIRING: 3-Phase 4-Wire | BUS SC RATING(A): 25000
FED FROM: | | VOLTAGE: 480/277 | | FAULT CURRENT(A): 22090

NO	DESCRIPTION	NOTES	HP	Max FLA	OC DEVICE TYPE	OC DEVICE AMPS	IP	STARTER SIZE	STARTER TYPE	STARTER SP	STARTER AC	FEEDER/RACEWAY STANDARD DESC	%VD SEE SHEET E5
1	MAIN	LSIG TRIP UNIT		0.001	LJ	300	3		NA	TR			
2	TVSS		0.89	1	HG	30	3		NA	TB			
3	EMERGENCY GEN. PLUG.	KIRK KEY WITH MAIN		0	HG	150	3		NA	TB			
4	SUMP PUMP			15	HG	15	3		NA	TB			
5	TX-1	LSI TRIP UNIT		27.842	JG	125	3		NA	TB			
6	SITE LIGTHTING	w CONTACTOR		28.191	HJ	30	1		LC	TB			
7													
8	AIR COMPRESSOR 1 DS			22.613	HG	40	3		NA	TB			
9	AIR COMPRESSOR 2 DS			22.613	HG	40	3		NA	TB			
10	RAIL CAR TRANS. PMP. #1			22.613	HJ	40	3	2	SS	TB			
11	RAIL CAR TRANS. PMP. #2			22.613	HJ	40	3	2	SS	TB			
12	SFT WTR TRANS. PMP. #1			11.307	HJ	20	3	1	SS	TB			
13	SFT WTR TRANS. PMP. #2			11.307	HJ	20	3	1	SS	TB			
14	BLEACH LOADING PMP. #1			22.613	HJ	40	3	2	SS	TB			
15	BLEACH LOADING PMP. #2			22.613	HJ	40	3	2	SS	TB			
16	BLEACH LOADING PMP. #3			22.613	HJ	40	3	2	SS	TB			
17	SPARE 1.			0		0	3						
18	SPARE 2.			0		0	3						
19	SPARE 3.			0		0	3						
20	SPARE 4.			0		0	3						
21	WASTE WATER PUMP			11.307	HJ	20	3	1	SS	TB			
22													
23													
24													

ALL CONNECTED	KVA	MAX PH AMPS	* PHASE TOTALS	VA	AMPS	BUS TOTALS	KVA
TOTAL CONNECTED	156.00	204.7	* A-N	56734.2	204.7	CONNECTED	156.00
TOTAL DEMAND	156.00	204.7	* B-N	50095.8	180.8	DEMAND	156.00
TOTAL DESIGN	161.07	214.0	* C-N	49850.1	177.7	DESIGN	161.07

DATE: Nov 10, 2016
TIME: 09:40:13

TB-TO BE DETERMINED

?
Nov 10, 2016 09:40:13

PANEL SCHEDULE: SCH-PANEL P

PANEL: SCH-PANEL P | DC DEVICE TYPE: Breaker | ENCLOSURE: NEMA 1 | MAINS(A): MLO | CONTINUOUS(A): 208
LOCATION: | DEVICE FAMILY: Bolt On | MOUNTING: Surface | WIRING: 3-Phase 4-Wire | BUS SC RATING(A): 10000
FED FROM: | | VOLTAGE: 208/120 | | FAULT CURRENT(A): 3989

CKT	DESCRIPTION	NOTES	DEMAND CODE	VA	DC AMPS P	PHASE	DC AMPS P	VA	DEMAND CODE	NOTES	DESCRIPTION	CKT
1	TKR LDNG PNL #1		NONE	360	20 1	A	100 2	8320	NONE		OFFICE PANEL	2
3	TKR LDNG PNL #2		NONE	360	20 1	B	" "	-			" "	4
5	TKR LDNG PNL #3		NONE	360	20 1	C	20 1	480	NONE		LEVEL SENSORS	6
7	AIR COMP. CONTROLS		NONE	600	20 1	A						8
9	DILUTION PANEL #1		NONE	360	20 1	B						10
11	DILUTION PANEL #2		NONE	360	20 1	C	20 1	600	NONE		SOFT WTR. TANK PANEL	12
13						A	20 1	1800	NONE		PLANT OUTLETS	14
15						B	20 1	1201	NONE		MCC A/C UNIT	16
17	BLEACH FILL STATION		NONE	721	20 1	C	20 1	150	NONE		MCC LIGHTING	18
19	P1 SPARE 1		NONE	0	20 1	A	20 1	675	NONE		MCC OUTLETS	20
21	TVSS 1		NONE	360	20 3	B						22
23	" "		-	-	" "	C	20 1	120	NONE		COMP RM LTS	24
25	" "		-	-	" "	A						26
27						B						28
29	EXHAUST FAN 2		NONE	501	20 1	C	20 1	0	NONE		PLC CABINET	30
31						A						32
33						B						34
35	EXHAUST FAN 1		NONE	501	20 1	C	20 1	1441	NONE		AIR COMP. DRYER	36
37						A						38
39						B						40
41						C						42

ALL CONNECTED	KVA	MAX PH AMPS	* PHASE TOTALS	VA	AMPS	BUS TOTALS	KVA
TOTAL CONNECTED	19.27	64.3	* A-N	7715.8	64.3	CONNECTED	19.27
TOTAL DEMAND	19.27	64.3	* B-N	6801.5	51.6	DEMAND	19.27
TOTAL DESIGN	19.44	64.3	* C-N	5355.8	44.6	DESIGN	19.44

DATE: Nov 10, 2016
TIME: 09:40:13

ENSURE ALL LOADS ARE BALANCE UNDER NORMAL CONDITIONS

ENGINEERED ELECTRIC SERVICES, LLC
520 Prairie Industrial PKWY, Mulberry, FL. 33860
OFFICE: (863) 425-2698 FAX: (863) 425-5187

DATE	BY	NO.	REVISION DESCRIPTION

John Leedy, P.E.
License # 45924

DRAWING INVALID UNLESS DATED, SIGNED & SEALED BY LICENSED ENGINEER

ONE LINE, LOAD DATA AND PANEL SCHEDULES

ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E. | NOVEMBER 10, 2016
DWG NO.: 50-037900 | SCALE: None

SHEET E4

UTILITY FP&L

TX-FP&L
6.93 Pri Amps
190.49 Sec Amps
Ampacity 13.1 A

BUS 0.4 V BUSH TX-FP&L
Volt Drop 0.7 %

FDR-MAIN SERVICE
LF
A: 213.75 A
B: 277.95 A
C: 301.09 A
Ampacity 310.0 A

UNDERGROUND SERVICE LATERAL

CONTACT UTILITY FOR EXACT REQUIREMENTS OF NEW SERVICE

UTILITY IN-LINE METER

TRYSTAR; 200A, 480/277V; WALL MOUNTED, GENERATOR DOCKING STATION, WITH CAM LOC READY CONNECTIONS
BROWN, ORANGE, YELLOW, WHITE AND GREEN CONNECTIONS

EMERGENCY GEN. PLUG,
Ampacity 150.0 A

MCC

BUS-MCC LINE
Volt Drop 0.8 %

K1

PD-MCC MAIN
400.0 AF
300.0 AT

MAIN BREAKER SETTINGS

Ir=300A
tr=0.5
Isd=1.5
tsd=0.1 out
Ii=1.5

K1

PD-EMERGENCY GEN. PLUG
150.0 AF
150.0 AT

120 V 500.5VT TRIP

BUS-MCC
Volt Drop 0.8 %

PD-TX-1
400.0 AF
250.0 AT

PD-TVSS
30.0 AF
30.0 AT

PD-SITE LIGHTING
30.0 AF
30.0 AT

PD-SUMP PUMP
15.0 AF
15.0 AT

PD-AIR COMPRESSOR 1 DS
40.0 AF
40.0 AT

PD-AIR COMPRESSOR 2 DS
40.0 AF
40.0 AT

PD-RAIL CAR TRANS. PMP. #1
40.0 AF
40.0 AT

PD-RAIL CAR TRANS. PMP. #2
40.0 AF
40.0 AT

PD-SFT WTR TRANS. PMP. #1
20.0 AF
20.0 AT

PD-SFT WTR TRANS. PMP. #2
20.0 AF
20.0 AT

SETTINGS

PD-BLEACH LOADING PMP. #1
40.0 AF
40.0 AT

PD-BLEACH LOADING PMP. #2
40.0 AF
40.0 AT

PD-BLEACH LOADING PMP. #3
40.0 AF
40.0 AT

PD-MCC SPARE 1
60.0 AF
60.0 AT

PD-MCC SPARE 2
60.0 AF
60.0 AT

PD-MCC SPARE 3
30.0 AF
30.0 AT

PD-MCC SPARE 4
30.0 AF
30.0 AT

PD-WASTE WATER PUMP
20.0 AF
20.0 AT

MCC SURGELOGIC
SPD UNIT, 320 KA,
480/277 ALL MODES

TVSS
RatedAmps 1 A

LIGHTING CONTACTOR
SQD LGC09101, NEMA 1

SS-RAIL CAR TRANS. PMP. #1

SS-RAIL CAR TRANS. PMP. #2

SS-SFT WTR TRANS. PMP. #1

SS-SFT WTR TRANS. PMP. #2

SS-BLEACH LOADING PMP. #1

SS-BLEACH LOADING PMP. #2

SS-BLEACH LOADING PMP. #3

SIZE 2

SIZE 2

SIZE 1

SIZE 1

SS-WASTE WATER PUMP

TX-1
LF
A: 30.87 A
B: 19.35 A
C: 22.71 A
Ampacity 138.0 A

TX-TX1
225.93 Pri Amps
54.58 Sec Amps
Ampacity 90.2 A

BUS-LV BUSH TX-1
Volt Drop 3.7 %

FDR-PANEL P1
LF
A: 69.20 A
B: 56.34 A
C: 45.28 A
Ampacity 230.0 A

SITE LIGHTING
LF
A: 23.52 A
Ampacity 30.0 A

H-O-A, WITH GREEN "RUNNING" INDICATING LIGHT SQD 9001 SK SERIES CORROSION RESISTANT CONTROL STATION

BUS-SITE LIGHTING
Volt Drop 4.1 %

LD-SITE LIGHTING
RatedAmps 22.6 A

277 VOLT LIGHTING
SEE SHEET E7 AND E8
FOR MORE DETAILS

SUMP PUMP
LF
A: 3.63 A
B: 3.63 A
C: 3.63 A
Ampacity 20.0 A

BUS-SUMP PUMP
Volt Drop 1.0 %

30A

MTR-SUMP PUMP

FLOAT SW

SUMP PUMP AND CONTROLS PROVIDED BY OWNER, EXACT CONFIGURATION AND OPERATION TO BE DETERMINED IN THE FIELD

AIR COMPRESSOR 1 DS
LF
A: 18.15 A
B: 18.15 A
C: 18.03 A
Ampacity 30.0 A

BUS-AIR COMPRESSOR 1 DS
Volt Drop 1.1 %

30 A

MTR-AIR COMPRESSOR 1

AIR COMPRESSOR 2 DS
LF
A: 18.15 A
B: 18.15 A
C: 18.15 A
Ampacity 30.0 A

BUS-AIR COMPRESSOR 2 DS
Volt Drop 1.1 %

30 A

MTR-AIR COMPRESSOR 2

AIR COMPRESSORS PROVIDED BY OWNER AND CONTAIN AUTOMATIC CONTROLS WITH MOTOR PROTECTION CONTRACTOR TO PROVIDE DISCONNECTS AS INDICATED

FDR-RAIL CAR TRANS. PMP. #1
LF
A: 18.19 A
B: 18.18 A
C: 18.09 A
Ampacity 30.0 A

BUS-RAIL CAR TRANS. PMP. #1
Volt Drop 1.3 %

MTR-RAIL CAR TRANS. PMP. #1

FDR-RAIL CAR TRANS. PMP. #2
LF
A: 18.22 A
B: 18.21 A
C: 18.22 A
Ampacity 30.0 A

BUS-RAIL CAR TRANS. PMP. #2
Volt Drop 1.4 %

MTR-RAIL CAR TRANS. PMP. #2

FDR-SOFT WATER TRANS. PMP. #1
LF
A: 9.07 A
B: 9.06 A
C: 9.06 A
Ampacity 30.0 A

BUS-SFT WTR TRANS. PMP. #1
Volt Drop 0.9 %

MTR-SOFT WATER TRANS. PMP. #1

FDR-SOFT WATER TRANS. PMP. #2
LF
A: 9.07 A
B: 9.06 A
C: 9.07 A
Ampacity 30.0 A

BUS-SFT WTR TRANS. PMP. #2
Volt Drop 1.0 %

MTR-SOFT WATER TRANS. PMP. #2

FDR-BLEACH LOADING PMP. #1
LF
A: 18.22 A
B: 18.22 A
C: 18.22 A
Ampacity 30.0 A

BUS-BLEACH LOADING PMP. #1
Volt Drop 1.5 %

MTR-BLEACH LOADING PMP. #1

FDR-BLEACH LOADING PMP. #2
LF
A: 18.25 A
B: 18.25 A
C: 18.25 A
Ampacity 30.0 A

BUS-BLEACH LOADING PMP. #2
Volt Drop 1.6 %

MTR-BLEACH LOADING PMP. #2

FDR-BLEACH LOADING PMP. #3
LF
A: 18.29 A
B: 18.28 A
C: 18.28 A
Ampacity 30.0 A

BUS-BLEACH LOADING PMP. #3
Volt Drop 1.8 %

MTR-BLEACH LOADING PMP. #3

FDR-WASTE WATER PUMP
LF
A: 9.07 A
B: 9.07 A
C: 9.07 A
Ampacity 30.0 A

BUS-WASTE WATER PUMP
Volt Drop 1.0 %

MTR-WASTE WATER PUMP

LOCAL START/STOP WITH GREEN "RUNNING" INDICATING LIGHT SQD 9001 SK SERIES CORROSION RESISTANT

BUS-PANEL P
Volt Drop 1.7 %

PD-TKR LDNG PNL #1
20.0 AF
20.0 AT

PD-TKR LDNG PNL #2
20.0 AF
20.0 AT

PD-TKR LDNG PNL #3
20.0 AF
20.0 AT

PD-AIR COMP. CONTROLS
20.0 AF
20.0 AT

PD-DILUTION PANEL #1
20.0 AF
20.0 AT

PD-DILUTION PANEL #2
20.0 AF
20.0 AT

PD-LEVEL SENSORS
20.0 AF
20.0 AT

PD-SOFT WTR. TANK PANEL
20.0 AF
20.0 AT

PD-BLEACH FILL STATION PANEL
20.0 AF
20.0 AT

PD-P1 SPARE 1
20.0 AF
20.0 AT

PD-TVSS 1
20.0 AF
20.0 AT

FUTURE

PD-OFFICE PANEL
LF
A: 60.56 A
B: 49.74 A
180.0 AF

PD-PLANT OUTLETS
20.0 AF
20.0 AT

PD-MCC A/C UNIT
20.0 AF
20.0 AT

PD-MCC LIGHTING
20.0 AF
20.0 AT

PD-MCC OUTLETS
20.0 AF
20.0 AT

PD-AIR COMP. DRYER
20.0 AF
20.0 AT

PD-COMP RM LTS
20.0 AT

PD-EXHAUST FAN 1
20.0 AF
20.0 AT

PD-EXHAUST FAN 2
20.0 AF
20.0 AT

PD-PLC CABINET
20.0 AF
20.0 AT

TKR LDNG PNL #1
LF
A: 3.05 A
Ampacity 20.0 A

TKR LDNG PNL #2
LF
B: 3.07 A
Ampacity 20.0 A

TKR LDNG PNL #3
LF
C: 3.06 A
Ampacity 20.0 A

AIR COMP. CONTROLS
LF
A: 5.07 A
Ampacity 20.0 A

DILUTION PANEL #1
LF
B: 3.05 A
Ampacity 20.0 A

DILUTION PANEL #2
LF
C: 3.04 A
Ampacity 20.0 A

LEVEL SENSORS
LF
C: 4.06 A
Ampacity 20.0 A

SOFT WTR. TANK PANEL
LF
C: 5.07 A
Ampacity 20.0 A

BLEACH FILL STATION PANEL
LF
C: 6.01 A
Ampacity 20.0 A

TVSS 1
LF
A: 1.01 A
B: 1.01 A
C: 1.01 A
Ampacity 20.0 A

OFFICE PANEL
LF
A: 60.56 A
B: 49.74 A
Ampacity 115.0 A

PLANT OUTLETS
LF
A: 15.91 A
Ampacity 20.0 A

MCC A/C UNIT
LF
B: 10.07 A
Ampacity 20.0 A

MCC LIGHTING
LF
C: 1.26 A
Ampacity 20.0 A

MCC OUTLETS
LF
A: 5.69 A
Ampacity 20.0 A

AIR COMP. DRYER
LF
C: 12.22 A
Ampacity 20.0 A

COMP RM LTS
LF
C: 1.01 A
Ampacity 20.0 A

EXHAUST FAN 1
LF
C: 4.22 A
Ampacity 20.0 A

EXHAUST FAN 2
LF
C: 4.22 A
Ampacity 20.0 A

PLC CABINET
Ampacity 20.0 A

TKR LDNG PNL #1
Volt Drop 1.9 %

TKR LDNG PNL #2
Volt Drop 1.9 %

TKR LDNG PNL #3
Volt Drop 1.9 %

AIR COMP. CONTROLS
Volt Drop 1.8 %

DILUTION PANEL #1
Volt Drop 1.8 %

DILUTION PANEL #2
Volt Drop 1.9 %

LEVEL SENSORS
Volt Drop 1.9 %

SOFT WTR. TANK PANEL
Volt Drop 1.9 %

BLEACH FILL STATION PANEL
Volt Drop 1.9 %

TVSS 1
Volt Drop 1.7 %

OFFICE PANEL MAIN LINE
Volt Drop 2.0 %

PLANT OUTLETS
Volt Drop 2.7 %

MCC A/C UNIT DS
Volt Drop 1.8 %

MCC LIGHTING
Volt Drop 1.7 %

MCC OUTLETS
Volt Drop 1.8 %

AIR COMP. DRYER
Volt Drop 1.9 %

COMP RM LTS
Volt Drop 1.8 %

EXHAUST FAN 1
Volt Drop 1.8 %

EXHAUST FAN 2
Volt Drop 1.8 %

PLC CABINET
Volt Drop 1.7 %

LD-TKR LDNG PNL #1
RatedAmps 3 A

LD-TKR LDNG PNL #2
RatedAmps 3 A

LD-TKR LDNG PNL #3
RatedAmps 3 A

LD-AIR COMP. CONTROLS
RatedAmps 5 A

LD-DILUTION PANEL #1
RatedAmps 3 A

LD-DILUTION PANEL #2
RatedAmps 3 A

LD-LEVEL SENSORS
RatedAmps 4 A

LD-SOFT WTR. TANK PANEL
RatedAmps 5 A

LD-BLEACH FILL STATION PANEL
RatedAmps 6 A

LD-TVSS 1
RatedAmps 1 A

SQUARE D, 100 A SPD, 208/120 V, 50KA SURGE CURRENT

BUS-OFFICE PANEL MAIN LINE
Volt Drop 2.0 %

PD-OFFICE PANEL MAIN
180.0 AF
180.0 AT

BUS-OFFICE TRAILER
Volt Drop 2.0 %

LD-OFFICE TRAILER LOADS
RatedAmps 40 A

FUTURE OFFICE TRAILER

LD-PLANT OUTLETS
RatedAmps 15 A

50 A NEMA 3R

LD-MCC A/C UNIT
Volt Drop 1.8 %

LOAD-MCC A/C UNIT
RatedAmps 10 A

LD-MCC A/C UNIT
RatedAmps 8.8 A

LD-MMCC LIGHTING
RatedAmps 1.2 A

LD-MCC OUTLETS
RatedAmps 5.6 A

LD-AIR COMP. DRYER
RatedAmps 12 A

LD-COMP RM LTS
RatedAmps 1 A

Sw - EF 1

MTR-EXHAUST FAN 1

RATED HP EXHAUST FAN SW WITH OVERLOAD PROTECTION, SQUARE D, TYPE F SERIES

LD-EXHAUST FAN 1
RatedAmps 1 A

Sw - EF 2

MTR-EXHAUST FAN 2

RATED HP EXHAUST FAN SW WITH OVERLOAD PROTECTION, SQUARE D, TYPE F SERIES

LD-EXHAUST FAN 2
RatedAmps 1 A

LD-PLC CABINET
RatedAmps 5 A

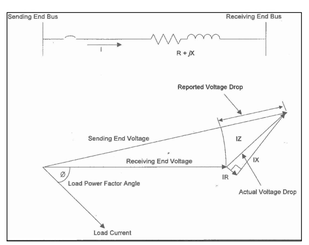
Voltage Drop Calculations

The displayed voltage drop is a percentage of the nominal voltage of the electrical service. The voltage drop calculations are incorporated directly into the calculation of the steady-state load flows.

The voltage drop is the magnitude difference between the receiving and sending end voltage, expressed on a three-phase (line-to-line) basis.

$Vs = Vr + I(R + jX)$

where
Vs sending bus voltage
Vr receiving bus voltage
I load current
R feeder resistance
jX feeder reactance



ENGINEERED ELECTRIC SERVICES, LLC

520 Prairie Industrial PKWY, Mulberry, FL. 33860
OFFICE: (863) 425-2698 FAX: (863) 425-5187

DATE	BY	NO.	REVISION DESCRIPTION

John Leedy, P.E.
License # 45924

DRAWING INVALID UNLESS DATED, SIGNED & SEALED BY LICENSED ENGINEER

VOLTAGE DROP CALCULATIONS

ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E.
DWG NO.: 50-037900
NOVEMBER 10, 2016
SCALE: None

SHEET E5

MCC
80"W X 20"D X 94.5"H

TECO APPROVED METER
FOR OVERHEAD FEED
480 VOLT, 250 AMP

SERVICE
SHUNT TRIP

PRE-FAB
ELECTRICAL
BLDG.

PORTABLE
GENERATOR
(IF REQUIRED)

PRE-FAB
AIR BLDG.
(10'x13')

FUTURE
10'x20'
CONSTRUCTION
TRAILER

GENERATOR
DOCKING
STATION

AC UNIT

PHOTO EYE

MCC-3
P-20
P-16
MCC-5

TX-T1

PANEL P

P-14
LIGHTING
CONTACTOR

P-26

PLC CONTROL
CABINET BY
OTHERS

MCC-6

P-22

AIR
DRYER

P-27,29

EXHAUST
FAN

P-7
MCC-9
MCC-8
#1
#2
P-31,33

AIR COMPRESSOR

EXHAUST
FAN

MOTOR RATED SWITCH,
SEE ONE LINE, TYP OF 2

BRINE
TANK

SOFTENERS

SALT
PALLET

OTHER
PALLET

INCOMING H20 SERVICE

WASTEWATER PUMP S/S STATION
EXACT MOUNTING LOCATION TO BE DETERMINED
IN THE FIELD, CONTOL AND MOTOR LEADS TO BE
RAN IN THE SAME CONDUIT.

FUTURE
12,000 GALLON
TANK

SOFTWATER
PUMPS

MCC-12
MCC-13
P-15

12,000 GALLON
SOFT WATER
TANK
D=12'
H=16'-11"

P-17

12,000 GALLON
WASTE TANK
D=12'
H=16'-11"

MCC-21

WASTEWATER
PUMP

MCC-7

SUMP PUMP
NF DISCONNECT AND
H-O-A SELECTOR SWITCH

PAVED AREA

LEVEL SENSOR DISPLAYS UNDER RAIN HOOD
MAKE THE BRACKET TO ACCOMMODATE 8 DISPLAYS (4 FUTURE)
PLC AND CONTROLS PROVIDED BY THE OWNER.
PROVIDE CONDUIT AND WIRE FOR HIGH LEVEL SWITCHES
COMMUNICATION AND 4-20MA LEVEL TRANSDUCERS BETWEEN
TANKS, LEVEL SENSOR DISPLAYS, PLC AND CONTROL CABINETS.
SEE CONTROLS PLAN SHEET 11.

P-13

P-9
MCC-10

DILUTION STATION
#1

RAILCAR
UNLOADING
PUMP #1

MCC-11
P-11

DILUTION STATION
#2

RAIL CAR
UNLOADING
PUMP #2

EYEWASH SAFETY SHOWER #4

SOFT WATER
TANK PANEL

CATWALK

SODIUM
HYPOCHLORITE
TANK #1
D=13' H=40'

8' VENT

HIGH
LEVEL
SWITCH

LEVEL
TRANSMITTER

4" PRESSURE
TRANSDUCER

24" MANWAY

LADDER

SODIUM
HYPOCHLORITE
TANK #2
D=13' H=40'

HIGH
LEVEL
SWITCH

LEVEL
TRANSMITTER

SODIUM
HYPOCHLORITE
TANK #3
D=13' H=40'

HIGH
LEVEL
SWITCH

LEVEL
TRANSMITTER

SODIUM
HYPOCHLORITE
TANK #4
D=13' H=40'

HIGH
LEVEL
SWITCH

LEVEL
TRANSMITTER

BLEACH FILL
STATION

FUTURE TANK #5

FUTURE TANK #6

FUTURE TANK #7

FUTURE TANK #8

EYEWASH SAFETY SHOWER #1

2'x2'x1' SUMP

P-1
MCC-14

LOADING STATION
#1

BLEACH LOADING
PUMP #1

P-3
MCC-15

LOADING STATION
#2

BLEACH LOADING
PUMP #2

P-5
MCC-16

LOADING STATION
#3

BLEACH LOADING
PUMP #3

2'x2'x1' SUMP

SLOPE

TANKER SPOT #1

TANKER SPOT #2

TANKER SPOT #3

TANKER SPOT #4

TANKER SPOT #5

TANKER SPOT #6

50'

20'

30'

12'

76'

12'

45'

20'

ENGINEERED ELECTRIC SERVICES, LLC	DATE	BY	NO.	REVISION DESCRIPTION
520 Prairie Industrial PKWY, Mulberry, FL. 33860 OFFICE: (863) 425-2698 FAX: (863) 425-5187				

John Leedy, P.E.
License # 45924

DRAWING INVALID UNLESS DATED, SIGNED & SEALED BY LICENSED ENGINEER

PARTIAL PLAN VIEW
POWER PLAN
ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E.	NOVEMBER 10, 2016
DWG NO.: 50-037900	SCALE: None

SHEET E6

RAILROAD RIGHT-OF-WAY
100' RIGHT OF WAY
OWNER:
FEC RAILROAD

CURB CUT
GATE
CONCRETE
8" D.I.P. WM
FIRE HYDRANT W/VALVES
LIGHT POLE
ELECTRIC BOX
D=01°30'36" R=11499
FUTURE WAREHOUSE
DOCK FFE = 20.87
LIGHT POLE
18" RCP
CATCH BASIN
CONCRETE POWER POLE
CONCRETE WALK
CABLE TV
C.B.S. WALL
COVERED
C.B.S. WALL
ANCHOR
6' WOOD FENCE

SEE SHEET E8 FOR FIXTURE SCHEDULE

ENGINEERED ELECTRIC SERVICES, LLC
520 Prairie Industrial PKWY, Mulberry, FL. 33860
OFFICE: (863) 425-2698 FAX: (863) 425-5187

DATE	BY	NO.	REVISION DESCRIPTION

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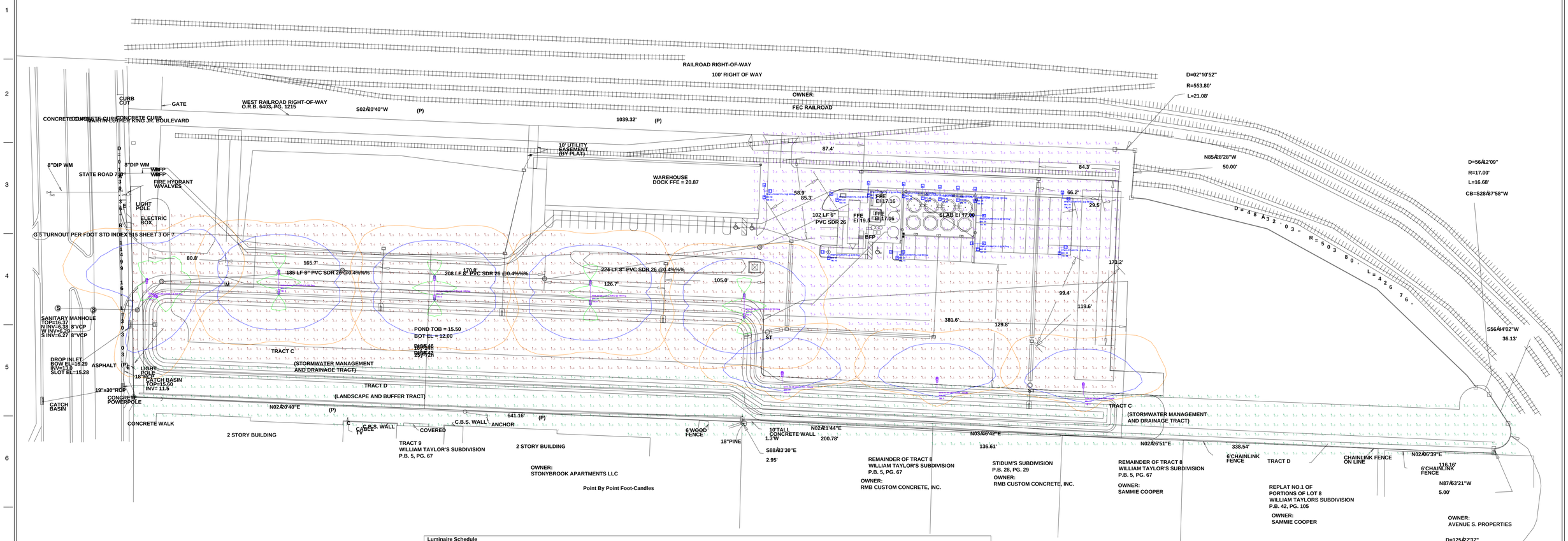
LIGHTING PLAN VIEW

ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E.	NOVEMBER 10, 2016
DWG NO.: 50-037900	SCALE: 1/32" = 1'

SHEET E7



Luminaire Schedule

Symbol	Qty	Label	Arrangement	LLF	Description	Arr. Watts
	3	PFM7LCYUNV176 - 3 @ 90 Deg	3 @ 90 DEGREES	0.900	PFM7LCYUNV176	186
	7	PFM7LCYUNV176 - 2 @ 180 Deg	BACK-BACK	0.900	PFM7LCYUNV176	124
	4	PFM7LCYUNV176 - 2 @ 90 Deg	2 @ 90 DEGREES	0.900	PFM7LCYUNV176	124
	4	NVN-AF-06-LED-U-T3R-2 @ 180 Deg	BACK-BACK	0.900	Cooper Navion Roadway	666
	1	NVN-AF-06-LED-U-T3R-2 @ 120 Deg	2 @ 120 DEGREES	0.900	Cooper Navion Roadway	666
	3	NVN-AF-06-LED-U-T3R - Single	SINGLE	0.900	Cooper Navion Roadway	333
	5	DMW2 L24 4000LM AFL MD MVOLT GZ140K80CRI	SINGLE	N/A	LED FIXTURE LITHONIA OR EQUAL	333

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Gravel Tanker Parking Area Grid	Illuminance	Fc	2.48	8.5	0.3	8.27	28.33
Roadway Grid	Illuminance	Fc	2.67	7.9	0.5	5.34	15.80
West Side Property Line Gird	Illuminance	Fc	0.34	4.1	0.0	N.A.	N.A.

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SITE LIGHTING AND PHOTMETRIC STUDY

ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E.	NOVEMBER 10, 2016
DWG NO.: 50-037900	SCALE: None

SHEET E8

GROUNDING AND BONDING NOTES:

A. BOND EVERY FOURTH PERIMETER COLUMN TO THE FOUNDATION/FOOTER TO FORM THE BUILDING'S GROUNDING ELECTRODE. UTILIZE BARE 4/0 AWG SOLID COPPER CONDUCTOR AND CADWELD BRAND EXOTHERMIC CONNECTORS BOTH ABOVE AND BELOW GRADE WHEN FORMING THE ELECTRODE SYSTEM. NO SUBSTITUTIONS FOR MATERIAL WILL BE ACCEPTED. PROVIDE MADE ELECTRODES FOR THE UTILITY SERVICE TRANSFORMER AND EMERGENCY GENERATOR AS SHOWN ON THE PROJECT DRAWINGS. MAXIMUM RESISTANCE TO REMOTE EARTH OF THE BUILDING'S GROUNDING ELECTRODE SYSTEM (WITHOUT UTILITY NEUTRAL) SHALL BE 5 OHMS.

B. BOND THE EQUIPMENT GROUND BUS OF THE SERVICE ENTRANCE EQUIPMENT AND THE GENERATOR'S MADE ELECTRODE DIRECTLY TO THE BUILDING'S GROUNDING ELECTRODE TO FORM A COMMON GROUNDING ELECTRODE SYSTEM. UTILIZE BARE 4/0 AWG SOLID COPPER CONDUCTOR, AND ALL SUB-GRADE CONNECTIONS AND COLUMN CONNECTIONS SHALL BE MADE WITH CADWELD BRAND EXOTHERMIC CONNECTORS, NO SUBSTITUTION ALLOWED. ABOVE GRADE CONNECTIONS SHALL BE WITH THE APPROPRIATE BOLTED OR COMPRESSION CONNECTION.

C. BOND THE EQUIPMENT GROUNDING BUS OF SEPARATELY-DERIVED SYSTEMS TO A BUILDING COLUMN. COLUMN CONNECTIONS SHALL BE MADE WITH CADWELD BRAND EXOTHERMIC CONNECTORS, NO SUBSTITUTIONS ALLOWED. OTHER ABOVE GRADE CONNECTIONS SHALL BE WITH THE APPROPRIATE BOLTED OR COMPRESSION CONNECTION. REFER TO THE TRANSFORMER WIRING SCHEDULE FOR SIZE OF ELECTRODE CONDUCTOR.

D. PROVIDE A BONDING JUMPER FOR ANY EQUIPMENT, MOTOR, LUMINAIRE OR DEVICE TO WHICH CURRENT CARRYING CONDUCTORS ARE CONNECTED THAT IS NOT BONDED DIRECTLY TO THE GROUNDING SYSTEM, CONNECT THE BONDING JUMPER TO APPROVED LUGS AND GROUNDING CONDUIT BUSHINGS OR CLAMPS. ALL CONDUIT SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR PER THE PROJECT DRAWINGS.

E. ALL GROUNDING OR BONDING CONDUCTORS SHALL BE SIZED AS SHOWN ON THE PROJECT DRAWINGS, AND SHALL BE INSULATED THWN OR XHHW COPPER AS REQUIRED BY ENVIRONMENT WITH A CONTINUOUS GREEN CODING.

F. PROVIDE SUCH INSULATION RESISTANCE TESTS AS REQUIRED BY THE NEC OR INSPECTION AGENTS, AND OTHER TESTS AS REQUIRED BY THE ENGINEER TO DETERMINE PROPER FUNCTIONING AND CONTINUITY OF THE ELECTRICAL SYSTEMS. ONCE ALL STEEL FOR THE BUILDING IS ERECTED AND PRIOR TO CONNECTION OF THE UTILITY AND SERVICE-ENTRANCE EQUIPMENT, ELECTRODE RESISTANCE TESTS (PERFORMED IN ACCORDANCE WITH ANSI/IEEE.81) SHALL BE CONDUCTED UNDER THE DIRECTION OF THE ELECTRICAL ENGINEER. PROVIDE ALL APPROPRIATE TEST EQUIPMENT, ELECTRODES AND CONNECTING WIRE FOR THESE TESTS.

FACILITY GROUNDING AND BONDING DIAGRAM

NTS

GROUNDING DIAGRAM NOTES:

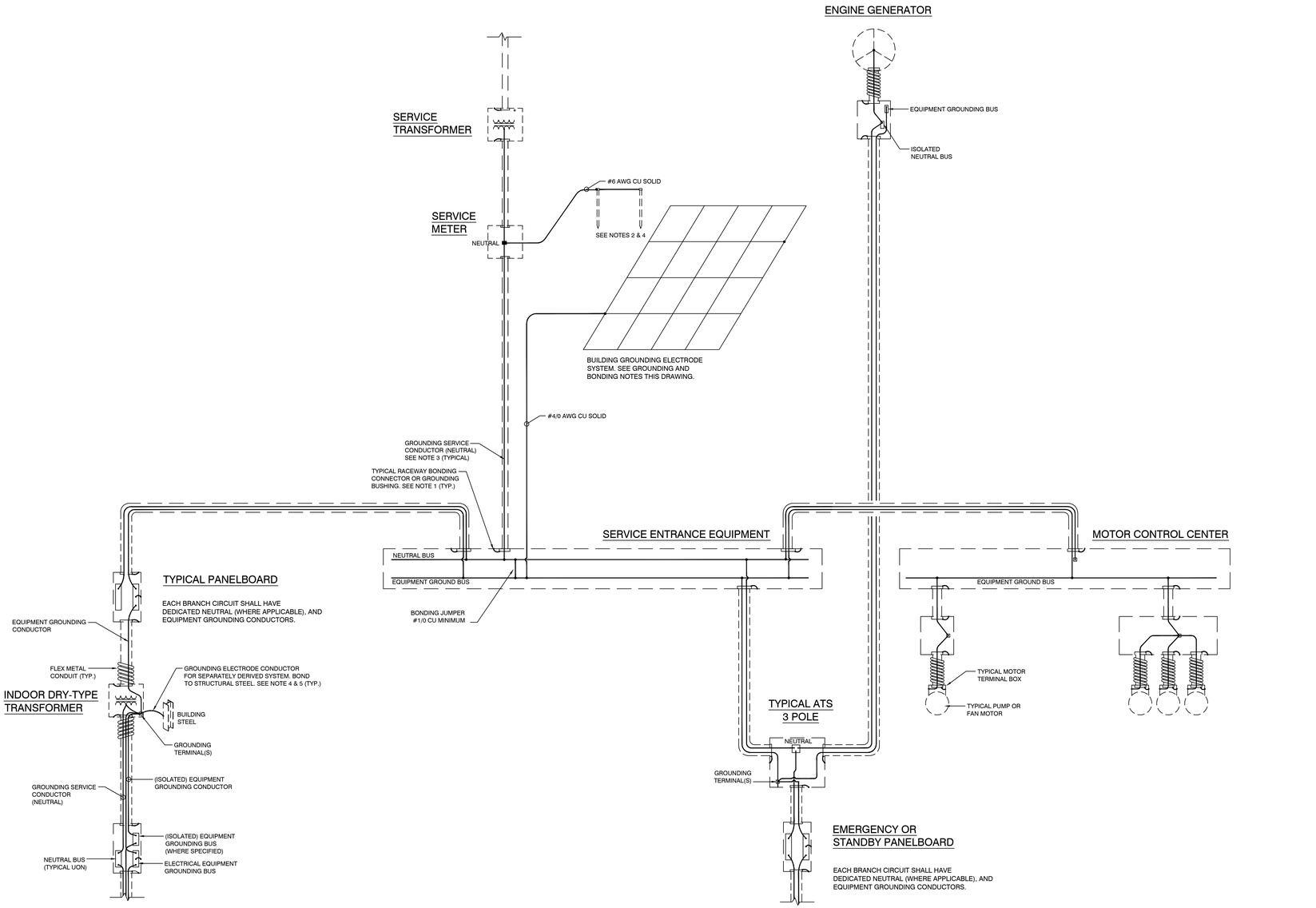
1. AT THE MAIN SERVICE ENTRANCE AND/OR WHERE EQUIPMENT HAS PREFABRICATED CONCENTRIC KNOCK-OUTS, UTILIZE GROUNDING BUSHINGS WITH CU BONDING JUMPERS PER N.E.C. 250.90, GEC SEE NEC TABLE 250.66 ON THIS SHEET.
2. PROVIDE A MADE ELECTRODE IN THE FORM OF DRIVEN GROUND RODS, BONDED TO THE BUILDINGS GROUNDING ELECTRODE SYSTEM. ALL ELECTRICAL WORK SHALL COMPLY WITH REQUIREMENTS SET FORTH BY LOCAL UTILITY COMPANY.
3. FOR GROUNDED SERVICE CONDUCTOR (NEUTRAL) AND EQUIPMENT GROUNDING CONDUCTORS, SEE SINGLE LINE RISER DIAGRAMS.
4. ALL BONDING CONNECTIONS BELOW GRADE OR OTHERWISE OBSTRUCTED FROM PERIODIC INSPECTION SHALL BE MADE WITH EXOTHERMIC TYPE CONNECTIONS. CADWELD TYPE WITHOUT EXCEPTION.
5. SEE NEC TABLE 250.66 AND 250.122 ON THIS SHEET FOR GROUNDING ELECTRODE CONDUCTOR (GEC) AND EQUIPMENT GROUNDING CONDUCTOR (EGC) SIZES.

NEC TABLE 250.66 GROUNDING ELECTRODE CONDUCTOR, GEC

Copper	GEC Size
2 or smaller	8
1 or 1/0	6
2/0 or 3/0	4
Over 3/0 to 350	2
Over 350 to 600	1/0
Over 600 to 1100	2/0
over 1100	3/0

NEC TABLE 250.122 MINIMUM SIZE EQUIPMENT GROUNDING CONDUCTORS, EGC

Overcurrent Device Setting	Copper EGC Size
15	14
20	12
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350
3000	400
4000	500
5000	700
6000	800



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TYPICAL GROUNDING DETAILS

ODYSSEY MANUFACTURING
1484 Massaro Blvd.
TAMPA, FL. 33619

P.E.: John Leedy, P.E. | NOVEMBER 10, 2016
DWG NO.: 50-037900 | SCALE: None

SHEET E9


ACTON
MOBILE


ACTON
MOBILE
800-351-1800
SOFT WATER
TANK 2
WASTEWATER
TANK