MIRADA
PHASE 1 MASS GRADING PLAN

Prepared For:

CRCG TWO LP
C/O METRO DEVELOPMENT GROUP, LLC
2502 NORTH ROCKY POINT DRIVE SUITE 1050
TAMPA, FL 33607
Phone: (813) 288-8078

5806-B Breckenridge Parkway
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629

www.HeidtDesign.com

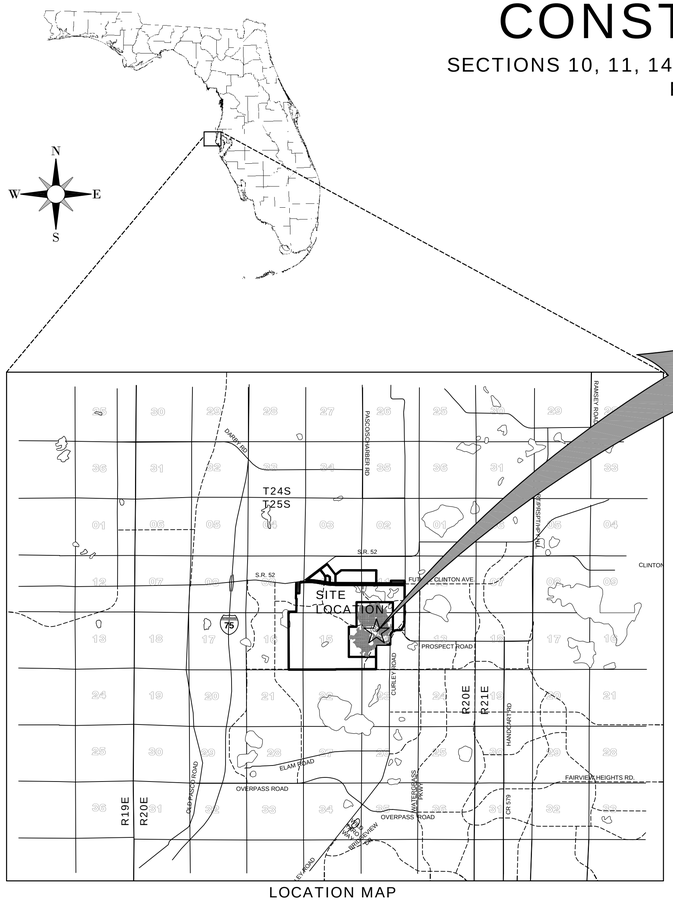
HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

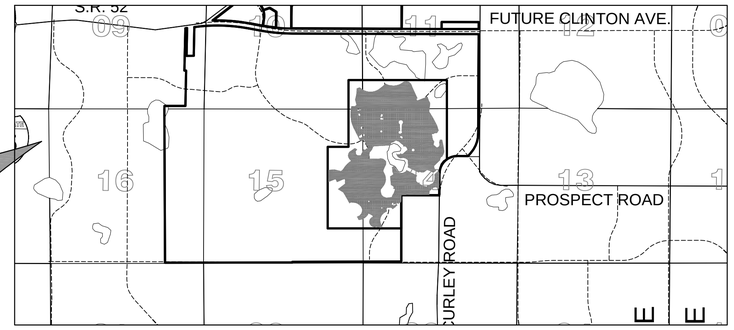
CONSTRUCTION PLAN

SECTIONS 10, 11, 14, & 15 TOWNSHIP 25 SOUTH, RANGE 20 EAST
PASCO COUNTY, FLORIDA

CALL 48 HOURS BEFORE YOU DIG
Sunshine State One Call 811 OF FLORIDA, INC.
1-800-432-4770



LOCATION MAP
(NOT TO SCALE)



SITE MAP
(NOT TO SCALE)

LEGAL DESCRIPTION

The southern 1,000 feet of the eastern 450 feet of the southeast quarter of Section 10, Township 25 South, Range 20 East; and the western 215 feet of the southern 1,000 feet of the southeast quarter of Section 11, Township 25 South, Range 20 East; and the southern 1,000 feet of the southwest quarter of said Section 11; and that portion of the western 215 feet of the northeast quarter of Section 14, Township 25 South, Range 20 East lying west of the eastern right-of-way of Curley Road; and the northwest quarter of said Section 14; and the northwest quarter of the southwest quarter of said Section 14; and the northern 149 feet of the southwest quarter of the southwest quarter of said Section 14; and the northern 328 feet of the northeast quarter of the southwest quarter of said Section 14; and the eastern 1,200 feet of the southeast quarter of the northeast quarter of Section 15, Township 25 South, Range 20 East; and the eastern 1,200 feet of the northeast quarter of the southeast quarter of said Section 15; and the northern 149 feet of the eastern 1,200 feet of the southeast quarter of the southeast quarter of said Section 15; less and except the right-of-way of Curley Road pursuant to O.R. Book 54, Page 83, all lying in Pasco County, Florida.

OWNER/DEVELOPER:

CRCG TWO LP
C/O METRO DEVELOPMENT GROUP, LLC
2502 NORTH ROCKY POINT DRIVE
SUITE 1050
TAMPA, FL 33607
(813) 288-8078
ATTN: MIKE LAWSON,
DIRECTOR OF DEVELOPMENT

CIVIL ENGINEER:

HEIDT DESIGN, LLC
EDWIN J. ROGERS P.E.
5806-B BRECKENRIDGE PARKWAY
TAMPA, FLORIDA 33610
(813) 253-5311

GEOTECHNICAL ENGINEER:

FAULKNER ENGINEERING SERVICES, INC.
2734 CAUSEWAY CENTER DRIVE
TAMPA, FL 33619

SURVEYOR:

DC JOHNSON & ASSOCIATES
11911 SOUTH CURLEY STREET
SAN ANTONIO, FL 33576
(352) 588-2768

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS, STATE OF FLORIDA IN EFFECT AT THE TIME OF PASCO COUNTY APPROVAL, AND ARE IN COMPLIANCE WITH THE STANDARDS THEREIN EXCEPT AS NOTED ON THE PLANS. ANY DEVIATIONS NOTED ON THE PLANS SUBSTANTIALLY COMPLY WITH THE INTENT OF THE STANDARDS.

Sheet List Table

PASCO COUNTY SUBMITTAL DATE:
DECEMBER 15, 2014

MIRADA
PHASE 1 MASS GRADING PLAN

METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2014	REVIEW SUBMITTAL

PLAN REVISIONS

	DATE	DESCRIPTION

PLAN REVISIONS

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION: NAVD 88 TO NGVD 29 = +0.85

SWFWMD	
WATER DEP	
SEWER DEP	
TAX PARCEL I.D. Nos.	

PERMIT / FILE NUMBERS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

FILE:	COVER
PROJECT NO:	CRP CR 1024
GRADING & DRAINAGE	
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS
UTILITIES	
DESIGN BY:	WS DESIGN
DRAWN BY:	WS DRAWN

COVER

C-100

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\COVER.DWG -C-100 2014/12/13 2:47 PM ERIC FRANCIS

SSM: ----

STORM WATER POLLUTION PREVENTION PLAN

Contained on these plans and within the following notes is a storm water pollution prevention plan (swppp) which has been developed by Heidt Design, LLC in accordance with the Florida Department of Environmental Protection's (FDEP) "National Pollutant Discharge Elimination System" (NPDES) generic permit for stormwater discharge from large and small construction activities.

The following entities are identified as team members of "SWPP": Heidt Design, LLC, the developer as identified in the title box of these plans, and the site contractor and his sub-contractors. Each team member has specific responsibilities and obligations. In general, all team members, with regard to their involvement and responsibilities on the project, are to implement all necessary storm water management controls to assure compliance with the NPDES generic permit for storm water discharges from construction activities, the Southwest Florida Water Management District Permit, the applicable local governing agency (i.e. Pasco County) and the guidelines listed in the SWPP. The duties and responsibilities of the team members as they pertain to the SWPP are as follows:

HEIDT DESIGN, LLC:

A. Develop SWPP including, but not limited to, retention/detention ponds, control structures, erosion control methods and locations and stabilization criteria. This design is included within these construction plans and the following notes and instructions.

B. Submit and obtain the necessary design related storm water permits from the Florida Department of Environmental Protection, the Southwest Florida Water Management District and other applicable governmental bodies.

C. Upon notification by the developer of his intent to commence construction, submit a notice of intent to the FDEP on behalf of the developer and copy the contractor including SWPP certification and copy of the permit.

D. Submit to SWFWMD and the operator of the municipal separate storm water system, if applicable, a letter of construction commencement.

E. Complete and submit a notice of termination and certification for developer. The NOT's shall be submitted no more than 30 days after;

(a) Completion of the project and final stabilization of the site or

(b) When responsibility for the site has ended. Final stabilization as defined by EPA is when all soil disturbing activities at the site have been completed and a uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures. As an alternative, equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) may be employed. The client shall notify Heidt Design, LLC when one of these criteria has been met.

CONTRACTOR:

A. Sign and return to Heidt a contractors certification form certifying your understanding of and willingness to comply with the Storm Water Pollution Prevention Plan no later than 48 hours prior to commencement of construction. Also, each subcontractor affected by the SWPP must certify to the contractor that they understand and shall comply with the NPDES Permit and SWPP. A record of these certifications shall be maintained by the contractor on site.

B. During construction, assure compliance with the designed Storm Water Pollution Prevention plans prepared by Heidt Design, LLC and the NPDES Generic Permit for storm water discharges from large and small construction activities.

C. Maintain a copy of the construction plans, which include the Storm Water Pollution Prevention Plan, the NOI, and all inspection reports and certifications on site.

D. Undertake all reasonable Best Management Practices (BMP's) to assure that silted or otherwise polluted storm water is not allowed to discharge from the site during all phases of construction. Stabilization BMP's that may be used include:

Temporary or permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees and preservation of mature vegetation. Structural erosion and sediment control BMP's that may be used include: straw bale dikes, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drain, pipe slope drain, level spreaders, storm drain inlet protection, outlet protection, sediment traps, and temporary sediment basins. Detention ponds may also be used as temporary sediment basins. Additional BMP's that may need to be implemented include: providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials. Providing waste receptacles at convenient locations and providing regular collection of wastes, including building material wastes. Minimizing off-site tracking of sediments. Making adequate preparations, including training and equipment to contain spills of oil and hazardous materials. Complying with applicable state or local waste disposal, sanitary sewer or septic system regulations and the use of appropriate pollution prevention measures for allowable non-storm water components of discharge.

E. Notify Heidt Design, LLC and the developer in writing of any non-storm water pollution sources which are being stored, or otherwise used during the construction of the project, i.e., fertilizers, fuels, pesticides, other chemicals. This notification should be accompanied with the contractor's design and methods to prevent pollution run-off from these sources.

F. Develop a maintenance and inspection plan which includes, but is not limited to the following:

(a) The specific areas to be inspected and maintained that includes all the disturbed areas and material storage areas of the site.

(b) The erosion and sediment controls identified in the swppp to be maintained and inspected and those additional controls that the contractor deems necessary.

(c) Maintenance procedures.

(d) The procedure to follow if additional work is required or whom to call.

(e) Inspections and maintenance forms.

(f) The personnel assigned to each task.

The following shall be inspected a minimum of once a week or within 24 hours after 0.50 inches of rainfall:

Stabilization measures (once a month if fully stabilized).

Structural controls.

Discharge points.

Construction entrances and exits.

Areas used for storage of exposed materials.

An inspection form shall be completed for each inspection. Any permit violations should be noted and corrective measures shall be taken no later than 7 days after the inspection occurred. If revisions to the SWPP are needed, a report form for changes in the SWPP shall be completed and a copy sent to Heidt Design, LLC the original shall be kept on-site as documentation of the change. If the inspection passes, a certification that the facility is in compliance with the SWPP and the NPDES Permit must be signed by a duly authorized representative of the principal executive official of the operator of the SWPP with one of the following qualifications:

1. Has successfully completed the Florida Stormwater, Erosion and Sediment Control Inspector Training Program.
2. Successfully completed a similar training program.
3. Has enough practical on the job training to be qualified to perform the inspections.
4. Retain inspection reports and certifications for at least three years.

G. Site stabilization measures shall be initiated as soon as practical but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased.

H. Releases in excess of reportable quantities.

1. The discharge of hazardous substances or oil in the stormwater discharge(s) from a facility or activity shall be prevented or minimized in accordance with the applicable Stormwater Pollution Prevention Plan for the facility or activity. This permit does not relieve the operator of the reporting requirements of 40 cfr part 117 and 40 cfr part 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 cfr 117 or 40 cfr 302, occurs during a 24 hour period:

   A. The operator is required to notify the State Warning Point (800-210-0519 or 850-413-9911) as soon as he or she has knowledge of the discharge;

   B. The operator shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and remedial steps to be taken, to the Florida Department of Environmental Protection, NPDES Stormwater Section, Mail Station 2500, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and

   C. The Stormwater Pollution Prevention Plan required under part V of this permit must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

2. This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

DEVELOPER:

A. Notify Heidt of your intent to commence construction. Sign the Notice of Intent form as operator of the storm water discharge facility and permittee and return to Heidt Design, LLC.

B. Sign a certification of Storm Water Pollution Prevention Plan and return to Heidt Design, LLC.

C. Notify Heidt when it is time to submit a Notice of Termination as defined under part E of the Heidt Design, LLC section of the SWPP. Sign and return to Heidt Design, LLC for submittal to FDEP a Notice of Termination form and certification.

PRE-DEVELOPED SITE INFORMATION:

1. Total Site Acreage: 398.7± AC.
2. Land Use: UNDEVELOPED - AGRICULTURAL
3. Vegetation: PRIMARILY BAHIA AND OTHER GRASSES GROWN FOR SEED
4. Receiving waters or municipal separate storm water system: BAYOU BRANCH
5. 2 Year/24 Hour Rainfall Depth: 5.0"
6. Soil Types: SPARR, HEWNAN, AND BASSINGER FINE SANDS

PROJECT INFORMATION:

1. Project Type - RESIDENTIAL/MASS GRADING
2. Anticipated Construction Sequence is as follows:
   1. Complete Erosion Control Installation
   2. Clearing and Grubbing
   3. Earthwork Activities
   4. Storm Water System Construction

The BMP's listed in part D of the Contractor Dection of the SWPP shall be considered during all phases of construction.

3. Anticipated Start Date: 02/2015
4. Anticipated Completion Date: 06/2015
5. Total Acres Disturbed: 236.31
6. Pre-Developed "C" Factor: 0.20
7. Post-Developed "C" Factor: 0.25
8. The Storm Water Management System, upon completion of construction and appropriate certification and as-built submittals will be operated and maintained by MIRADA CDD
9. The potential source of pollution from this project is on-site development and construction activity.

OWNER'S INSTRUCTIONS FOR MAINTENANCE AND INSPECTION OF STORMWATER FILTER FACILITIES

Drainage systems should be inspected on a routine basis to ensure that they are functioning properly. Inspections can be on an annual or semi-annual basis, but should always be conducted following major storms. Systems that incorporate infiltration are most critical since poor maintenance practices can soon render them inefficient. Visual inspections of sand filters, control structures, and outfall pipes are highly recommended. It should be stressed that good records should be kept on all maintenance operations to help plan future work and identify facilities requiring attention.

Sand filter surfaces are sometimes scarified or break up silt deposits and restore porosity. This should be accomplished after all sediment has been removed from the surface. After removing large debris (cups, paper, wood, etc.) it is recommended that raking the top 3" will properly scarify the surface or it may be required to replace the sand. Another technique requires removing the sand for washing.

The filter system is designed to have a wet-dry cycle to inhibit algae or bacterial growth. Cleanout frequency of filter beds will depend on whether they are vegetated or non-vegetated and will be a function of their storage capacity, infiltration characteristics, volume of inflow, and sediment load. Filter beds should be inspected closely at least once a year.

Perforated underdrain pipes are located 2' below the sand and cleanouts are located at the end of the system. In the even of sediment build-up in the underdrain pipe, cleaning can be accomplished throught the cleanout with several of the techniques outlined below.

Methods and equipment for cleanout of systems various types of equipment are available commercially for maintenance of drainage systems. The most frequently used equipment and techniques are listed below.

1. Vacuum Pump
   This device is normally used to remove sediment from sumps and pipes. The equipment for this system is generally mounted on a vehicle. It requires a 200 - 300 gallon (0.757 - 1.36m) holding tank and a vacuum pump that has a 10" (254mm) diameter flexible hose with a serrated metal end for breaking up cake sediment. A two-man crew can clean a catch basin in 5 to 10 minutes. this system can remove stones, bricks, leaves, litter and sediment deposits. Normal working depth is 0' - 20' (0 to 6m).

2. Water Jet Spray
   This equipment is generally mounted on a self-contained vehicle with a high pressure pump and a 200 - 300 gallons (0.760 to 1.140m) water supply. A 3" (76mm) flexible hose line with a metal nozzle that directs jets of water at a reverse angle, which propels the nozzle forward while blasting debris backwards toward the catch basin. As the hose line is reeled in, the jetting action forces all debris to the catch basin where it is removed by the vacuum pump equipment. Normal length of hose is approximately 200' (61m). Because of the energy supplied by the water jet, it should not be used to clean erodible trench walls.

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 sandy-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 Subcontractor shall occur throughout construction as necessary to insure the above methods are working suitably. This may be needed daily, if conditions so warrant. Site Subcontractors 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. A copy of this document is available for review at Heidt Design, LLC.
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.
30. Prior to commencement of clearing & grubbing or any soil disturbance, contractor shall coordinate with Heidt Design to schedule a pre-construction soil erosion and sediment control inspection with the Pasco County Stormwater Management Division.

POND/LAKE EXCAVATION NOTE:

No excavation shall extend below the permitted design depths/elevations shown on the drawings, unless additional testing supports otherwise; and no lower semi-confining unit clayey soil material and/or no limestone materials shall be excavated, regardless if these materials are encountered within the permitted excavation depths/elevations. If any lower semi-confining unit clayey soil materials or limestone materials are encountered above the permitted depths/elevations, then excavation operations shall cease in the general area and the Engineer of Record shall be notified immediately.

WETLANDS NOTE:

There are no wetland impacts proposed and therefore, no mitigation required.

"Conservation Area" designation is given to all protected wetlands per Pasco County requirements. They are not designated as "Conservation Easements" for SWFWMD compensation.

Wetland lines permitted under ERP No. 28080.002

IMPORTED FILL MATERIAL:

No material shall be hauled from the site.

ON-SITE MATERIAL:

CUT VOLUME = 624,120 CU.YDS.
FILL VOLUME = 623,426 CU.YDS

SOIL REUSE REQUIREMENTS

At least the following six (6) types of materials are present on-site that require proper handling/treatment by the Contractor, during the course of site development/construction activities, in accordance with the noted reuse requirements for each type. Although some soil material quality control testing will be randomly and periodically performed by the project Geotechnical Consultant, as required, working for the Owner, it is the Contractors sole responsibility to reuse onsite soil materials as described and specified below. All discovered or future filling or material reuse work onsite not in accordance or compliance with these notes, or any future adverse impacts or consequences resulting from the Contractors failure to properly reuse soil materials onsite as specifically described below, will be the Contractors sole responsibility for remedy and repair at his cost. If the Contractor has any questions regarding any of the soil materials onsite, the project Geotechnical reports (which he needs to obtain from the Owner or Geotechnical Consultant/ Engineer), or any questions associated with the notes below, it is presumed that the Contractor will satisfactorily resolve such questions/concerns prior to site demolition, clearing, grubbing, stripping and excavation operations begin.

Please note, local, state and federal rules, laws, and regulations prohibiting soil reuse as described below shall take precedence and shall be followed to the fullest extent.

1. Site Demolition Debris (Site demolition debris, not generally considered an environmental/contamination hazard, includes such items as wood pieces, concrete pieces, plastic pipe pieces, certain metal/steel pieces, or similar. If any such debris or other demolition debris is considered an environmental/contamination hazard, or if burial onsite of such materials is prohibited by the governing environmental agency, then all such materials shall be hauled off site by the Contractor for proper disposal, in accordance with all applicable governing environmental agency requirements. In no case, shall any such debris materials remain, or be placed by the Contractor, beneath any type of structure, pavement, roadway, house, building,pipeline, slab, etc.)

All Site Demolition Debris shall be removed from the site development and disposed of properly in accordance with all applicable governing environmental agency requirements.

2. Clearing and Grubbing Debris (Site clearing and grubbing debris includes all larger organic materials, such items as trees, stumps, limbs, brush, vegetation, or similar; all such materials must be either "burned" or "mulched" by the Contractor prior to reuse or disposal onsite.)

If acceptable to the governing environmental agency, then all such "burned" or "mulched" site clearing/grubbing debris, if approved in writing first by the Owner/Geotechnical Consultant/ Engineer, could be:

a). placed as "mulch" material surface dressing in future landscape areas, stockpiling of such"mulched" materials (amounts/locations), if acceptable, will be directed by the Owner/Geotechnical Consultant//Landscape Architect/Engineer;

b). placed in temporarily excavated littoral shelf areas in selected stormwater ponds, or in temporarily excavated selected wetland mitigation ponds, in either case not in side banks and not below the permitted design depth of the pond, or such debris could be buried in temporarily excavated passive recreation/park areas (at least 30 feet from any structure) at approved depths/locations, but all these disposal areas will require adequate soil mixing (mix soil with the mulch) and then refilling (with compaction) to required design grades;

c). placed along the bottom of selected floodplain mitigation ponds (not in side banks), not below the permitted excavation depth of the pond, but will require adequate soil cover;

d). placed along the bottom of selected deeper stormwater ponds (not in side banks), not below the permitted design depth, but will require adequate soil cover.

In all instances, the minimum pond depth (including floodplain and wetland mitigation areas) shall be no less than required by the Engineer.

All organic debris burial areas in stormwater pond areas and floodplain mitigation pond areas will require adequate soil cover of 18 - 24 inches (with compaction) by the Contractor, meaning at least an adequate weight/thickness of soil material overtop the buried organic debris, such that there will be no future floating up of debris; and for all organic debris burial areas in littoral shelf areas, wetland mitigation pond areas, and passive recreation/park areas, adequate soil/mulch mixing (with compaction) will be necessary by the Contractor, such that no significant future unacceptable settlement of a littoral shelf area, created wetland area, or park/grassed area will occur.

If any of these procedures are contemplated by the Contractor, then the Contractor shall notify the Owner/Geotechnical Consultant/Engineer in writing, at the start of construction, with some specific information, including the estimated quantity and types of materials, to which stormwater ponds, floodplain mitigation ponds, wetland mitigation ponds, or passive recreation/park areas they propose to use for this type of organic debris disposal, and what approximate elevations will be the top and bottom of the organic debris.

3. Muck/Peat Organic Materials (Typically generated from wetland or lowland areas, or similar areas, permitted for impact or displacement, including excavation of unsuitable organic materials and refilling with suitable sandy soils to accommodate development; includes significant organic peat materials, organic sandy muck materials, and mucky or organic sand materials, designated either Pt or A-8, per the Unified and AASHTO Soil Classification Systems, respectively; those organic materials whose presence, or placement by the Contractor, is unacceptable beneath any type of structure, pavement, roadway, house, building, pipeline, slab, etc.)

If acceptable to the governing environmental agency, then all such muck/peat (significant) organic materials, if approved in writing first by the Owner/Geotechnical Consultant/Engineer,could be:

a). placed as "peat/muck/organic matter" surface layer in new or created wetland mitigation areas, stockpiling of such "significant organic" materials (amounts/locations), if acceptable, will be directed by the Owner/Wetland Consultant;

b). placed in temporarily excavated littoral shelf areas in selected stormwater ponds, or in temporarily excavated selected wetland mitigation ponds, in either case not in side banks and not below the permitted design depth of the pond, or such organic materials could be buried in temporarily excavated passive recreation/park areas (at least 30 feet from any structure) at approved depths/locations, but all these disposal areas will require adequate soil mixing (mix soil with the organic materials) and then refilling (with compaction) to required design grades;

c). placed along the bottom of selected floodplain mitigation ponds (not in side banks), not below the permitted excavation depth of the pond, but will require adequate soil cover;

d.) placed along the bottom of selected deeper stormwater ponds (not in side banks), not below the permitted design depth, but will require adequate soil cover.

All organic debris burial areas in stormwater pond areas and floodplain mitigation pond areas will require adequate soil cover (with compaction) by the Contractor, meaning at least an adequate weight/thickness of soil material overtop the buried organic debris, such that there will be no future floating up of debris; and for all organic debris burial areas in littoral shelf areas, wetland mitigation pond areas, and passive recreation/park areas, adequate soil/organics mixing (with compaction) will be necessary by the Contractor, such that no significant future unacceptable settlement of a littoral shelf area, created wetland area, or park/grassed area will occur.

If any of these procedures are contemplated by the Contractor, then the Contractor shall notify the Owner/Geotechnical Consultant/Engineer in writing, at the start of construction, with some specific information, including the estimated quantity and types of materials, to which stormwater ponds, floodplain mitigation ponds, wetland mitigation ponds, or passive recreation/park/landscape berm areas they propose to use for this type of organic material disposal, and what approximate elevations will be the top and bottom of the organic materials.

4. Topsoils/Site Strippings (Typically generated from upland areas, after demolition/clearing/grubbing/discing operations; stripping of surficial organics/topsoils being a requirement over at least all structure, building, concrete slab and pavement areas prior to filling to accommodate development; includes topsoils and organic laden sands; those topsoils/organic sand materials whose presence, or placement by the Contractor, is unacceptable beneath any type of structure, pavement, roadway, house, building, pipeline, slab, etc.)

If acceptable to the governing environmental agency, all such topsoils/organic laden sand materials, if approved in writing first by the Owner/Geotechnical Consultant/Engineer, could be:

a). placed as fill in new (larger) landscape/grass common areas or landscape berm areas (with compaction), stockpiling of such "topsoils/organic laden sand materials" (amounts/locations), if acceptable, will be directed by the Owner/Landscape Consultant;

b). placed in temporarily excavated littoral shelf areas in selected stormwater ponds, or in temporarily excavated selected wetland mitigation ponds, in either case not in side banks and not below the permitted design depth of the pond, or such topsoils/organic laden sand materials could be buried in temporarily excavated passive recreation/park areas (at least 30 feet from any structure) at approved depths/locations, but all these disposal areas will require refilling (with compaction) to required design grades;

c). placed along the bottom of selected floodplain mitigation ponds (not in side banks), not below the permitted excavation depth of the pond;

d.) placed along the bottom of selected deeper stormwater ponds (not in side banks), not below the permitted design depth.

All topsoil/organic laden sand disposal areas in littoral shelf areas, wetland mitigation pond areas, passive recreation/park areas, or landscape/berm areas will require adequate compaction by the Contractor, such that no significant future unacceptable settlement of a littoral shelf area, created wetland area, park/grassed area, or landscape berm will occur.

If any of these procedures are contemplated by the Contractor, then the Contractor shall notify the Owner/Geotechnical Consultant/Engineer in writing, at the start of construction, with some specific information, including the estimated quantity and types of materials, to which stormwater ponds, floodplain mitigation ponds, wetland mitigation ponds, passive recreation/park areas, or landscape berm areas they propose to use for this type of organic debris disposal, and what approximate elevations will be the top and bottom of the organic debris.

5.) Non-Structural Clayey Sand/Clay Materials (Typically generated from pond/lake excavations or from utility pipeline/manhole excavations; such clayey sand/clay materials, with typically 40% fines or more passing the No. 200 sieve, designated either SC, CL, CH or A-4 to A-7, per the Unified and AASHTO Soil Classification Systems, respectively; such clayey sand/clay materials being unsuitable or unacceptable for reuse by the Contractor as building pad fill, structural fill, roadway embankment fill, and pipeline or manhole excavation backfill.)

If acceptable to the governing environmental agency, all such clayey sand/clay materials, if approved in writing first by the Owner/Geotechnical Consultant/Engineer, could be:

a). placed as fill in new (larger) landscape/grass common areas or landscape berm areas (with compaction), provide some surface drainage relief, use where infiltration and drainage is not an important issue, provide some surface sandy soils (min. of 18-inches) as directed by the Landscape Consultant for planting; stockpiling of such "clayey sand/clay materials" (amounts/locations), if acceptable, will be directed by the Owner/Landscape Consultant;

b). placed in temporarily excavated littoral shelf areas in selected stormwater ponds, or in temporarily excavated selected wetland mitigation ponds, in either case not in side banks and not below the permitted design depth of the pond, or such clayey sand/clay materials could be buried in temporarily excavated passive recreation/park areas (at least 30 feet from any structure) at approved depths/locations, but all these disposal areas will require refilling (with compaction) to required design grades, and the top 2 feet (min.) being sand materials (not clayey materials) for turbidity control and planting;

c). placed along the bottom of selected floodplain mitigation ponds (not in side banks), not below the permitted excavation depth of the pond; however, a 12-inch layer (min.) of sand material overtop the clayey materials will be necessary for turbidity control.

d.) placed along the bottom of selected deeper stormwater ponds (not in side banks), not below the permitted design depth, however, a 12-inch layer (min.) of sand material overtop the clayey materials will be necessary for turbidity control.

All clayey sand/clay disposal areas in littoral shelf areas, wetland mitigation pond areas, passive recreation/park areas, or landscape/berm areas will require adequate compaction by the Contractor, such that no significant future unacceptable settlement of a littoral shelf area, created wetland area, park/grassed area, or landscape berm will occur.

If any of these procedures are contemplated by the Contractor, then the Contractor shall notify the Owner/Geotechnical Consultant/Engineer in writing, at the start of construction, with some specific information, including the estimated quantity and types of materials, to which stormwater ponds, floodplain mitigation ponds, wetland mitigation ponds, passive recreation/park areas, or landscape berm areas they propose to use for this type of clayey sand/clay disposal, and what approximate elevations will be the top and bottom of the clayey materials.

6.) Structural Sand Fill Materials (Typically generated from pond/lake excavations, cut from higher elevation areas, or from utility pipeline/manhole excavations; such sand materials, with typically 35% fines or less passing the No. 200 sieve, designated either SP, SP-SM, SM or A-2-4, A-2-6 or A-3, per the Unified and AASHTO Soil Classification Systems, respectively; such sand materials being suitable or acceptable for reuse by the Contractor as building pad fill, structural fill, roadway embankment fill, and pipeline or manhole excavation backfill.)

All such sand materials shall be reused onsite by the Contractor, per the Geotechnical reports, as building pad fill, structural fill, roadway embankment fill, and pipeline or manhole excavation backfill; placed by the Contractor in loose lifts not exceeding 12-inches, compacted to at least 95% or 98% modified Proctor (per ASTM D-1557 or AASHTO T-180), whichever is applicable depending upon the future use of the filled area (see Geotechnical reports); with density testing of each fill lift for acceptance by the Geotechnical Consultant, upon Contractor request, prior to the next fill lift being placed.

GENERAL SITE NOTES

1. Erosion control devices specified herein shall be installed prior to site construction and shall be maintained throughout construction until site is permanently stabilized.
2. If during construction activities any evidence of historic resources, including but not limited to aboriginal or historic pottery, prehistoric stone tools, bone or shell tools, historic trash pits, or historic building foundation, are discovered, work shall come to an immediate stop and the Florida department of historic resources (state historic preservation officer) and Pasco county shall be notified within two working days of the resources found on site.
3. Any off site disturbance shall be restored to the pre-construction condition or better.
4. As applicable, the owner/developer shall provide copies of the required permits from the respective governing agencies, prior to issuance of the site development permit (SDP).
5. If during the construction activities any evidence of the presence of state and federally protected plant and/or animal species are discovered, work shall come to an immediate stop and Pasco County shall be notified within two working days of the plant and/or animal species found on site.
6. These plan were prepared with the benefit of and in conformance to the geotechnical recommendations contained in the reports by Faulkner Engineering Sercices, Inc. entitled as follows: Report of Limited Geotechnical Exploration (Dated September, 2005).
7. This project lies within flood zones A, AE, & X, according to flood insurance rate maps for Pasco County, FL, Federal Emergency Management Agency (FEMA) - Flood Insurance Rate Map (FIRM) community panel Nos. 12101C 0258F, 12101C 0259F, 12101C 0266F, & 12101C 0267F, Dated August 28, 2008 and issued by the federal emergency management agency.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\GNOTES.DWG -C-101 2014/12/13 2:48 PM ERIC FRANCIS

MIRADA
PHASE 1 MASS GRADING PLAN

GENERAL NOTES

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	GNOTES
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE: ____________
REGISTRATION NO. 50082

C-101

NOTE:
DEVELOPMENT PATTERN (FUTURE STREETS AND LOTS) AS SHOWN WITHIN THE MASS GRADING LIMITS IS CONCEPTUAL AND SHOWN FOR CONTEXT.

MASS-GRADE AREA
FUTURE LAND USE: RES-3 & RES-6

MASS-GRADE AREA
ZONING DISTRICT: MPUD

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN

AERIAL SITE PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

1	12/15/2015	REVIEW SUBMITTAL
	DATE	DESCRIPTION

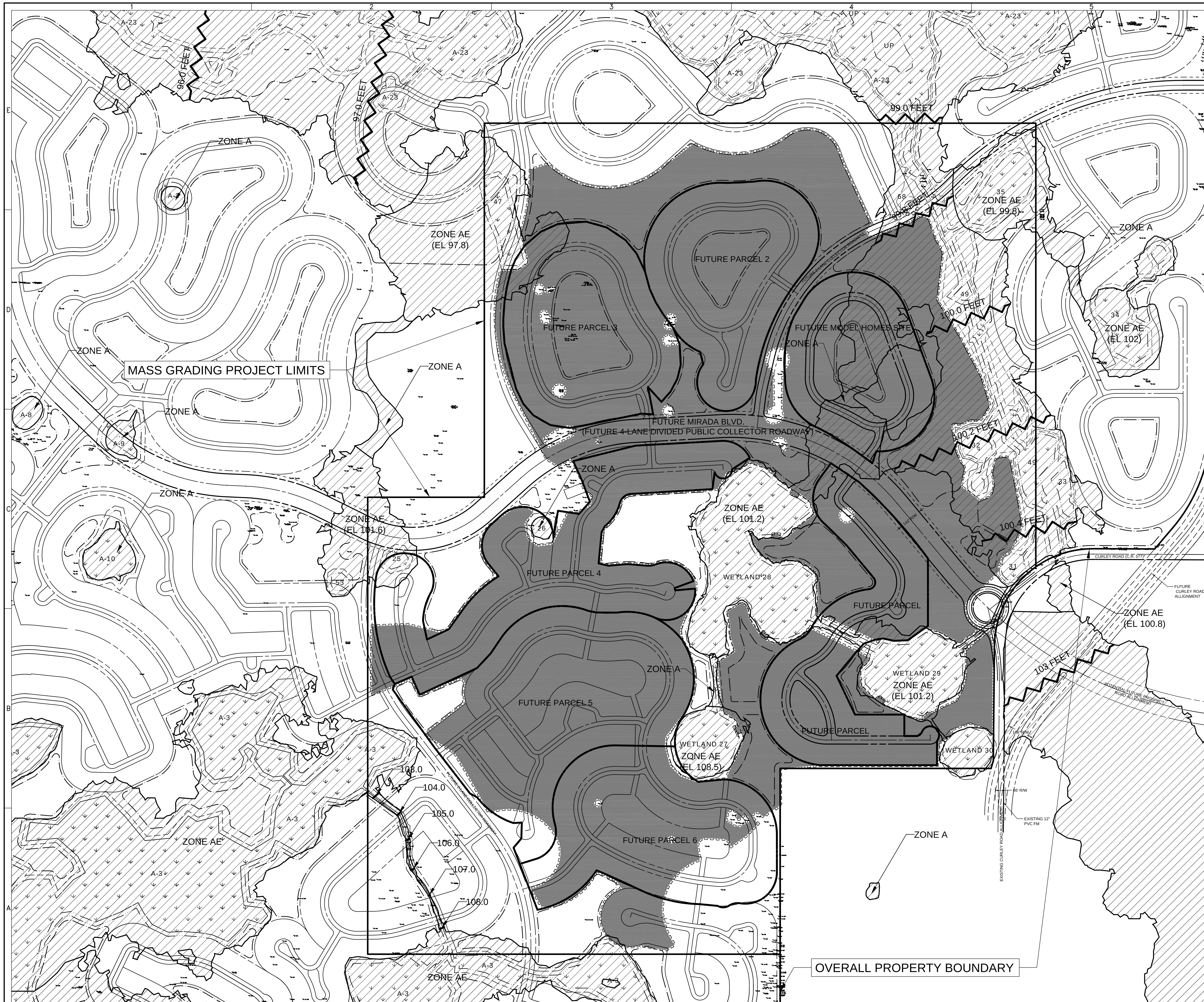
PROJECT NO:	CRP CR 1024
FILE:	ASP
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

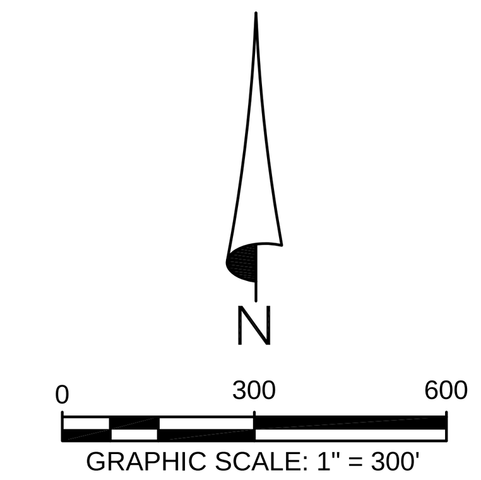
FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-102

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\ASP.DWG -C-102 2014/12/13 2:48 PM ERIC FRANCIS





LEGEND

- EXISTING WETLAND BOUNDARY
- 25' WETLAND SETBACK
- PROPERTY BOUNDARY LIMITS
- MASS GRADING PROJECT LIMITS
- PROPOSED POND LIMITS
- 100YR FLOOD PLAIN LIMITS ZONE A AND AE ALL OTHER AREAS ARE ZONE X
- SILT FENCE (DISTURBANCE LIMITS)
- DISTURBED AREA
- PARCEL LIMITS

*EXISTING CURLEY ROAD (C.R. 577) IS AN EXISTING 2-LANE PUBLIC ROADWAY WITH 24 FEET OF PAVEMENT ARRANGED IN A RURAL CROSS SECTION WITHIN 66 FEET OF RIGHT-OF-WAY; FUTURE CURLEY ROAD IS A 6-LANE URBAN ARTERIAL PUB;IC ROADWAY WITHIN 166 FEET RIGHT-OF-WAY.

NOTE: NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE WITHIN 50 FEET OF WELL LOCATIONS SHOWN ON THESE PLANS UNTIL THE WELL HAS BEEN PROPERLY ABANDONED IN ACCORDANCE WITH SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT REGULATIONS BY A CERTIFIED WELL CONTRACTOR

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
OVERALL MASS GRADING PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

1	12/15/2015	REVIEW SUBMITTAL
	DATE	DESCRIPTION

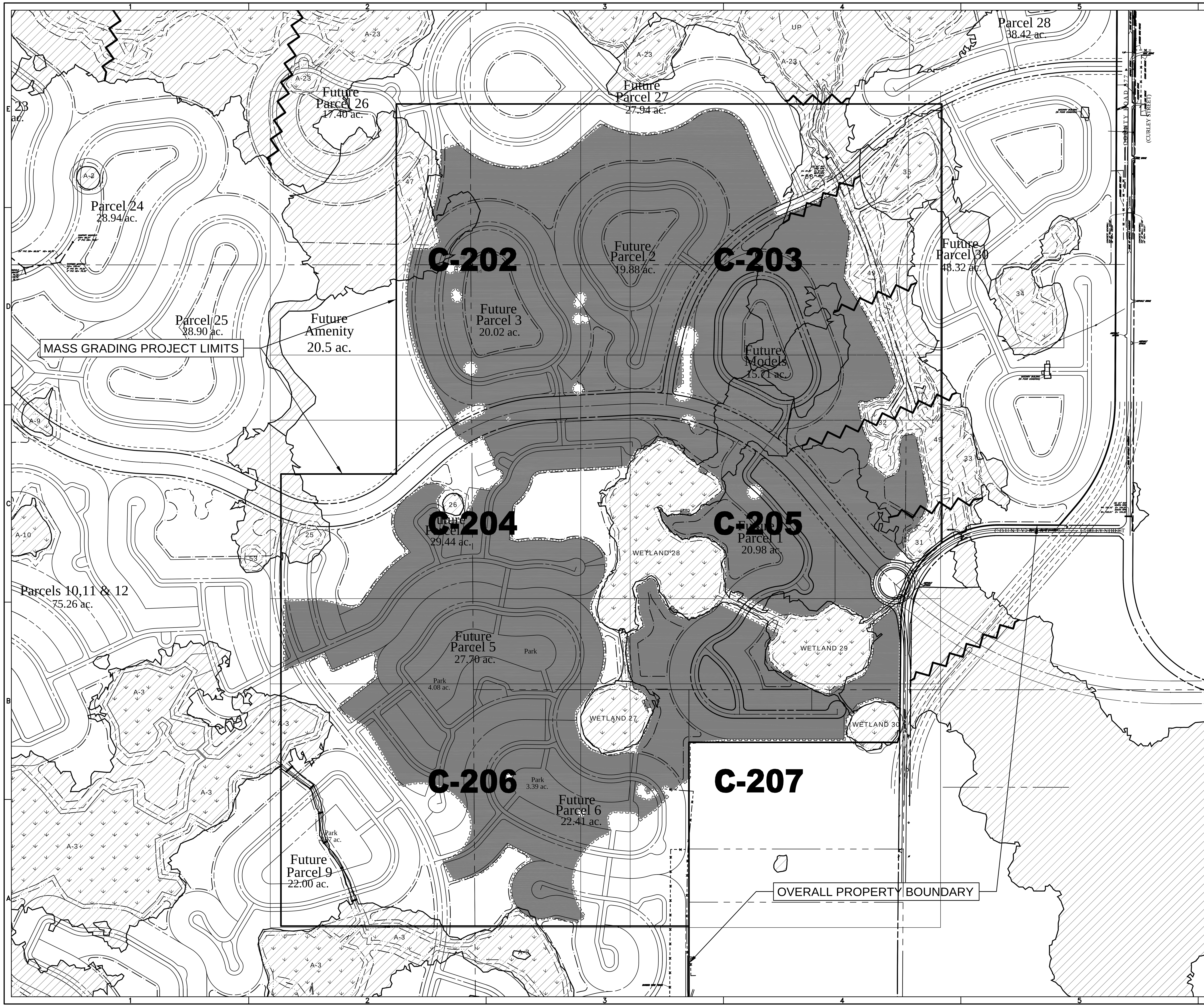
PROJECT NO:	CRP CR 1024
FILE:	MP
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-200

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\MP.DWG -C-200 OVERALL MASS GRADING PLAN 2014/12/13 2:48 PM ERIC FRANCIS



N

GRAPHIC SCALE: 1" = 300'

0 300 600

LEGEND

- EXISTING WETLAND BOUNDARY
- 25' WETLAND SETBACK
- PROPERTY BOUNDARY LIMITS
- MASS GRADING PROJECT LIMITS
- PROPOSED POND LIMITS
- 100YR FLOOD PLAIN LIMITS
- SILT FENCE (DISTURBANCE LIMITS)
- DISTURBED AREA

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\KEYMAP.DWG -C-201 KEY MAP 2014/12/13 2:49 PM ERIC FRANCIS

MIRADA
PHASE 1 MASS GRADING PLAN
KEY MAP

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

1	12/15/2015	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO:	CRP CR 1024
FILE:	KEYMAP
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-201

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

N

0 100 200
GRAPHIC SCALE: 1" = 100'

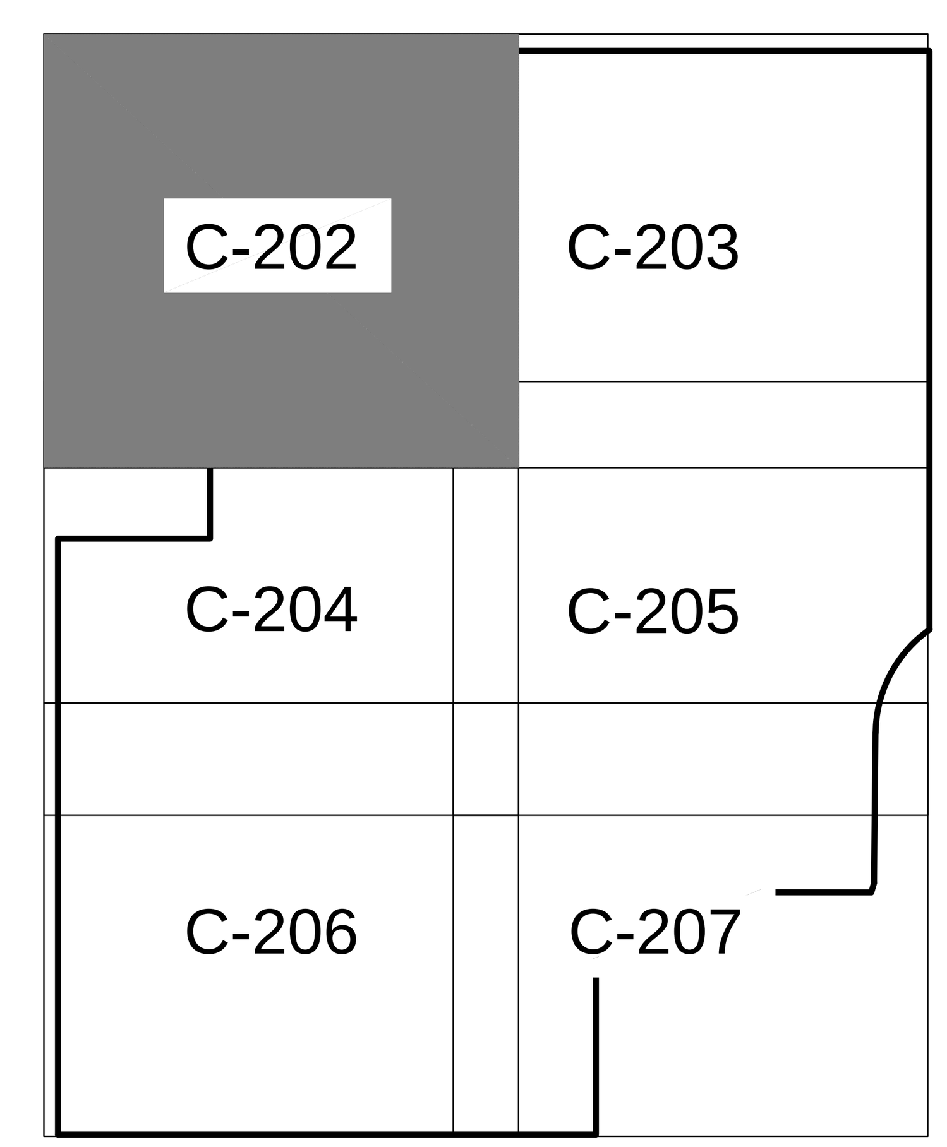
DRAINAGE LEGEND

EXISTING	PROPOSED	
15.00	45.0	SPOT ELEVATION
15	15	CONTOUR
		DIRECTION OF SURFACE FLOW
		STAKED EROSION CONTROL REPRESENTS THE SWFWMD PROJECT LIMITS AND THE LIMITS OF CLEARING AND FILLING
		WETLAND LINE
		25' WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
		100YR FLOOD LINE
	PB-#	POND BORING
		PHASE 1 FILL LIMITS
		MASS GRADING FLOW LINE
		MASS GRADING RIDGE

EXISTING TOPOGRAPHIC SURVEY PROVIDED BY D.C. JOHNSON & ASSOCIATES, DATED 12/1/2014.

THIS PROJECT LIES IN FLOOD ZONES, A, AE, & X ACCORDING TO FLOOD INSURANCE RATE MAPS FOR PASCO COUNTY, FLORIDA, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) - FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NOs. 12101C 0258F, 12101C 0259F, 12101C 0266F, & 12101C 0267F,DATED AUGUST 28, 2008 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
MASS GRADING PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

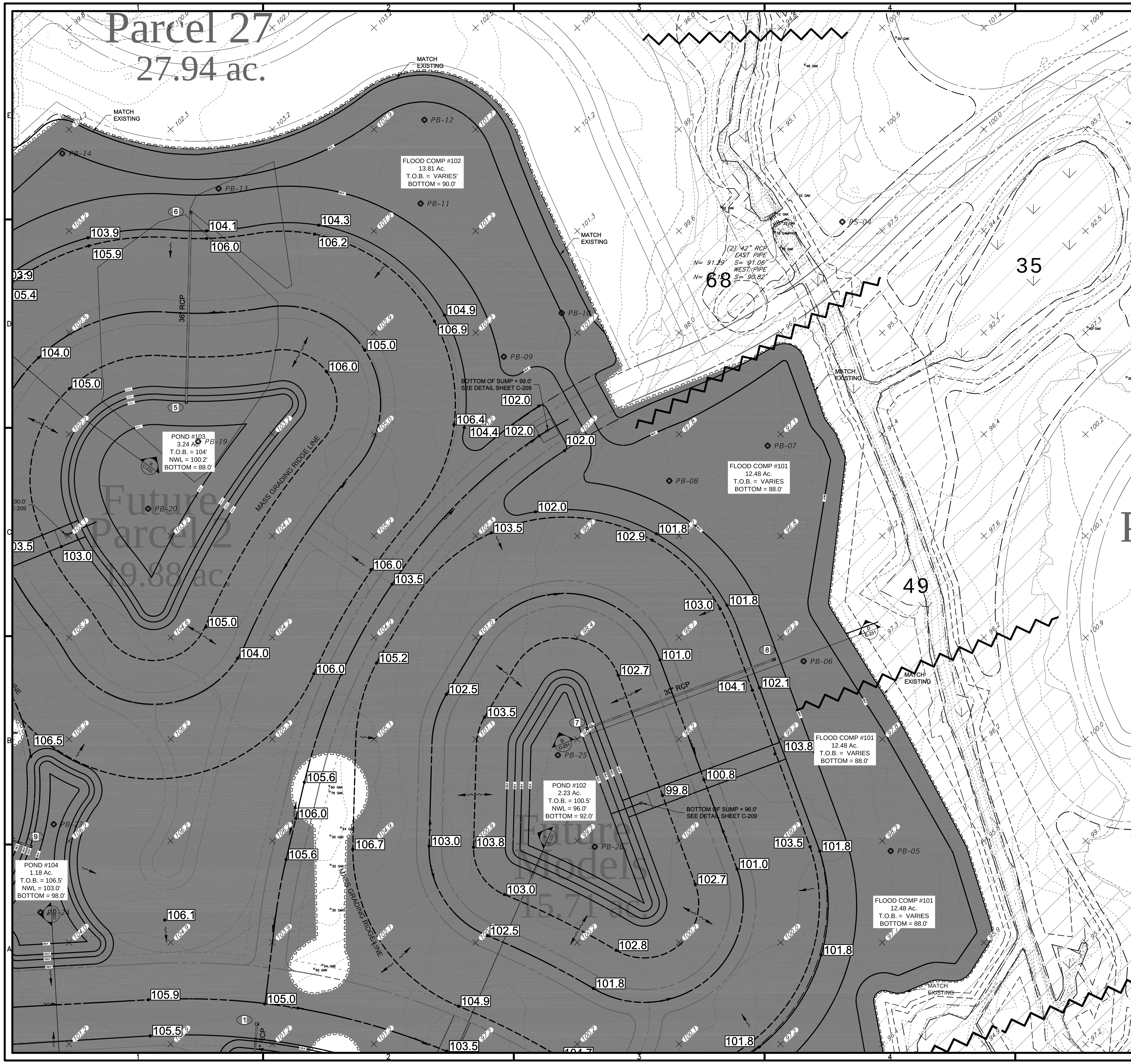
PROJECT NO:	CRP CR 1024
FILE:	BASE-PHASE_1
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-202

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\BASE-PHASE_1.DWG -C-202 MASS GRADING PLAN 2014/12/13 2:50 PM ERIC FRANCIS



ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

N

0 100 200
GRAPHIC SCALE: 1" = 100'

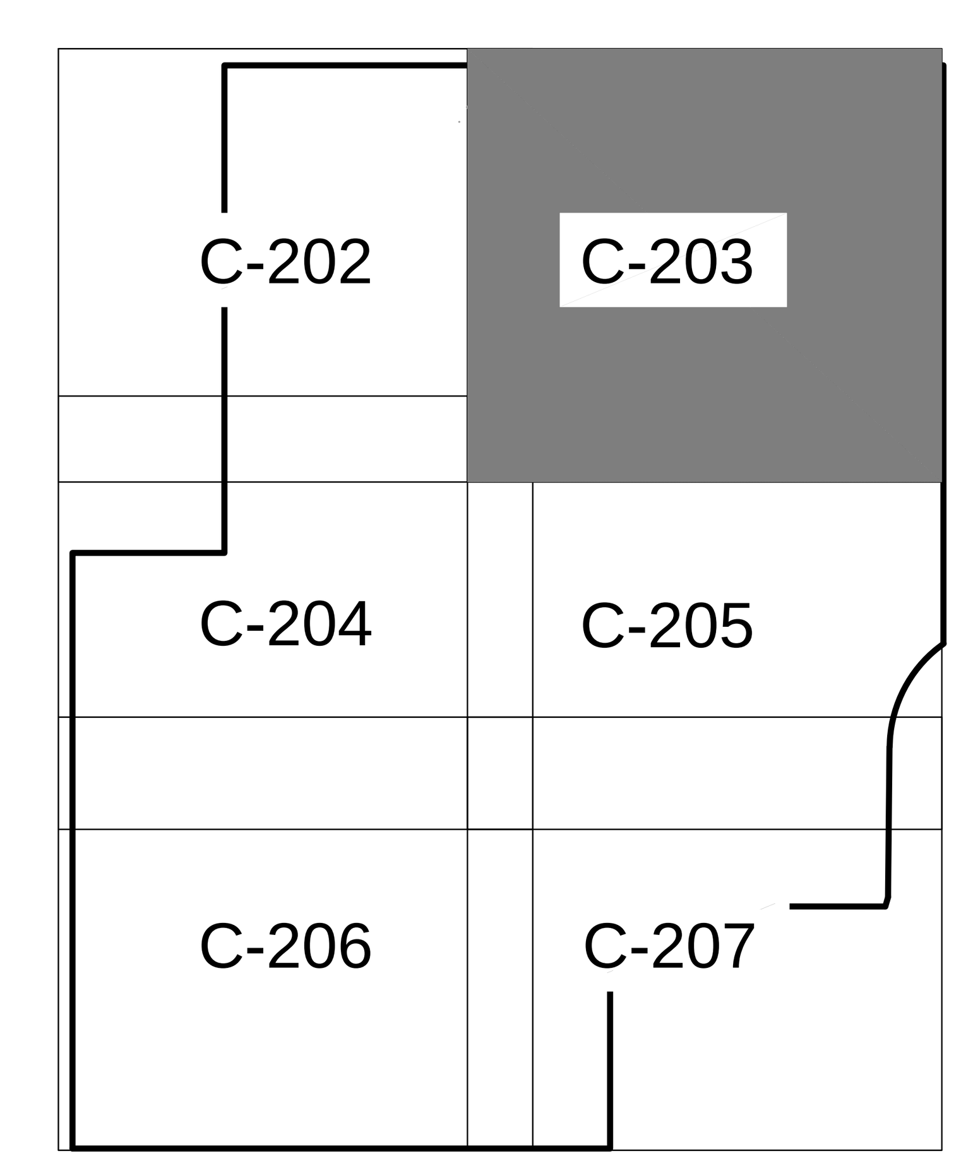
DRAINAGE LEGEND

EXISTING	PROPOSED	
15.00	45.0	SPOT ELEVATION
15	15	CONTOUR
		DIRECTION OF SURFACE FLOW
		STAKED EROSION CONTROL REPRESENTS THE SWFWMD PROJECT LIMITS AND THE LIMITS OF CLEARING AND FILLING
		WETLAND LINE
		25' WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
		100YR FLOOD LINE
	PB-#	POND BORING
		PHASE 1 FILL LIMITS
		MASS GRADING FLOW LINE
		MASS GRADING RIDGE

EXISTING TOPOGRAPHIC SURVEY PROVIDED BY D.C. JOHNSON & ASSOCIATES, DATED 12/1/2014.

THIS PROJECT LIES IN FLOOD ZONES, A, AE, & X ACCORDING TO FLOOD INSURANCE RATE MAPS FOR PASCO COUNTY, FLORIDA, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) - FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NOs. 12101C 0258F, 12101C 0259F, 12101C 0266F, & 12101C 0267F,DATED AUGUST 28, 2008 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
MASS GRADING PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	BASE-PHASE_1
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-203

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\BASE-PHASE_1.DWG -C-203 MASS GRADING PLAN 2014/12/13 2:51 PM ERIC FRANCIS

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

N

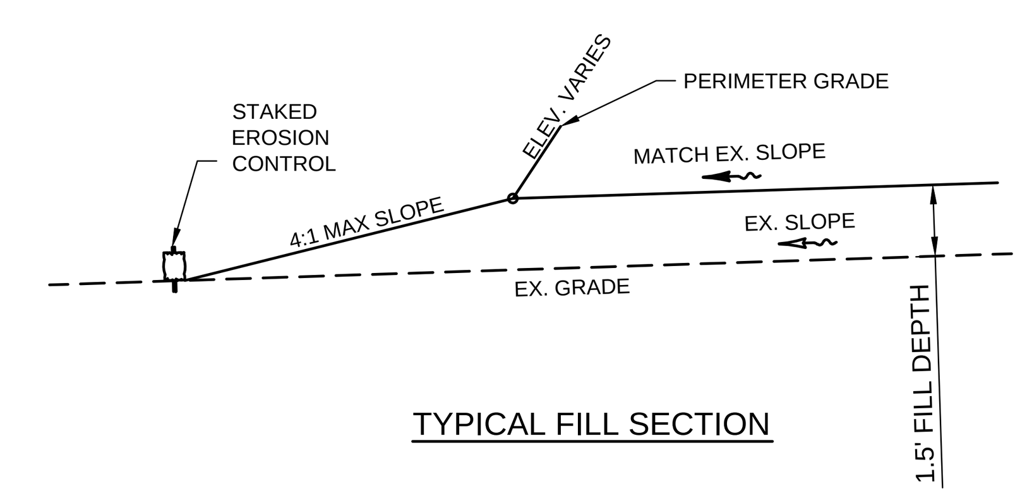
0 100 200
GRAPHIC SCALE: 1" = 100'

DRAINAGE LEGEND

EXISTING	PROPOSED	
15.00	45.0	SPOT ELEVATION
15	15	CONTOUR
		DIRECTION OF SURFACE FLOW
		STAKED EROSION CONTROL REPRESENTS THE SWFWMD PROJECT LIMITS AND THE LIMITS OF CLEARING AND FILLING
		WETLAND LINE
		25' WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
		100YR FLOOD LINE
	PB-#	POND BORING
		PHASE 1 FILL LIMITS
		MASS GRADING FLOW LINE
		MASS GRADING RIDGE

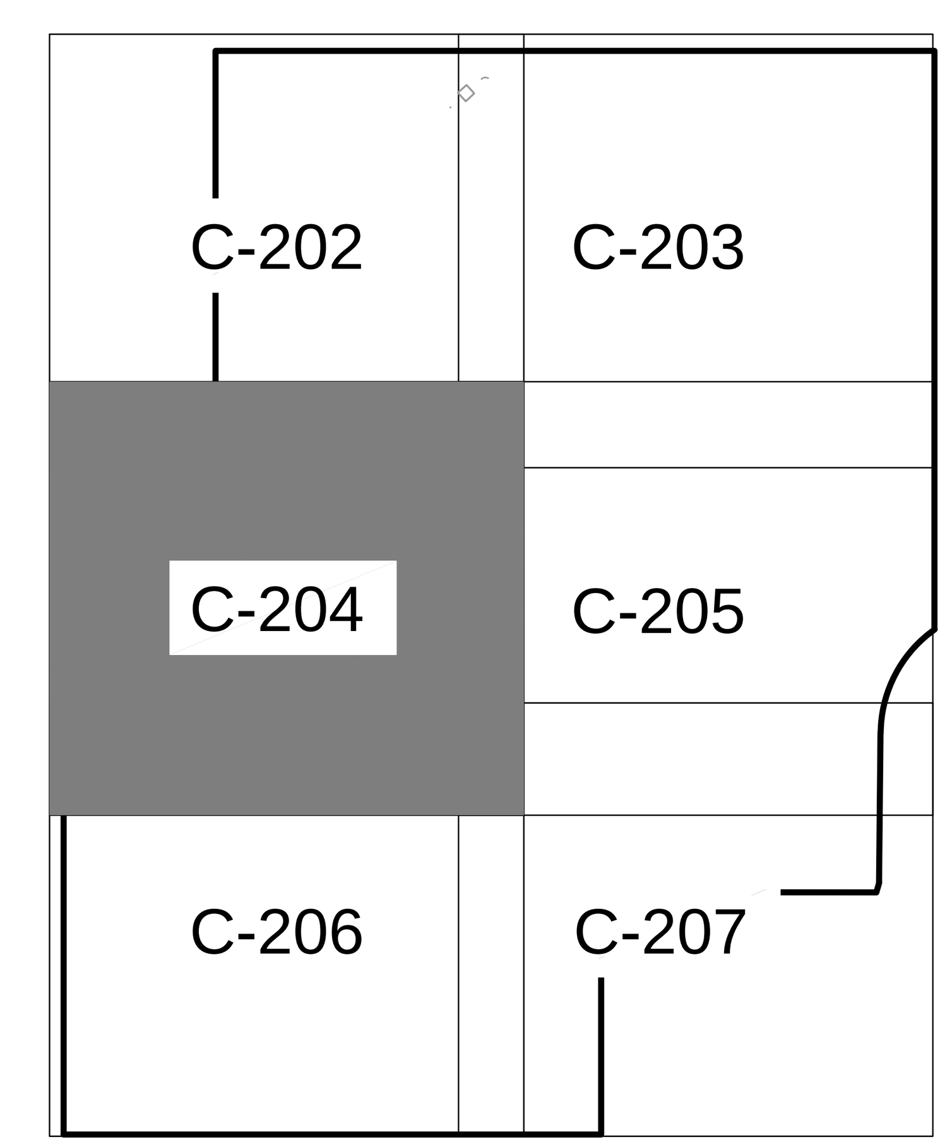
EXISTING TOPOGRAPHIC SURVEY PROVIDED BY D.C. JOHNSON & ASSOCIATES, DATED 12/1/2014.

THIS PROJECT LIES IN FLOOD ZONES, A, AE, & X ACCORDING TO FLOOD INSURANCE RATE MAPS FOR PASCO COUNTY, FLORIDA, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) - FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NOs. 12101C 0258F, 12101C 0259F, 12101C 0266F, & 12101C 0267F,DATED AUGUST 28, 2008 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.



TYPICAL FILL SECTION

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
MASS GRADING PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	BASE-PHASE_1
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-204

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\BASE-PHASE_1.DWG -C-204 MASS GRADING PLAN 2014/12/13 2:51 PM ERIC FRANCIS

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

N

GRAPHIC SCALE: 1" = 100' (0, 100, 200)

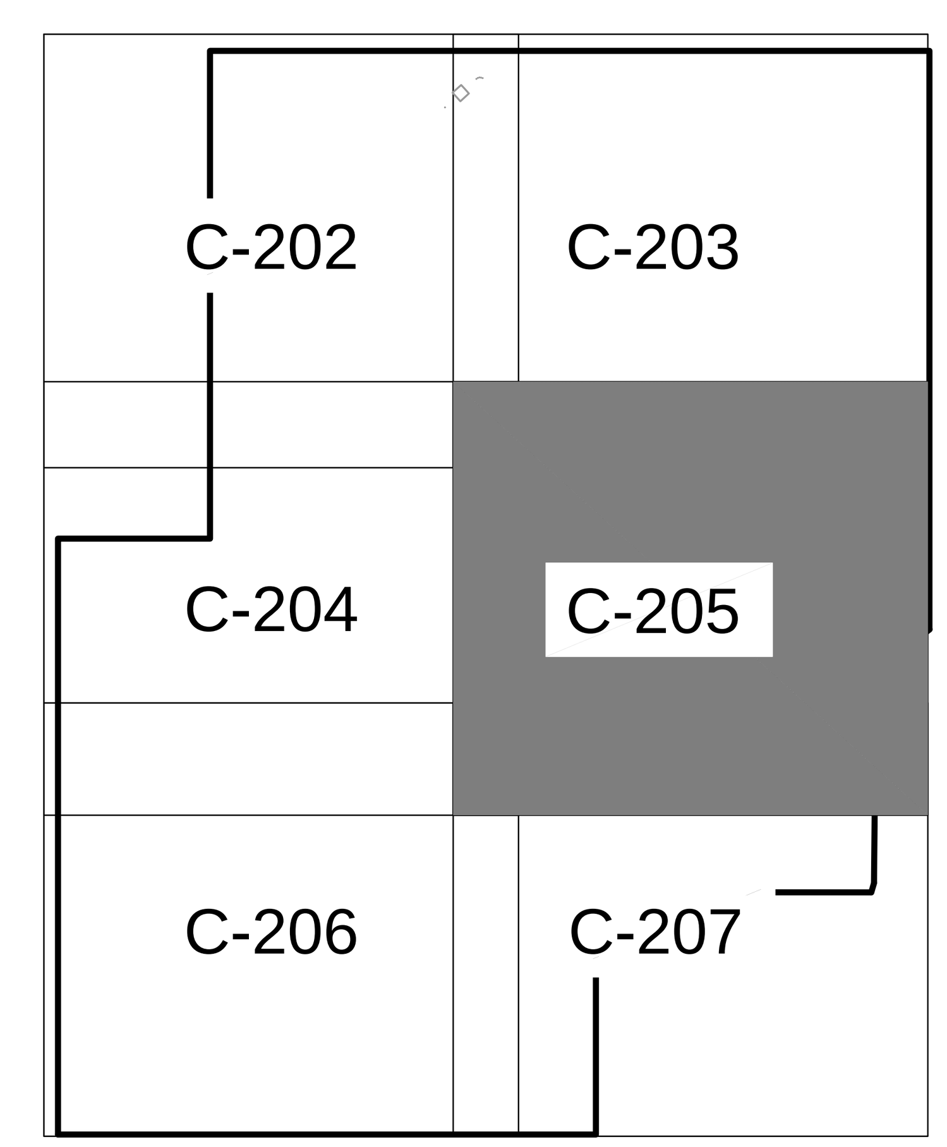
DRAINAGE LEGEND

EXISTING	PROPOSED	
15.00	45.0	SPOT ELEVATION
15	15	CONTOUR
		DIRECTION OF SURFACE FLOW
		STAKED EROSION CONTROL REPRESENTS THE SWFWMD PROJECT LIMITS AND THE LIMITS OF CLEARING AND FILLING
		WETLAND LINE
		25' WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
		100YR FLOOD LINE
	PB-#	POND BORING
		PHASE 1 FILL LIMITS
		MASS GRADING FLOW LINE
		MASS GRADING RIDGE

EXISTING TOPOGRAPHIC SURVEY PROVIDED BY D.C. JOHNSON & ASSOCIATES, DATED 12/1/2014.

THIS PROJECT LIES IN FLOOD ZONES, A, AE, & X ACCORDING TO FLOOD INSURANCE RATE MAPS FOR PASCO COUNTY, FLORIDA, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) - FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NOs. 12101C 0258F, 12101C 0259F, 12101C 0266F, & 12101C 0267F, DATED AUGUST 28, 2008 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
MASS GRADING PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

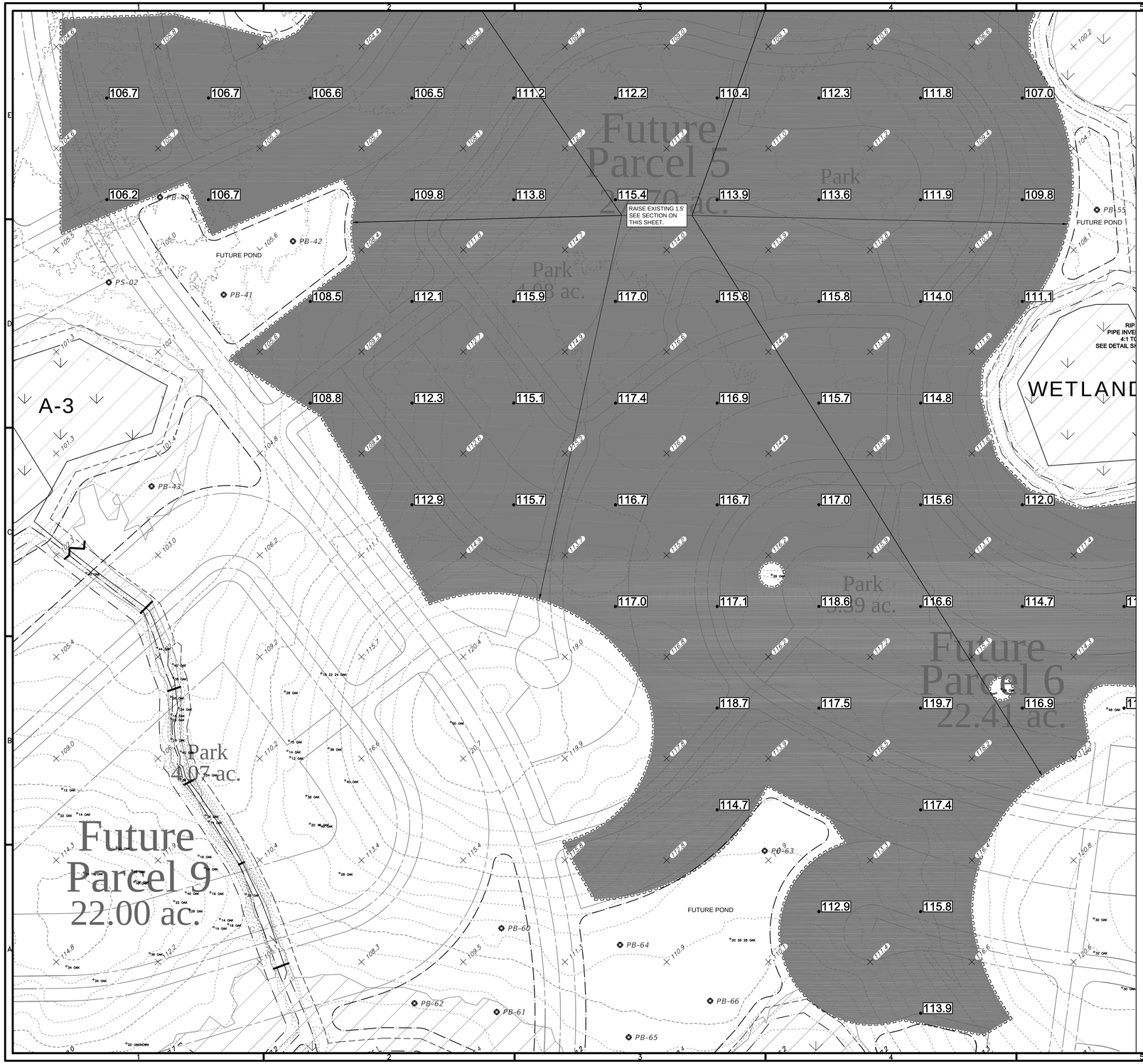
PROJECT NO:	CRP CR 1024
FILE:	BASE-PHASE_1
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

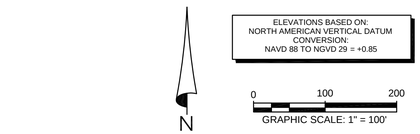
FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE: ____________
REGISTRATION NO. 50082

C-205

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\BASE-PHASE_1.DWG -C-205 MASS GRADING PLAN 2014/12/13 2:51 PM ERIC FRANCIS



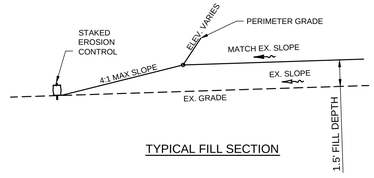


DRAINAGE LEGEND

EXISTING	PROPOSED	
15.00	45.0	SPOT ELEVATION
15	15	CONTOUR
		DIRECTION OF SURFACE FLOW
		STAKED EROSION CONTROL REPRESENTS THE SWFWMD PROJECT LIMITS AND THE LIMITS OF CLEARING AND FILLING
		WETLAND LINE
		25' WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
		100YR FLOOD LINE
	PB-#	POND BORING
		PHASE 1 FILL LIMITS
		MASS GRADING FLOW LINE
		MASS GRADING RIDGE

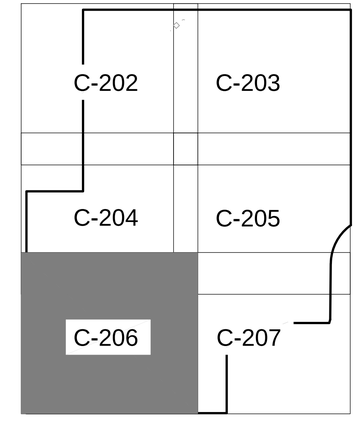
EXISTING TOPOGRAPHIC SURVEY PROVIDED BY D.C. JOHNSON & ASSOCIATES, DATED 12/1/2014.

THIS PROJECT LIES IN FLOOD ZONE:S, A, AE, & X ACCORDING TO FLOOD INSURANCE RATE MAPS FOR PASCO COUNTY, FLORIDA, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) - FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NOs. 12101C 0258F, 12101C 0259F, 12101C 0266F, & 12101C 0267F, DATED AUGUST 28, 2008 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.



TYPICAL FILL SECTION

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN

MASS GRADING PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

NO.	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	BASE-PHASE_1
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:_____
REGISTRATION NO. 50082

C-206

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\BASE-PHASE_1.DWG -C-206 MASS GRADING PLAN 2014/12/13 2:51 PM ERIC FRANCIS

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

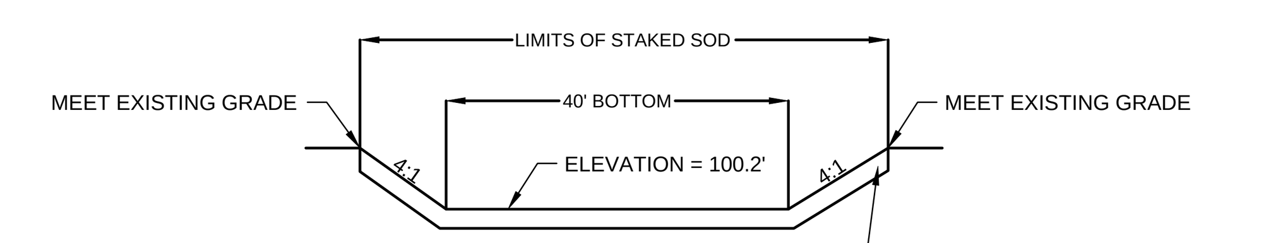
GRAPHIC SCALE: 1" = 100'

DRAINAGE LEGEND

EXISTING	PROPOSED	
15.00	45.0	SPOT ELEVATION
15	15	CONTOUR
		DIRECTION OF SURFACE FLOW
		STAKED EROSION CONTROL REPRESENTS THE SWFWMD PROJECT LIMITS AND THE LIMITS OF CLEARING AND FILLING
		WETLAND LINE
		25' WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
		100YR FLOOD LINE
	PB-#	POND BORING
		PHASE 1 FILL LIMITS
		MASS GRADING FLOW LINE
		MASS GRADING RIDGE

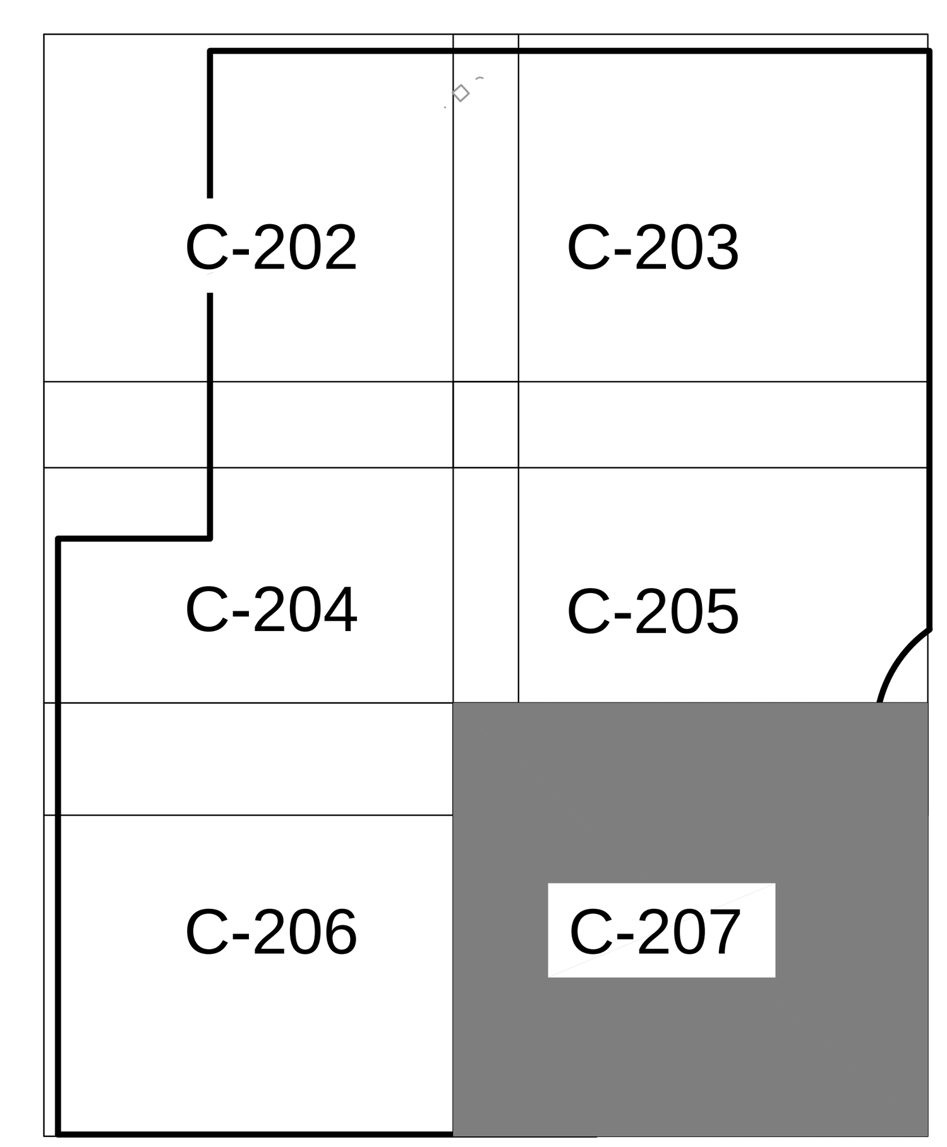
EXISTING TOPOGRAPHIC SURVEY PROVIDED BY D.C. JOHNSON & ASSOCIATES, DATED 12/1/2014.

THIS PROJECT LIES IN FLOOD ZONES, A, AE, & X ACCORDING TO FLOOD INSURANCE RATE MAPS FOR PASCO COUNTY, FLORIDA, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) - FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NOs. 12101C 0258F, 12101C 0259F, 12101C 0266F, & 12101C 0267F,DATED AUGUST 28, 2008 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.



PROPOSED DITCH DETAIL

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN

MASS GRADING PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	BASE-PHASE_1
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-207

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\BASE-PHASE_1.DWG -C-207 MASS GRADING PLAN 2014/12/13 2:51 PM ERIC FRANCIS

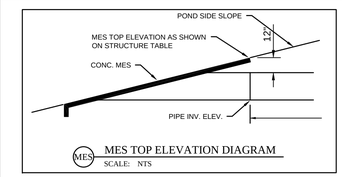
STRUCTURE TABLE

STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
1	TYPE 1 CURB INLET	104.60	TEMP 4'6"X4'6" TOP W/ NEENAH R-2565-F GRATE; 6' DIA.; FUTURE 18" RCP @ INV (N) = 95.97'; BRICK & MORTAR
2	MES 24" RCP		
3	TYPE D GRATE INLET	102.00	W/ALTERNATE B BOTTOM
4	MES 42" RCP		
5	TYPE D GRATE INLET	103.00	
6	MES 36" RCP		
7	TYPE D GRATE INLET	99.50	
8	MES 30" RCP		
9	TYPE C GRATE INLET	105.50	
10	MES 24" RCP		
11	TYPE D GRATE INLET	102.90	
12	MES 36" RCP		
13	TYPE D GRATE INLET	110.60	W/ATLERNATE B BOTTOM
14	MES 42" RCP		
15	TYPE C GRATE INLET	103.50	
16	MES 18" RCP		
17	TYPE C GRATE INLET	102.50	
18	MES 24" RCP		
19	TYPE D GRATE INLET	99.70	
20	MES 30" RCP		
21	TYPE D GRATE INLET	102.50	
22	MES 30" RCP		
23	TYPE 1 CURB INLET	103.23	TEMP 4'6"X4'6" TOP W/ NEENAH R-2565-F GRATE; 6' DIA.; FUTURE 18" RCP @ INV (NE) = 98.57'; FUTURE 30" RCP @ INV (SE) = 93.39'; BRICK & MORTAR
24	MES 36" RCP		
25	TYPE 1 CURB INLET	102.33	TEMP 4'6"X4'6" TOP W/ NEENAH R-2565-F GRATE; 6' DIA.; FUTURE 18" RCP @ INV (SW) = 97.09'; BRICK & MORTAR
26	MES 24" RCP		
27	TYPE 1 CURB INLET	103.28	TEMP 4'6"X4'6" TOP W/ NEENAH R-2565-F GRATE; 6' DIA.; FUTURE 18" RCP @ INV (SW) = 97.99'; BRICK & MORTAR
28	MES 24" RCP		

PIPE TABLE

START STR.	END STR.	PIPE DIMENSION & MATERIAL	LENGTH	SLOPE	START INV.	END INV.	FALL IN FEET
1	2	24" RCP	68	0.18%	95.47	95.35	0.12
3	4	42" RCP	391	0.10%	94.00	93.60	0.40
5	6	36" RCP	368	0.08%	96.00	95.70	0.30
7	8	30" RCP	386	0.10%	92.20	91.80	0.40
9	10	24" RCP	355	0.11%	99.00	98.60	0.40
11	12	36" RCP	38	0.53%	95.50	95.30	0.20
13	14	42" RCP	69	0.29%	103.00	102.80	0.20
15	16	18" RCP	85	0.24%	99.00	98.80	0.20
17	18	24" RCP	60	0.33%	96.00	95.80	0.20
19	20	30" RCP	56	0.36%	94.00	93.80	0.20
21	22	30" RCP	46	0.43%	96.00	95.80	0.20
23	24	36" RCP	71	0.14%	92.89	92.79	0.10
25	26	24" RCP	121	0.18%	93.22	93.00	0.22
27	28	24" RCP	158	0.18%	93.28	93.00	0.28

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85



MES TOP ELEVATION DIAGRAM
SCALE: NTS

NOTE:

- ALL INLET AND MANHOLE STRUCTURE BOTTOMS ARE SPECIFIED TYPE 'P' UNLESS OTHERWISE NOTED. REFER TO FDOT DESIGN STANDARDS INDEX #200 & #201.
- ALL MITERED END SECTIONS (MES) ARE SPECIFIED FDOT INDEX #272 UNLESS OTHERWISE NOTED.
- MITERED END SECTION TOP ELEVATION DENOTES THE ELEVATION ON POND SIDE SLOPE AS SHOWN ON DETAIL "MES", THIS SHEET.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN

STORM STRUCTURE DATA

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

DESCRIPTION	DATE

1	12/15/2015	REVIEW SUBMITTAL	
	DATE	DESCRIPTION	

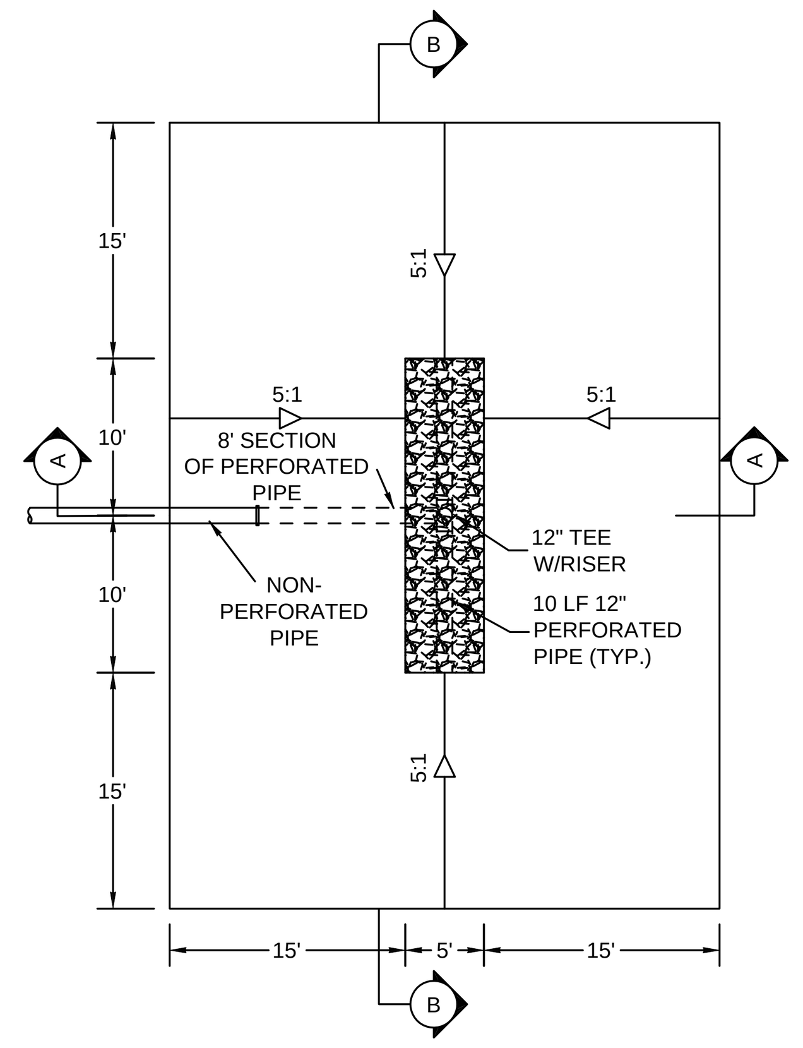
PROJECT NO:	CRP CR 1024
FILE:	STORM
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

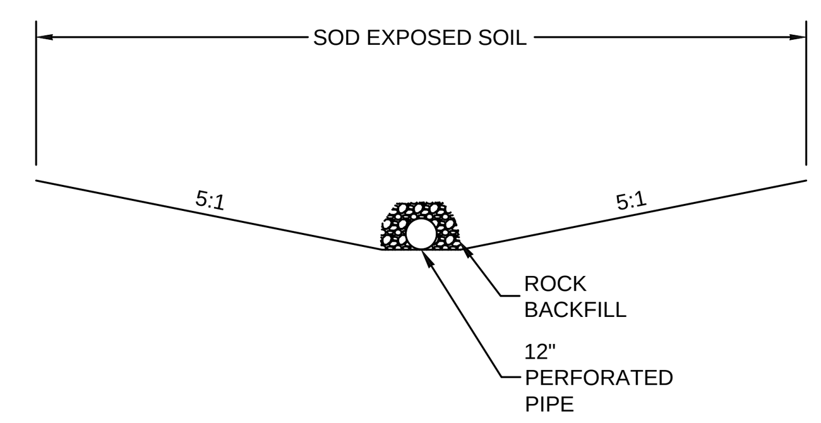
EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-208

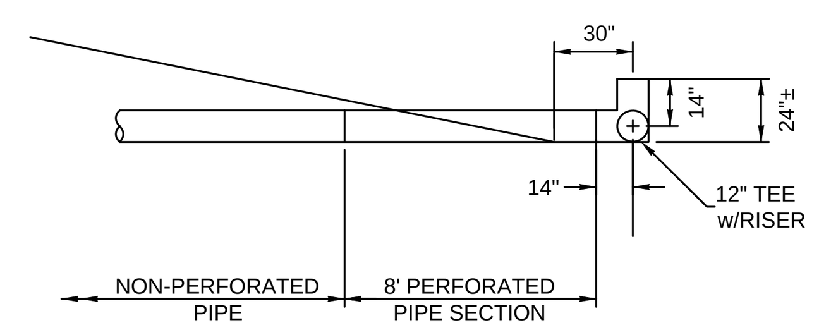
R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\STORM.DWG -C-208 2014/12/13 7:53 PM ERIC FRANCIS



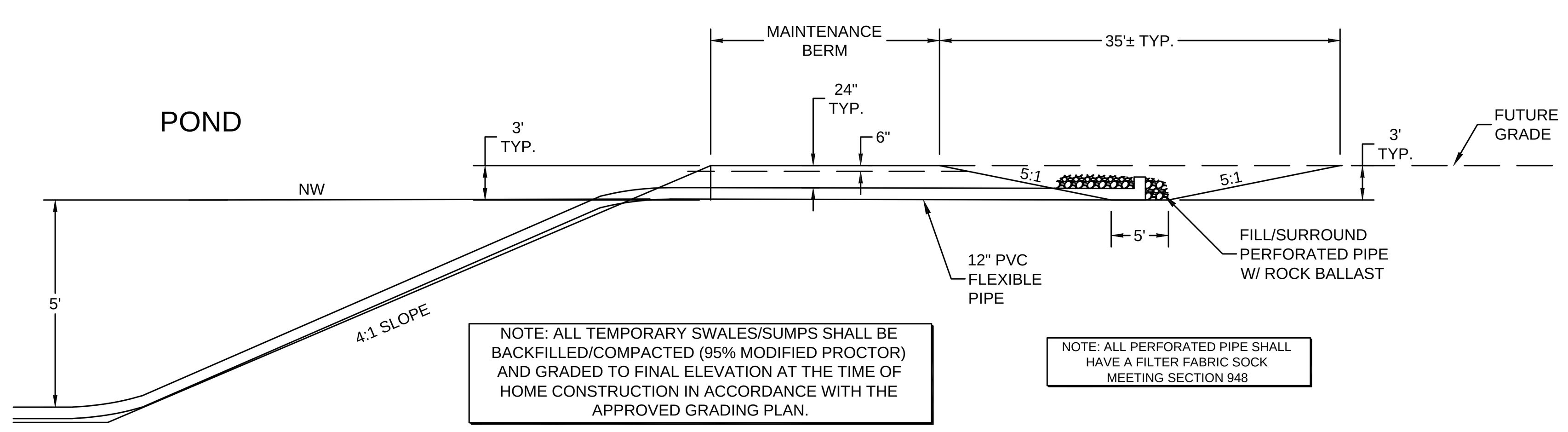
TEMPORARY SUMP DETAIL
NOT TO SCALE



SECTION BB
NOT TO SCALE



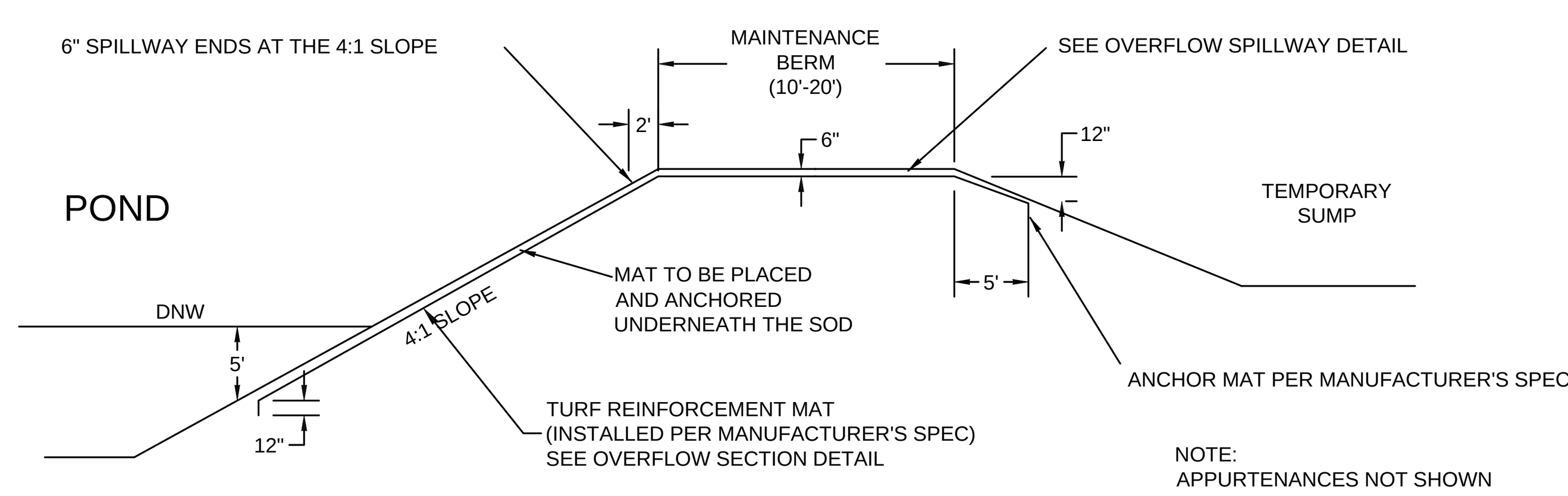
SECTION AA
NOT TO SCALE



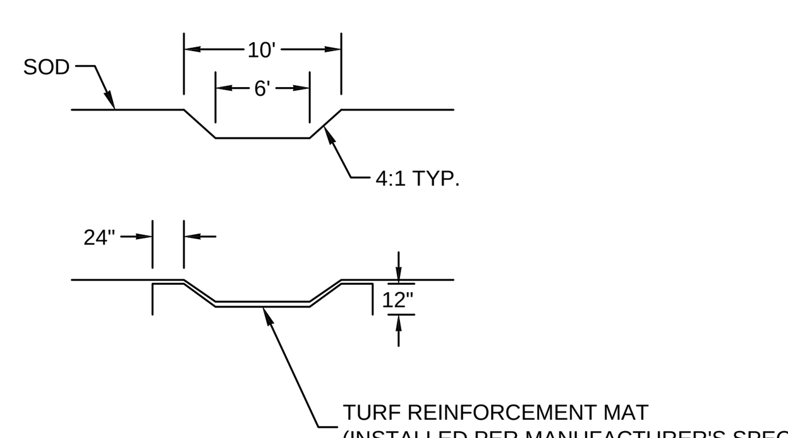
NOTE: ALL TEMPORARY SWALES/SUMPS SHALL BE BACKFILLED/COMPACTED (95% MODIFIED PROCTOR) AND GRADED TO FINAL ELEVATION AT THE TIME OF HOME CONSTRUCTION IN ACCORDANCE WITH THE APPROVED GRADING PLAN.

NOTE: ALL PERFORATED PIPE SHALL HAVE A FILTER FABRIC SOCK MEETING SECTION 948

TYPICAL TEMPORARY SUMP OUTFALL DETAIL
NOT TO SCALE



TEMPORARY SUMP EMERGENCY OVERFLOW SECTION DETAIL
NOT TO SCALE



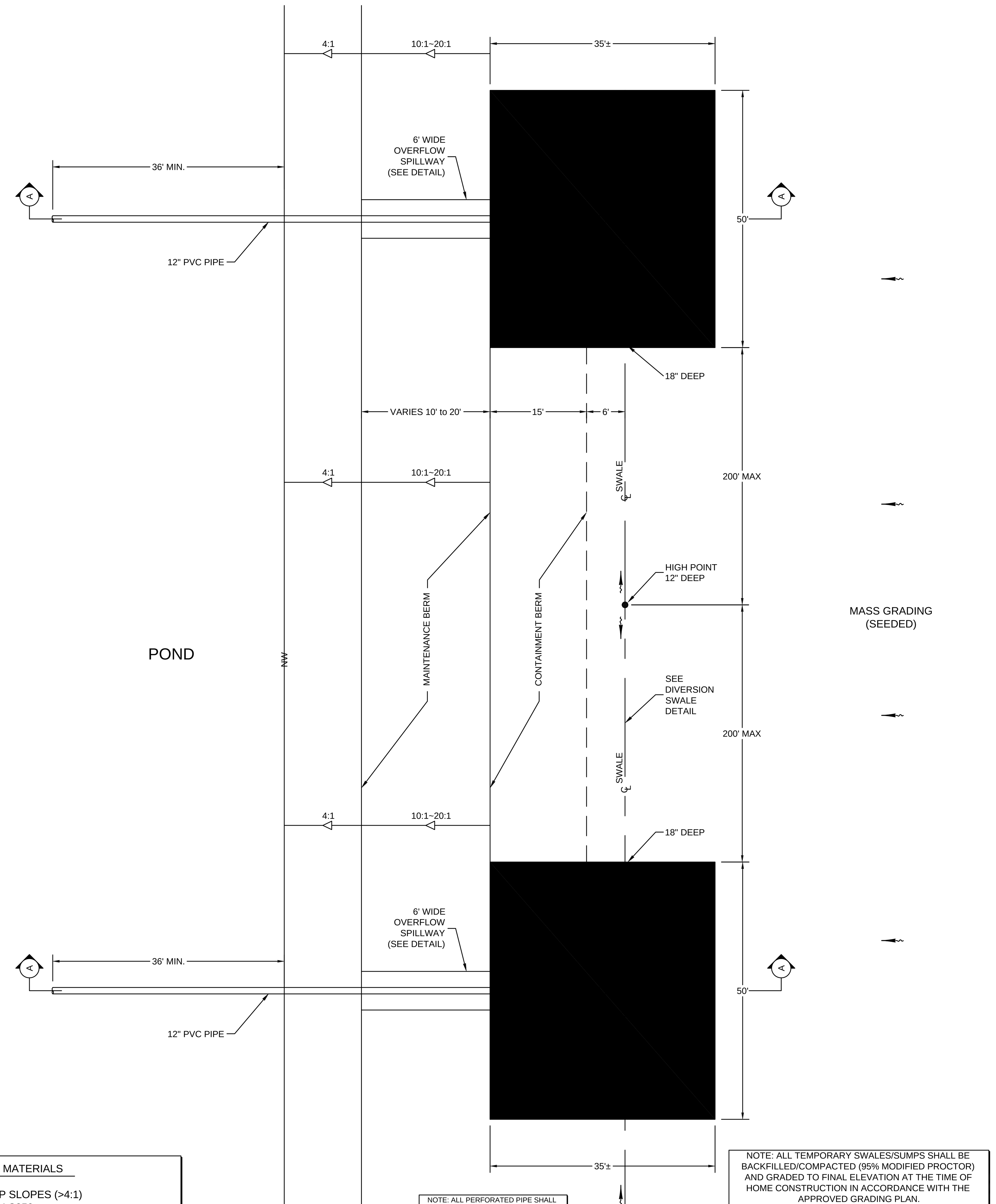
6' WIDE OVERFLOW SPILLWAY DETAIL THROUGH BERM
NOT TO SCALE

ACCEPTABLE EROSION CONTROL MATERIALS

FOR FLOW CHANNELS AND STEEP SLOPES (>4:1)
- NORTH AMERICAN GREEN VMAX C350
- ERO-GUARD EG-2 C
- NORTH AMERICAN GREEN VMAX SC250
- ERO-GUARD EG-2 S/C

FOR EMBANKMENT STABILIZATION (<4:1)
- NORTH AMERICAN GREEN BIONET SC150 BN
- NORTH AMERICAN GREEN SC150
- ERO-GUARD BG-2 SIC

NOTE: ALL MATERIAL SHALL AT A MINIMUM BE INSTALLED MANUFACTURER'S INSTALLATION INSTRUCTIONS/ SPECIFICATIONS/GUIDELINES



NOTE: ALL TEMPORARY SWALES/SUMPS SHALL BE BACKFILLED/COMPACTED (95% MODIFIED PROCTOR) AND GRADED TO FINAL ELEVATION AT THE TIME OF HOME CONSTRUCTION IN ACCORDANCE WITH THE APPROVED GRADING PLAN.

NOTE: ALL PERFORATED PIPE SHALL HAVE A FILTER FABRIC SOCK MEETING SECTION 948

TYPICAL TEMPORARY POND PROTECTION PLAN
(FOR LARGE AREAS OF MASS GRADING)
NOT TO SCALE

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
MASS GRADING DETAILS

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

DATE	DESCRIPTION
12/15/2014	REVIEW SUBMITTAL

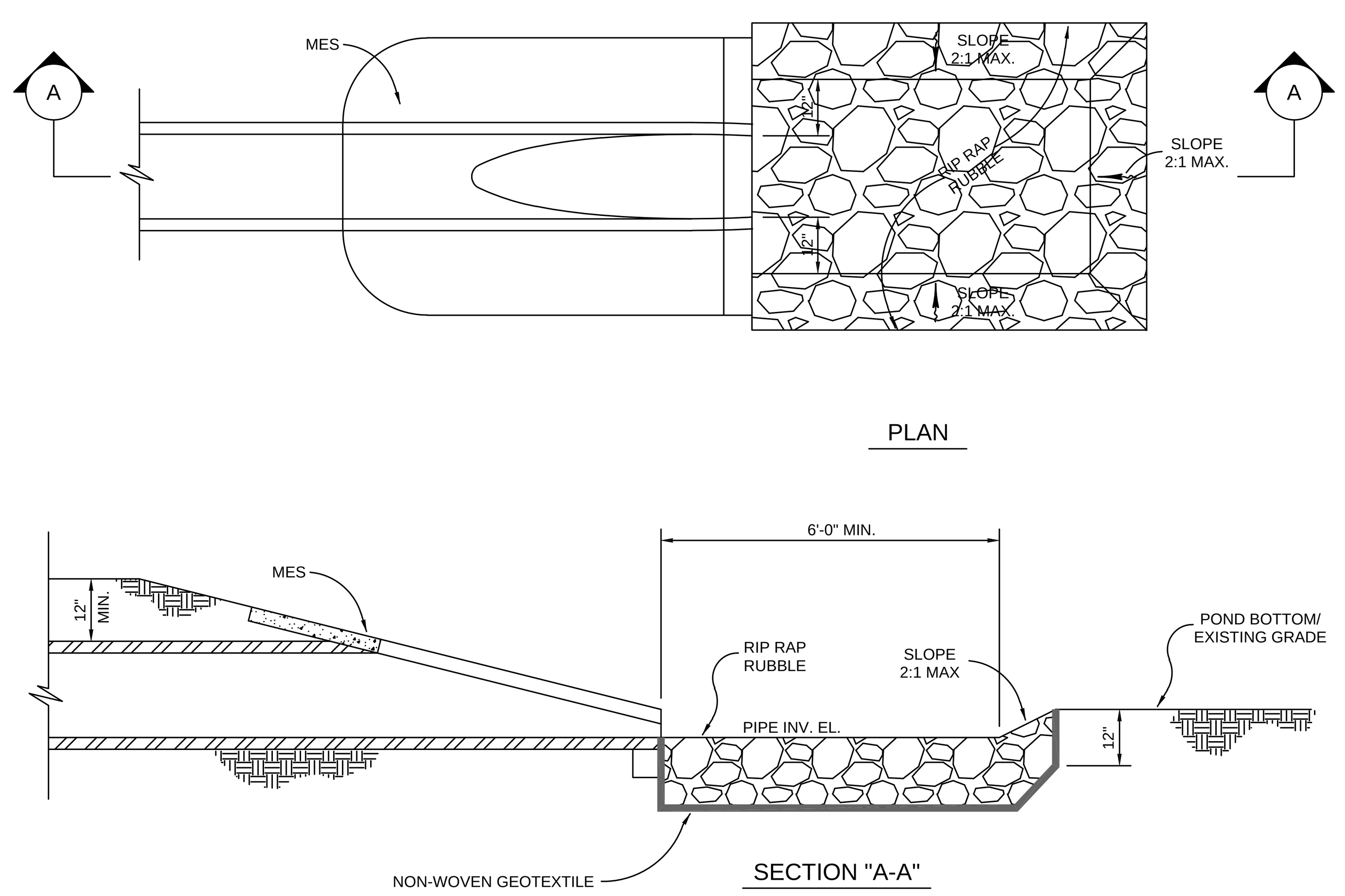
PROJECT NO:	CRP CR 1024
FILE:	SEC
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-209

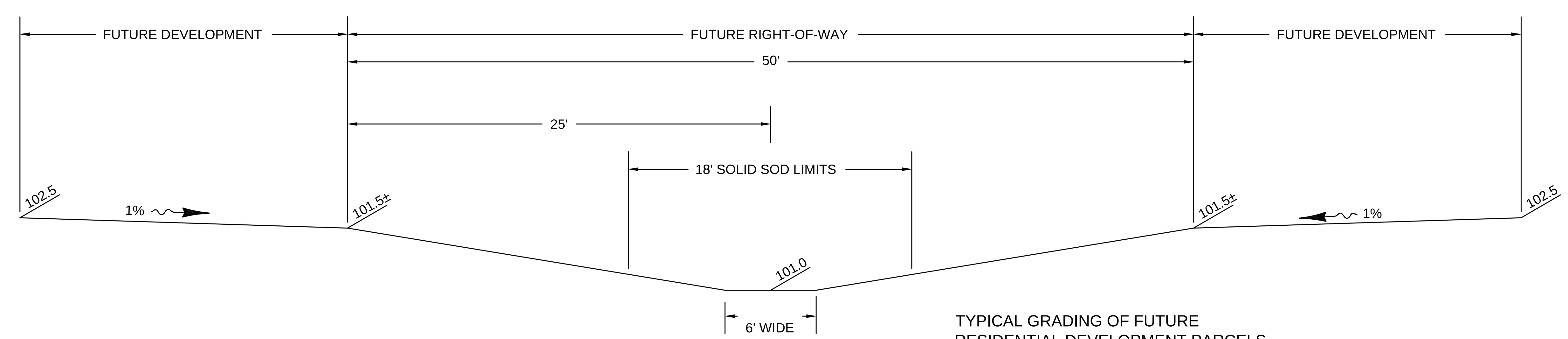
R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\SEC.DWG C-209 2014/12/13 2:52 PM ERIC FRANCIS



TYPICAL POND/OUTFALL SUMP DETAIL

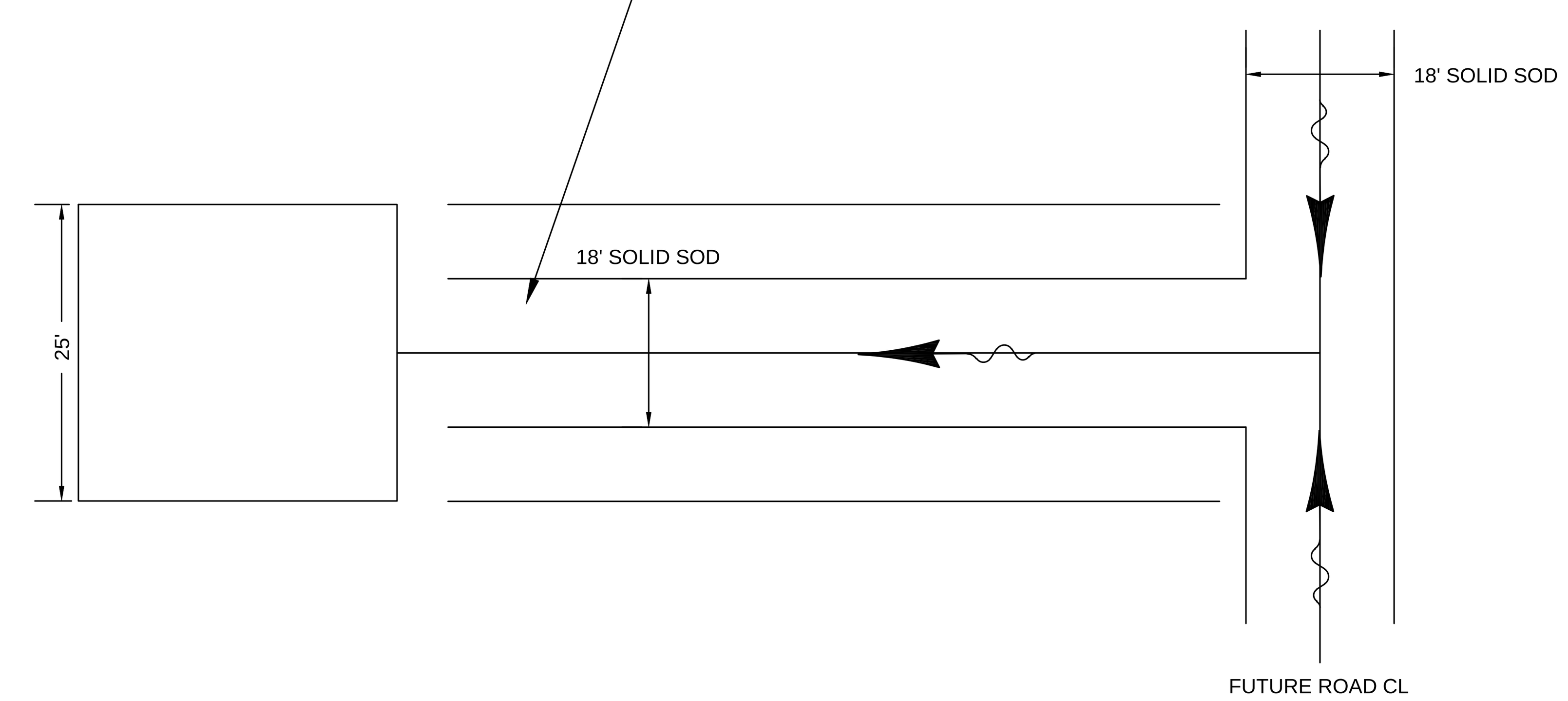
SCALE: NTS

ADDITIONAL SUMP DETAILS



TYPICAL GRADING OF FUTURE RESIDENTIAL DEVELOPMENT PARCELS LONGITUDINAL SLOPE MIN 0.1%

ALL DISTURBED AREAS SHALL BE SEED & MULCHED UPON COMPLETION OF FINE GRADING.



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\SEC.DWG-C-210 2014/12/13 2:52 PM ERIC FRANCIS

MIRADA
PHASE 1 MASS GRADING PLAN

MASS GRADING DETAILS

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

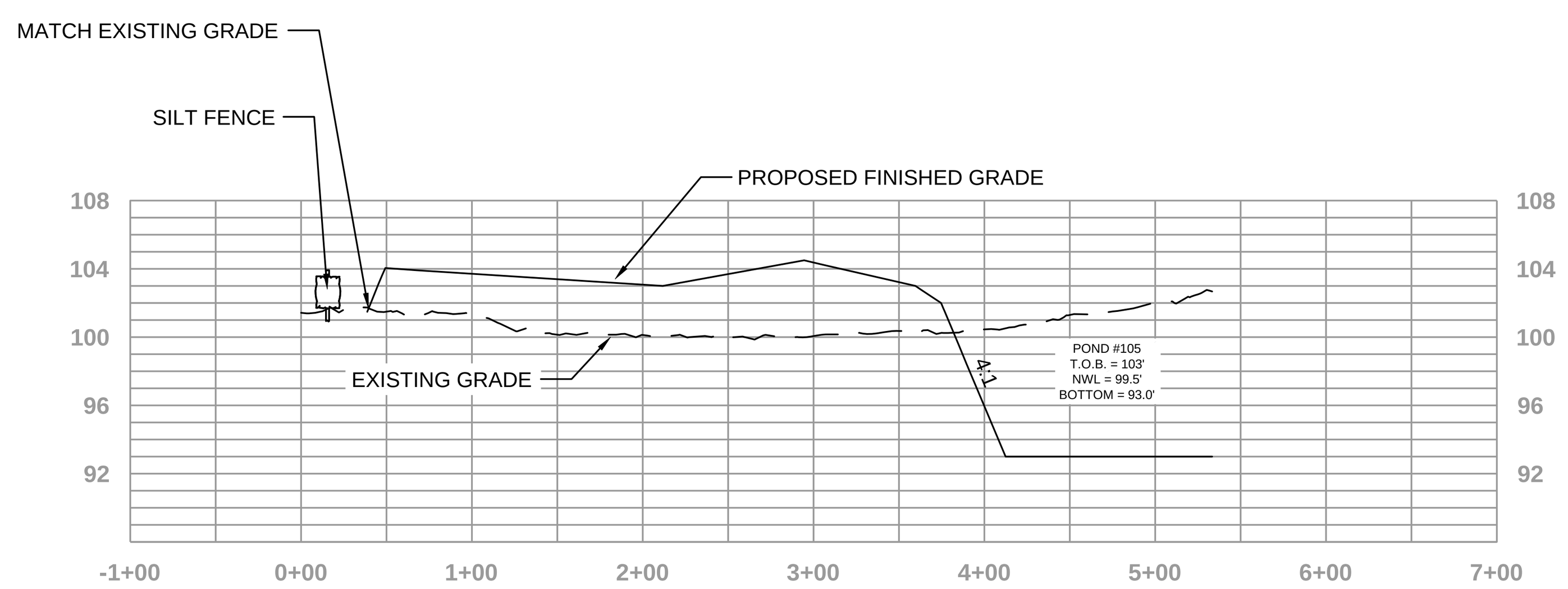
	DATE	DESCRIPTION
1	12/15/2014	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	SEC
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

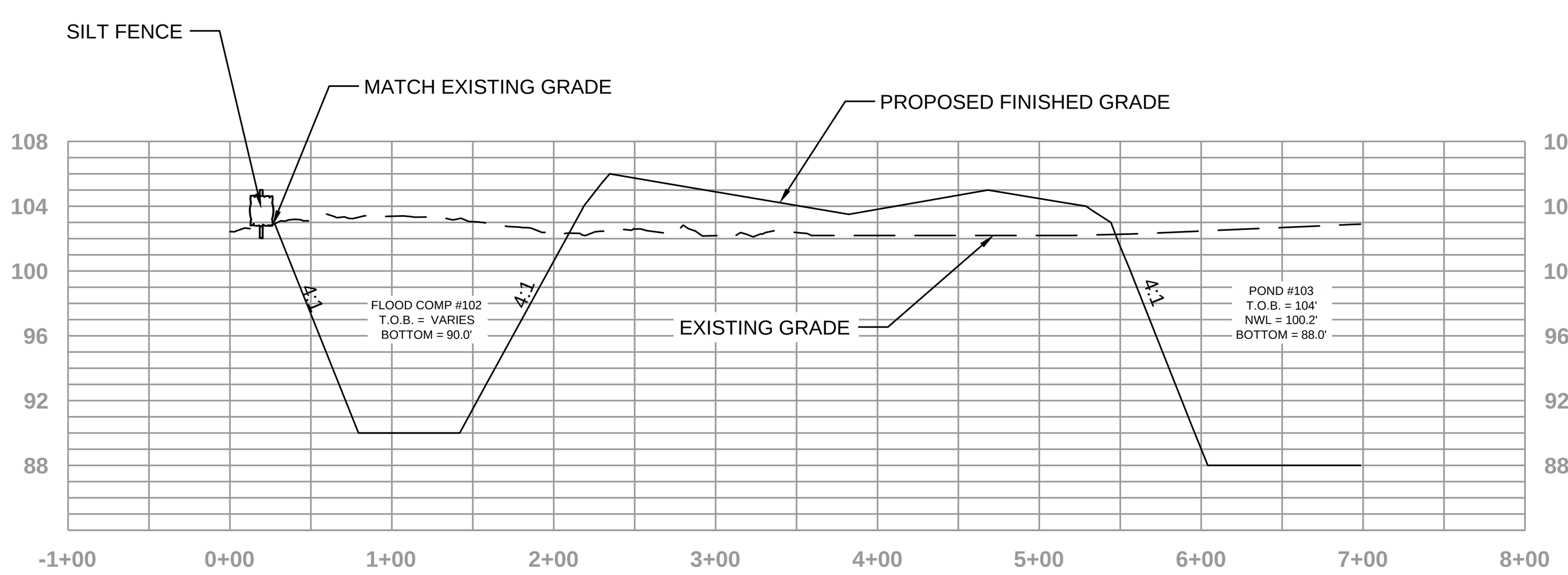
FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

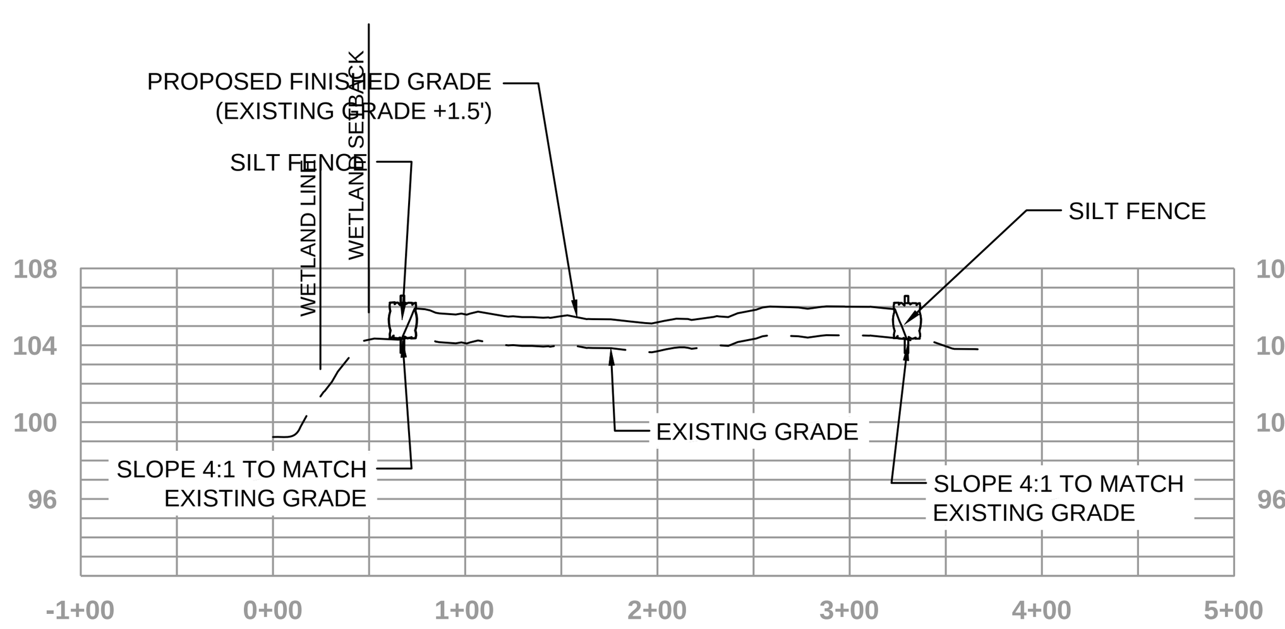
C-210



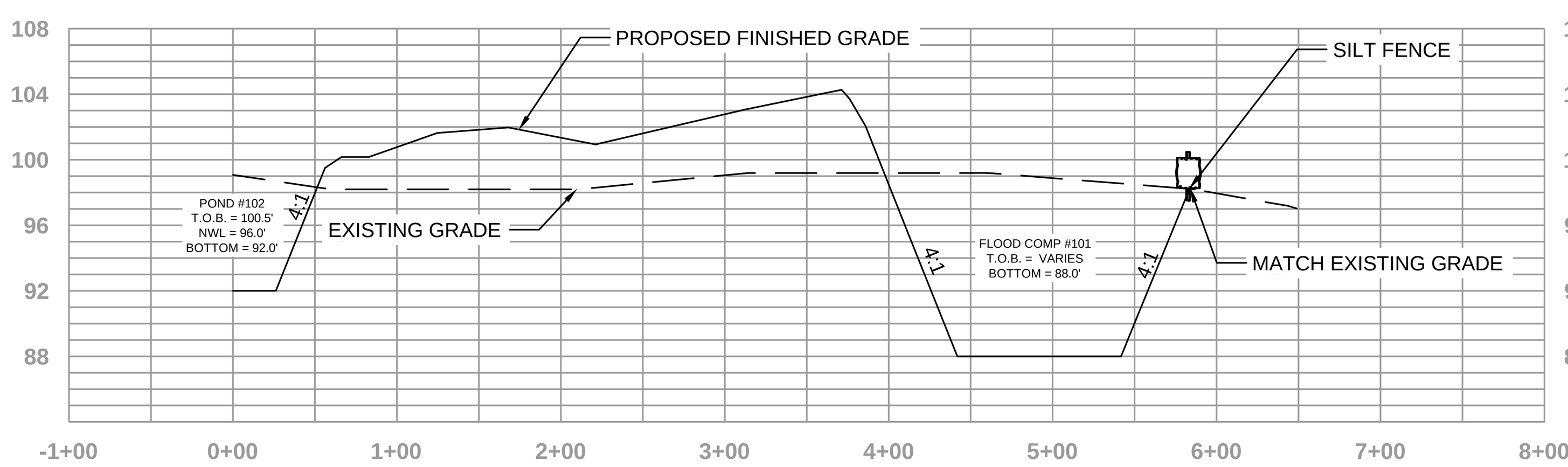
SECTION A



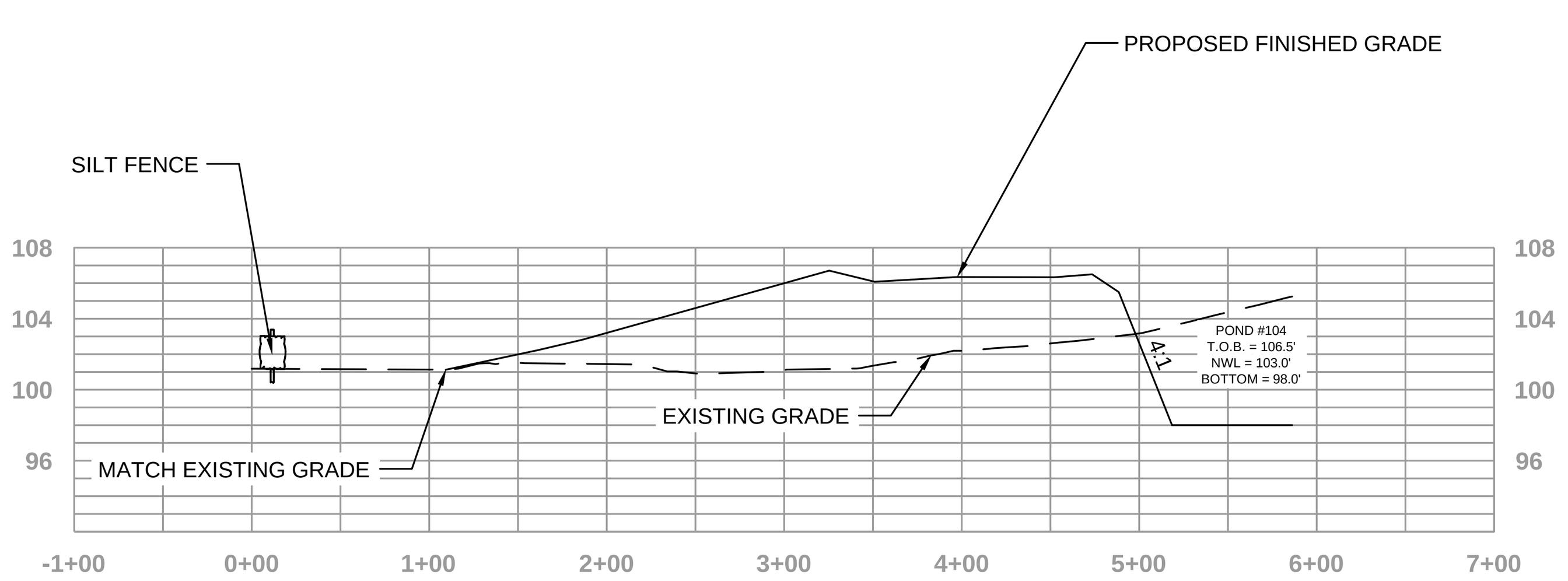
SECTION B



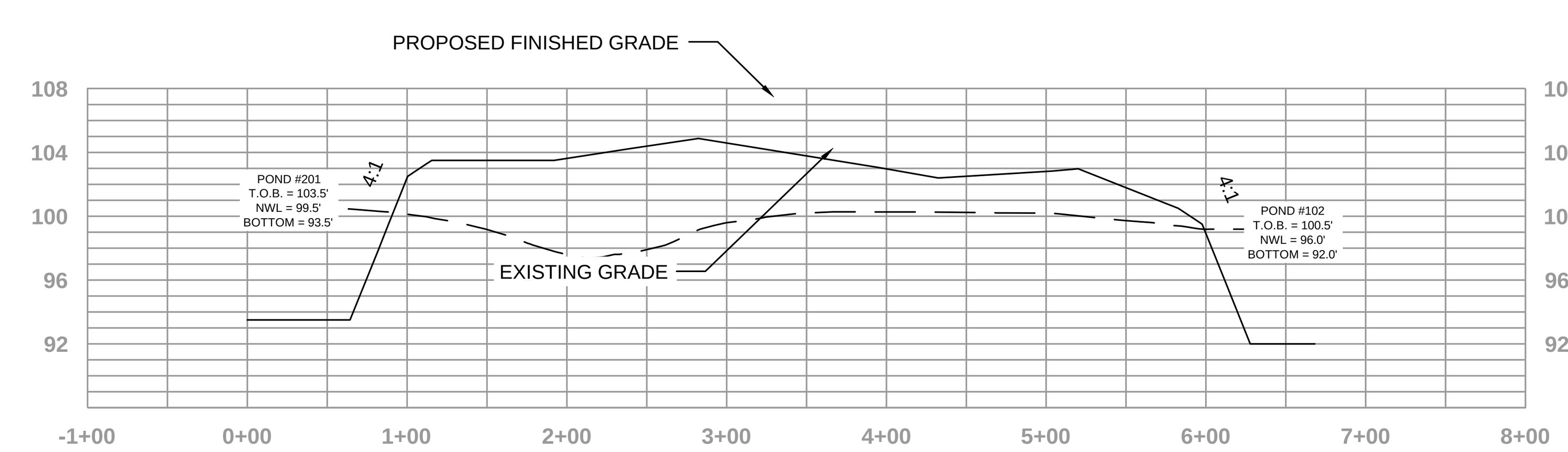
SECTION C



SECTION D



SECTION E



SECTION F

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
FLOODPLAIN MITIGATION & POND DETAILS

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2014	REVIEW SUBMITTAL

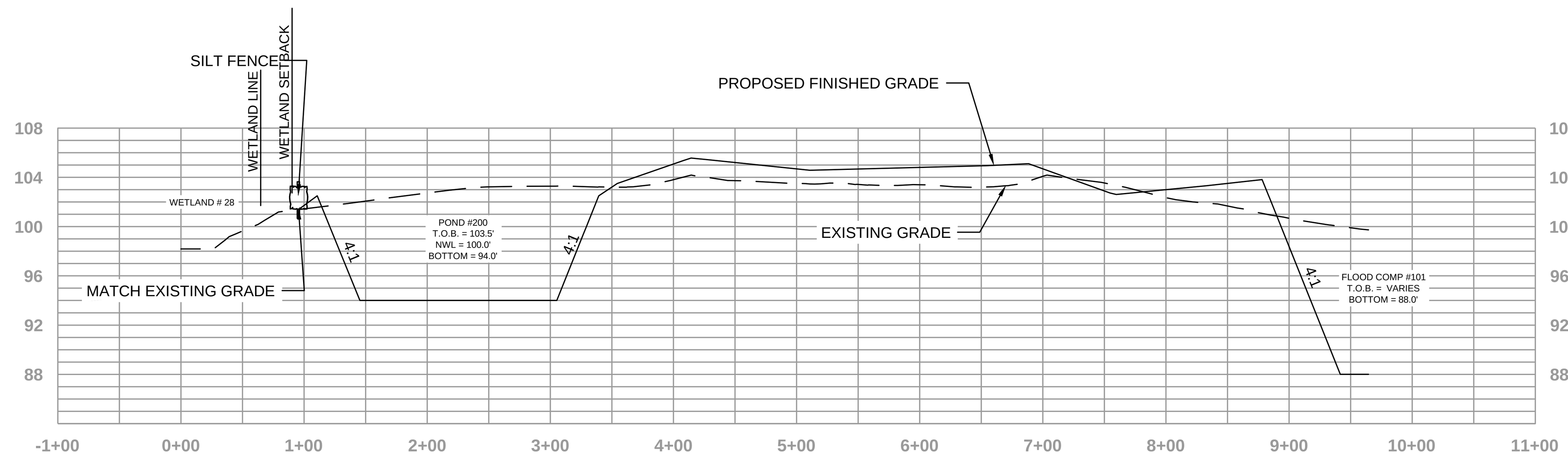
PROJECT NO:	CRP CR 1024
FILE:	SEC
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

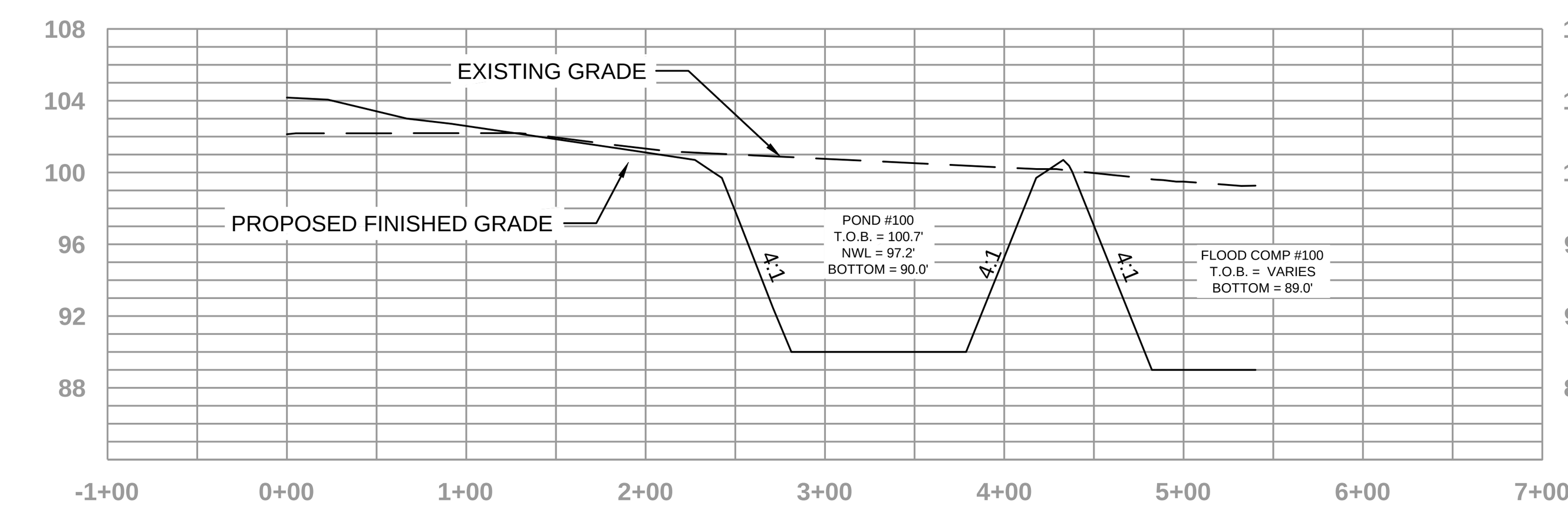
EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-231

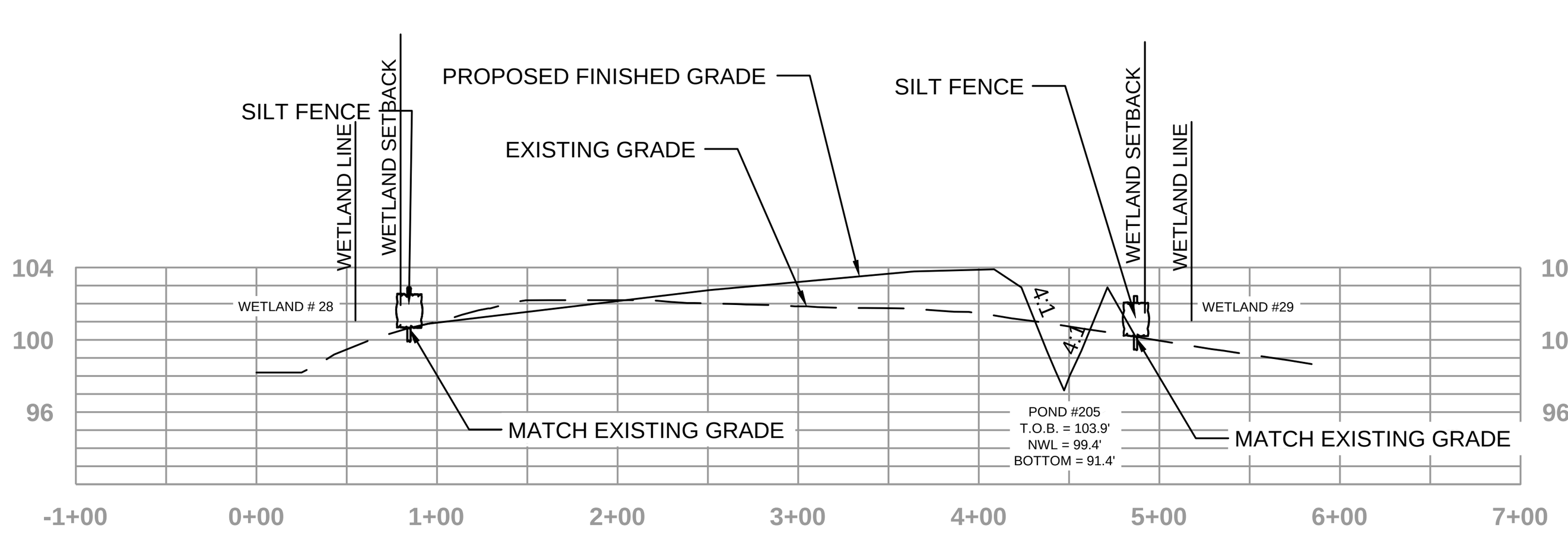
R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\SEC.DWG C-231 2014/12/13 2:52 PM ERIC FRANCIS



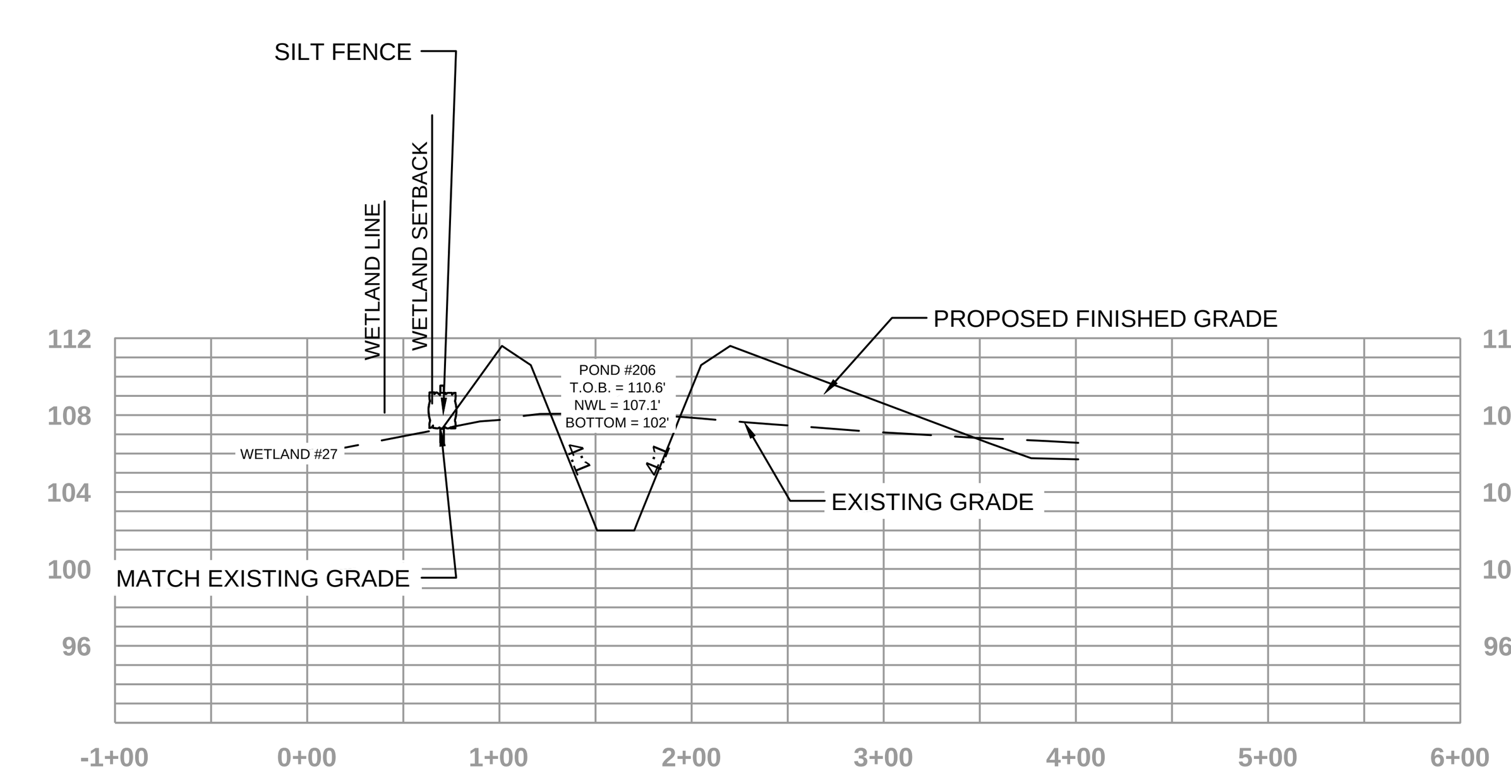
SECTION G



SECTION H



SECTION I



SECTION J

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
FLOODPLAIN MITIGATION & POND DETAILS

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2014	REVIEW SUBMITTAL

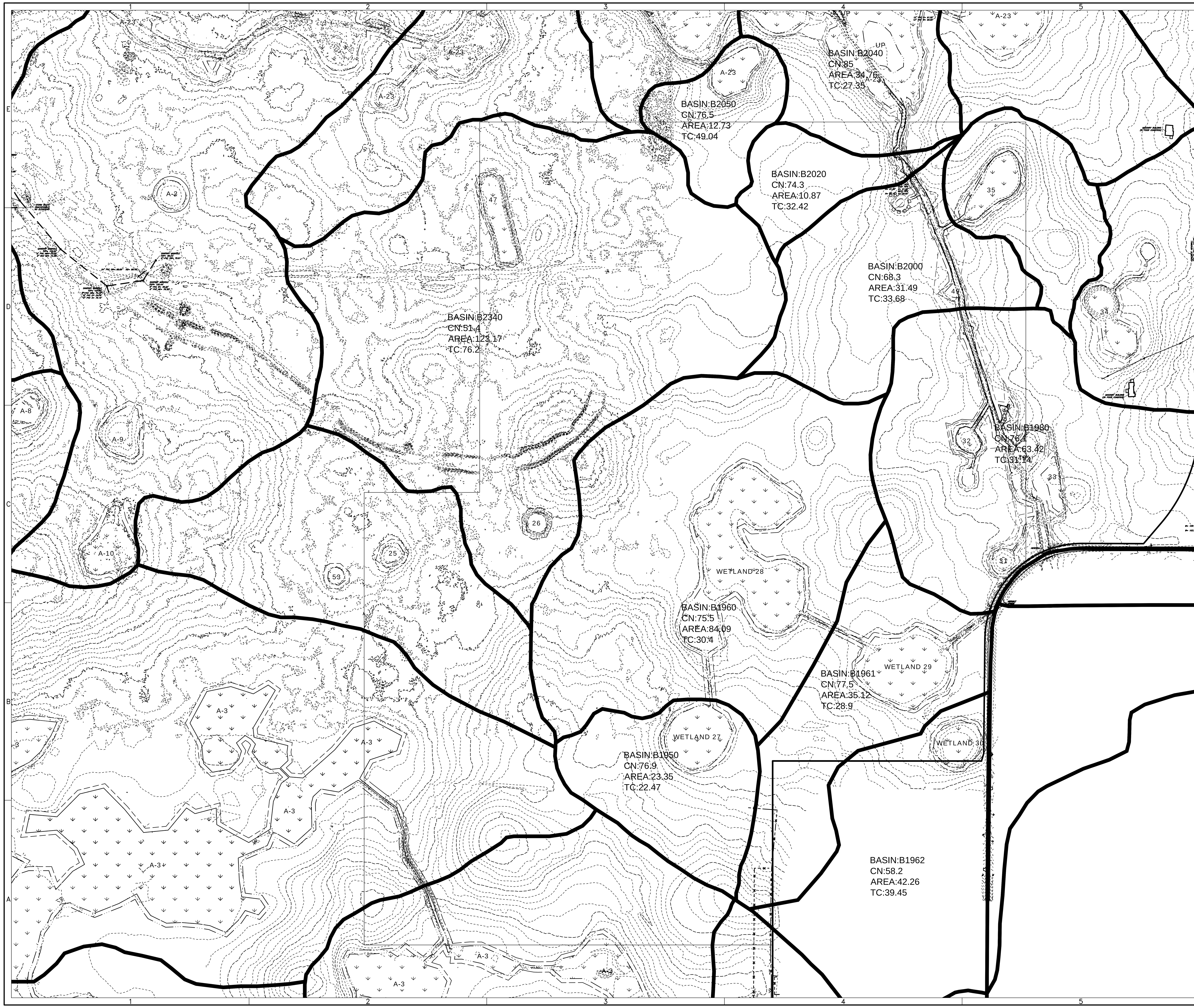
PROJECT NO:	CRP CR 1024
FILE:	SEC
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-232

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\SEC.DWG C-232 2014/12/13 2:53 PM ERIC FRANCIS



N

0 300 600

GRAPHIC SCALE: 1" = 300'

LEGEND

- EXISTING WETLAND BOUNDARY
- 25' WETLAND SETBACK
- PROJECT BOUNDARY LIMITS
- BASIN LIMITS

NOTE: NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE WITHIN 50 FEET OF WELL LOCATIONS SHOWN ON THESE PLANS UNTIL THE WELL HAS BEEN PROPERLY ABANDONED IN ACCORDANCE WITH SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT REGULATIONS BY A CERTIFIED WELL CONTRACTOR

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM
CONVERSION:
NAVD 88 TO NGVD 29 = +0.85

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
PRE-DEVELOPMENT BASIN MAP

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

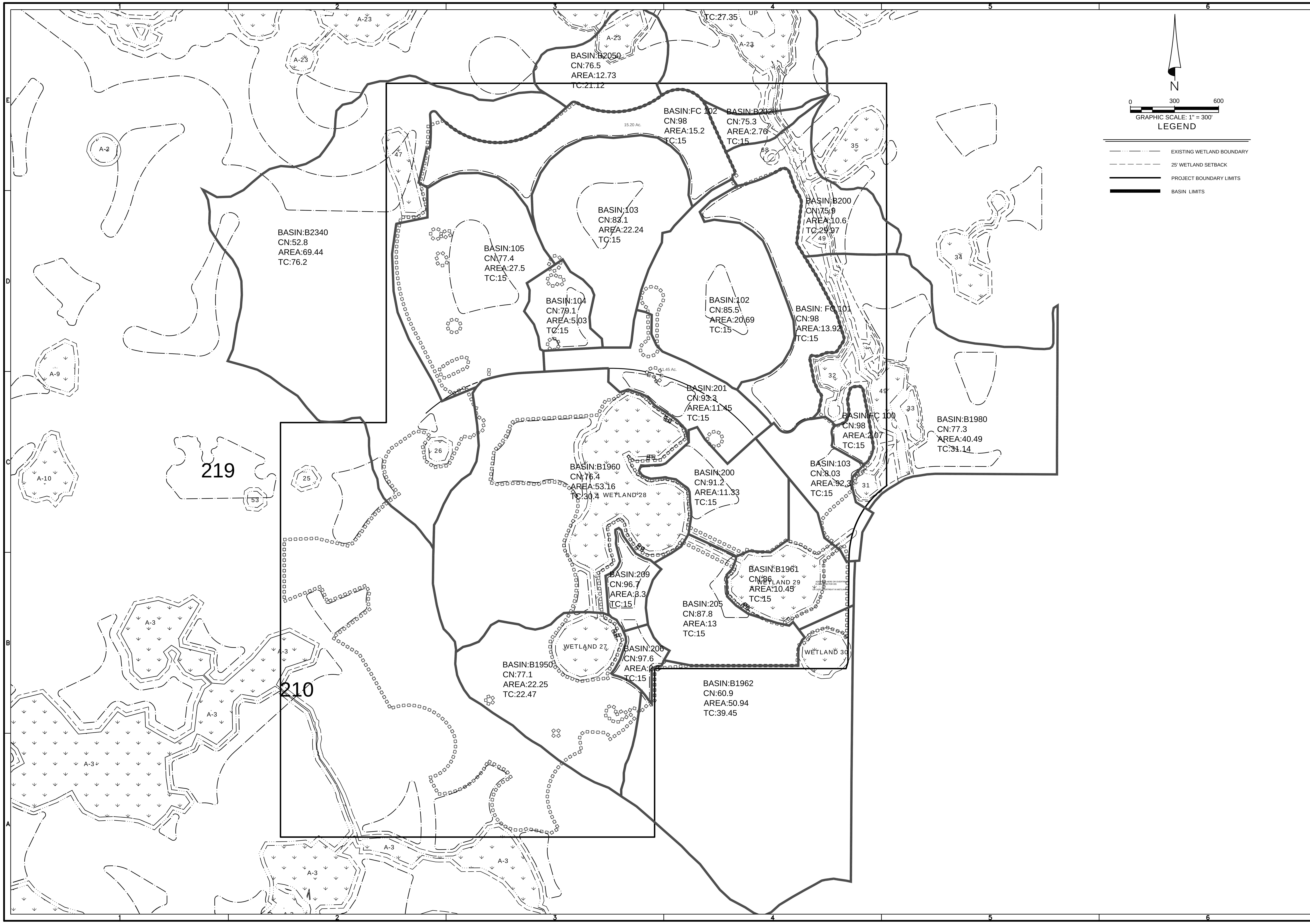
1	12/15/2015	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO:	CRP CR 1024
FILE:	DA-PRE
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-900



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
POST-DEVELOPMENT BASIN MAP

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	DA-POST
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-901

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\DA-POST.DWG -C-901 2014/12/13 2:55 PM ERIC FRANCIS

STORM WATER POLLUTION PREVENTION PLAN

Contained on these plans and within the following notes is a storm water pollution prevention plan (swppp) which has been developed by Heidt Design, LLC in accordance with the Florida Department of Environmental Protection's (FDEP) "National Pollutant Discharge Elimination System" (NPDES) generic permit for stormwater discharge from large and small construction activities.

The following entities are identified as team members of "SWPP": Heidt Design, LLC, the developer as identified in the title box of these plans, and the site contractor and his sub-contractors. Each team member has specific responsibilities and obligations. In general, all team members, with regard to their involvement and responsibilities on the project, are to implement all necessary storm water management controls to assure compliance with the NPDES generic permit for storm water discharges from construction activities, the Southwest Florida Water Management District Permit, the applicable local governing agency (i.e. Pasco County) and the guidelines listed in the SWPP. The duties and responsibilities of the team members as they pertain to the SWPP are as follows:

HEIDT DESIGN, LLC:

A. Develop SWPP including, but not limited to, retention/detention ponds, control structures, erosion control methods and locations and stabilization criteria. This design is included within these construction plans and the following notes and instructions.

B. Submit and obtain the necessary design related storm water permits from the Florida Department of Environmental Protection, the Southwest Florida Water Management District and other applicable governmental bodies.

C. Upon notification by the developer of his intent to commence construction, submit a notice of intent to the FDEP on behalf of the developer and copy the contractor including SWPP certification and copy of the permit.

D. Submit to SWFWMD and the operator of the municipal separate storm water system, if applicable, a letter of construction commencement.

E. Complete and submit a notice of termination and certification for developer. The NOT's shall be submitted no more than 30 days after;

(a) Completion of the project and final stabilization of the site or

(b) When responsibility for the site has ended. Final stabilization as defined by EPA is when all soil disturbing activities at the site have been completed and a uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures. As an alternative, equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) may be employed. The client shall notify Heidt Design, LLC when one of these criteria has been met.

CONTRACTOR:

A. Sign and return to Heidt a contractors certification form certifying your understanding of and willingness to comply with the Storm Water Pollution Prevention Plan no later than 48 hours prior to commencement of construction. Also, each subcontractor affected by the SWPP must certify to the contractor that they understand and shall comply with the NPDES Permit and SWPP. A record of these certifications shall be maintained by the contractor on site.

B. During construction, assure compliance with the designed Storm Water Pollution Prevention plans prepared by Heidt Design, LLC and the NPDES Generic Permit for storm water discharges from large and small construction activities.

C. Maintain a copy of the construction plans, which include the Storm Water Pollution Prevention Plan, the NOI, and all inspection reports and certifications on site.

D. Undertake all reasonable Best Management Practices (BMP's) to assure that silted or otherwise polluted storm water is not allowed to discharge from the site during all phases of construction. Stabilization BMP's that may be used include:

Temporary or permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees and preservation of mature vegetation. Structural erosion and sediment control BMP's that may be used include: straw bale dikes, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drain, pipe slope drain, level spreaders, storm drain inlet protection, outlet protection, sediment traps, and temporary sediment basins. Detention ponds may also be used as temporary sediment basins. Additional BMP's that may need to be implemented include: providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials. Providing waste receptacles at convenient locations and providing regular collection of wastes, including building material wastes. Minimizing off-site tracking of sediments. Making adequate preparations, including training and equipment to contain spills of oil and hazardous materials. Complying with applicable state or local waste disposal, sanitary sewer or septic system regulations and the use of appropriate pollution prevention measures for allowable non-storm water components of discharge.

E. Notify Heidt Design, LLC and the developer in writing of any non-storm water pollution sources which are being stored, or otherwise used during the construction of the project, i.e., fertilizers, fuels, pesticides, other chemicals. This notification should be accompanied with the contractor's design and methods to prevent pollution run-off from these sources.

F. Develop a maintenance and inspection plan which includes, but is not limited to the following:

(a) The specific areas to be inspected and maintained that includes all the disturbed areas and material storage areas of the site.

(b) The erosion and sediment controls identified in the swppp to be maintained and inspected and those additional controls that the contractor deems necessary.

(c) Maintenance procedures.

(d) The procedure to follow if additional work is required or whom to call.

(e) Inspections and maintenance forms.

(f) The personnel assigned to each task.

The following shall be inspected a minimum of once a week or within 24 hours after 0.50 inches of rainfall:

Stabilization measures (once a month if fully stabilized).

Structural controls.

Discharge points.

Construction entrances and exits.

Areas used for storage of exposed materials.

An inspection form shall be completed for each inspection. Any permit violations should be noted and corrective measures shall be taken no later than 7 days after the inspection occurred. If revisions to the SWPP are needed, a report form for changes in the SWPP shall be completed and a copy sent to Heidt Design, LLC the original shall be kept on-site as documentation of the change. If the inspection passes, a certification that the facility is in compliance with the SWPP and the NPDES Permit must be signed by a duly authorized representative of the principal executive official of the operator of the SWPP with one of the following qualifications:

1. Has successfully completed the Florida Stormwater, Erosion and Sediment Control Inspector Training Program.
2. Successfully completed a similar training program.
3. Has enough practical on the job training to be qualified to perform the inspections.
4. Retain inspection reports and certifications for at least three years.

G. Site stabilization measures shall be initiated as soon as practical but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased.

H. Releases in excess of reportable quantities.

1. The discharge of hazardous substances or oil in the stormwater discharge(s) from a facility or activity shall be prevented or minimized in accordance with the applicable Stormwater Pollution Prevention Plan for the facility or activity. This permit does not relieve the operator of the reporting requirements of 40 cfr part 117 and 40 cfr part 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 cfr 117 or 40 cfr 302, occurs during a 24 hour period:

A. The operator is required to notify the State Warning Point (800-210-0519 or 850-413-9911) as soon as he or she has knowledge of the discharge;

B. The operator shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and remedial steps to be taken, to the Florida Department of Environmental Protection, NPDES Stormwater Section, Mail Station 2500, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and

C. The Stormwater Pollution Prevention Plan required under part V of this permit must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

2. This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

DEVELOPER:

A. Notify Heidt of your intent to commence construction. Sign the Notice of Intent form as operator of the storm water discharge facility and permittee and return to Heidt Design, LLC.

B. Sign a certification of Storm Water Pollution Prevention Plan and return to Heidt Design, LLC.

C. Notify Heidt when it is time to submit a Notice of Termination as defined under part E of the Heidt Design, LLC section of the SWPP. Sign and return to Heidt Design, LLC for submittal to FDEP a Notice of Termination form and certification.

PRE-DEVELOPED SITE INFORMATION:

1. Total Site Acreage: **398.7± AC.**
2. Land Use: **UNDEVELOPED - AGRICULTURAL**
3. Vegetation: **PRIMARILY BAHIA AND OTHER GRASSES GROWN FOR SEED**
4. Receiving waters or municipal separate storm water system: **BAYOU BRANCH**
5. 2 Year/24 Hour Rainfall Depth: **5.0"**
6. Soil Types: **SPARR, HEWNAN, AND BASSINGER FINE SANDS**

PROJECT INFORMATION:

1. Project Type - RESIDENTIAL/MASS GRADING
2. Anticipated Construction Sequence is as follows:
   1. Complete Erosion Control Installation
   2. Clearing and Grubbing
   3. Earthwork Activities
   4. Storm Water System Construction

The BMP's listed in part D of the Contractor Dection of the SWPP shall be considered during all phases of construction.

3. Anticipated Start Date: **02/2015**
4. Anticipated Completion Date: **06/2015**
5. Total Acres Disturbed: **236.31**
6. Pre-Developed "C" Factor: **0.20**
7. Post-Developed "C" Factor: **0.25**
8. The Storm Water Management System, upon completion of construction and appropriate certification and as-built submittals will be operated and maintained by **MIRADA CDD**
9. The potential source of pollution from this project is on-site development and construction activity.

OWNER'S INSTRUCTIONS FOR MAINTENANCE AND INSPECTION OF STORMWATER FILTER FACILITIES

Drainage systems should be inspected on a routine basis to ensure that they are functioning properly. Inspections can be on an annual or semi-annual basis, but should always be conducted following major storms. Systems that incorporate infiltration are most critical since poor maintenance practices can soon render them inefficient. Visual inspections of sand filters, control structures, and outfall pipes are highly recommended. It should be stressed that good records should be kept on all maintenance operations to help plan future work and identify facilities requiring attention.

Sand filter surfaces are sometimes scarified or break up silt deposits and restore porosity. This should be accomplished after all sediment has been removed from the surface. After removing large debris (cups, paper, wood, etc.) it is recommended that raking the top 3" will properly scarify the surface or it may be required to replace the sand. Another technique requires removing the sand for washing.

The filter system is designed to have a wet-dry cycle to inhibit algae or bacterial growth. Cleanout frequency of filter beds will depend on whether they are vegetated or non-vegetated and will be a function of their storage capacity, infiltration characteristics, volume of inflow, and sediment load. Filter beds should be inspected closely at least once a year.

Perforated underdrain pipes are located 2' below the sand and cleanouts are located at the end of the system. In the even of sediment build-up in the underdrain pipe, cleaning can be accomplished throught the cleanout with several of the techniques outlined below.

Methods and equipment for cleanout of systems various types of equipment are available commercially for maintenance of drainage systems. The most frequently used equipment and techniques are listed below.

1. Vacuum Pump
   This device is normally used to remove sediment from sumps and pipes. The equipment for this system is generally mounted on a vehicle. It requires a 200 - 300 gallon (0.757 - 1.36m) holding tank and a vacuum pump that has a 10" (254mm) diameter flexible hose with a serrated metal end for breaking up cake sediment. A two-man crew can clean a catch basin in 5 to 10 minutes. this system can remove stones, bricks, leaves, litter and sediment deposits. Normal working depth is 0' - 20' (0 to 6m).

2. Water Jet Spray
   This equipment is generally mounted on a self-contained vehicle with a high pressure pump and a 200 - 300 gallons (0.760 to 1.140m) water supply. A 3" (76mm) flexible hose line with a metal nozzle that directs jets of water at a reverse angle, which propels the nozzle forward while blasting debris backwards toward the catch basin. As the hose line is reeled in, the jetting action forces all debris to the catch basin where it is removed by the vacuum pump equipment. Normal length of hose is approximately 200' (61m). Because of the energy supplied by the water jet, it should not be used to clean erodible trench walls.

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 sandy-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 Subcontractor shall occur throughout construction as necessary to insure the above methods are working suitably. This may be needed daily, if conditions so warrant. Site Subcontractors 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. A copy of this document is available for review at Heidt Design, LLC.
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.

POND/LAKE EXCAVATION NOTE:

No excavation shall extend below the permitted design depths/elevations shown on the drawings, unless additional testing supports otherwise; and no lower semi-confining unit clayey soil material and/or no limestone materials shall be excavated, regardless if these materials are encountered within the permitted excavation depths/elevations. If any lower semi-confining unit clayey soil materials or limestone materials are encountered above the permitted depths/elevations, then excavation operations shall cease in the general area and the Engineer of Record shall be notified immediately.

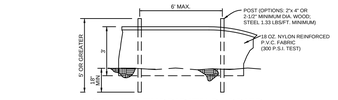
WETLANDS NOTE:

There are no wetland impacts proposed and therefore, no mitigation required.

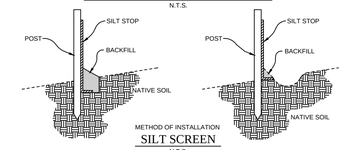
"Conservation Area" designation is given to all protected wetlands per Pasco County requirements. They are not designated as "Conservation Easements" for SWFWMD compensation.

DRAINAGE LEGEND

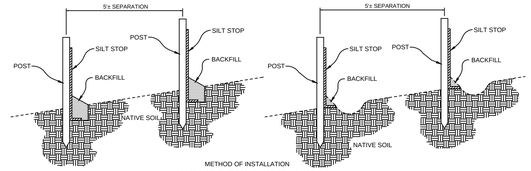
EXISTING	PROPOSED	
15.00 ×	45.0	SPOT ELEVATION
15	15	CONTOUR
		DIRECTION OF SURFACE FLOW
		STAKED EROSION CONTROL REPRESENTS THE SWFWMD PROJECT LIMITS AND THE LIMITS OF CLEARING AND FILLING
		WETLAND LINE
		25' WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER
		100YR FLOOD LINE
	PB-#	POND BORING
		MASS GRADING FLOW LINE
		MASS GRADING RIDGE



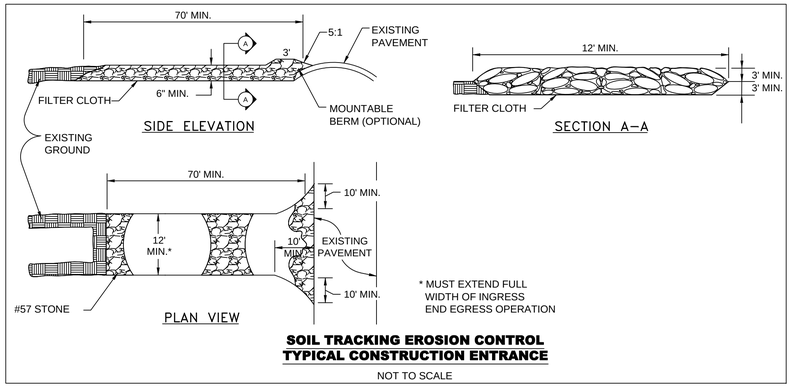
STAKED TURBIDITY BARRIER
N.T.S.



METHOD OF INSTALLATION
SILT SCREEN
N.T.S.



METHOD OF INSTALLATION
DOUBLE ROW SILT SCREEN
N.T.S.



SOIL TRACKING EROSION CONTROL TYPICAL CONSTRUCTION ENTRANCE
NOT TO SCALE

EROSION CONTROL DETAILS

NOTE: THE EROSION BARRIERS, AS SHOWN, ARE NOT TO BE CONSTRUED TO MEAN THAT THEY ARE ALL THAT MAY BE REQUIRED. THE CONTRACTOR IS TO TAKE WHATEVER MEASURES NECESSARY TO CONTROL EROSION THROUGHOUT THE PROJECT.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
CSWMP
PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

DATE	DESCRIPTION

#	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	CSWMP
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-902

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\CSWMP.DWG -C-902 2014.12.23 2:58 PM ERIC FRANCIS

DRAINAGE LEGEND

EXISTING	PROPOSED	
+ 15.00	45.0	SPOT ELEVATION
15	15	CONTOUR
		DIRECTION OF SURFACE FLOW
		STAKED EROSION CONTROL REPRESENTS THE SWFWMD PROJECT LIMITS AND THE LIMITS OF CLEARING AND FILLING
		WETLAND LINE
		25' WETLAND CONS. AREA SETBACK / LANDWARD EXTENT OF UPLAND BUFFER

WETLAND 27
WETLAND 28
WETLAND 29
WETLAND 30
COUNTY LINE ROAD
CURLEY STREET

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN

CSWMP

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

NO.	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	CSWMP
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

EDWIN J. ROGERS
DATE:
REGISTRATION NO. 50082

C-903

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\CSWMP.DWG -C:\903 2014\12\13 7:58 PM ERIC FRANCIS

TREE INCHES TO BE REMOVED 10" DBH & LARGER Live Oaks		
Size (inches)	No.	Total Inches
13	1	13
16	1	16
17	1	17
18	2	36
20	3	60
22	2	44
24	2	48
25	1	25
28	1	28
30	1	30
34	1	34
36	2	72
38	1	38
40	1	40
44	1	44
Total Live Oak Trees:		21
Total Live Oak Inches:		545

Note: All trees on-site are live oaks.

TREE INCHES TO BE SAVED Live Oaks		
Size (inches)	No.	Total Inches
12	2	24
13	0	0
14	3	42
15	2	30
16	2	32
17	0	0
18	2	36
20	0	0
22	4	88
24	3	72
25	1	25
26	4	104
28	5	140
30	2	60
32	4	128
34	2	68
36	5	180
38	2	76
40	2	80
42	1	42
44	0	0
50	2	100
52	1	52
54	1	54
60	1	60
76	1	76
Total Live Oak Trees:		52
Total Live Oak Inches:		1569

TOTAL TREE INCHES ONSITE Live Oaks		
Size (inches)	No.	Total Inches
12	2	24
13	1	13
14	3	42
15	2	30
16	3	48
17	1	17
18	4	72
20	3	60
22	6	132
24	5	120
25	2	50
26	4	104
28	6	168
30	3	90
32	4	128
34	3	102
36	7	252
38	3	114
40	3	120
42	1	42
44	1	44
50	2	100
52	1	52
54	1	54
60	1	60
76	1	76
Total Live Oak Trees:		73
Total Live Oak Inches:		2114

TREE REPLACMENT					
CODE	TREE TYPE		QTY	DBH	TOTAL DBH
AR4	ACER RUBRUM	RED MAPLE	18	4	72
MG4	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	17	4	68
MV3	MAGNOLIA VIRGINIANA	SWEET BAY MAGNOLIA	17	4	68
PP3	PINUS PALUSTRIS	LONGLEAF PINE	17	4	68
QS3	QUERCUS SHUMARDII	SHUMARD RED OAK	17	4	68
QV3	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	17	4	68
TD3	TAXODIUM DISTICHUM	BALD CYPRESS	17	4	68
UA3	ULMUS ALATA	WINGED ELM	17	4	68
Note: DBH = Caliper minus one inch					
			TOTAL DBH PROVIDED FOR REPLACEMENT TREES		548
			REQUIRED REPLACEMENT		545

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
TREE REPLACEMENT CHARTS

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

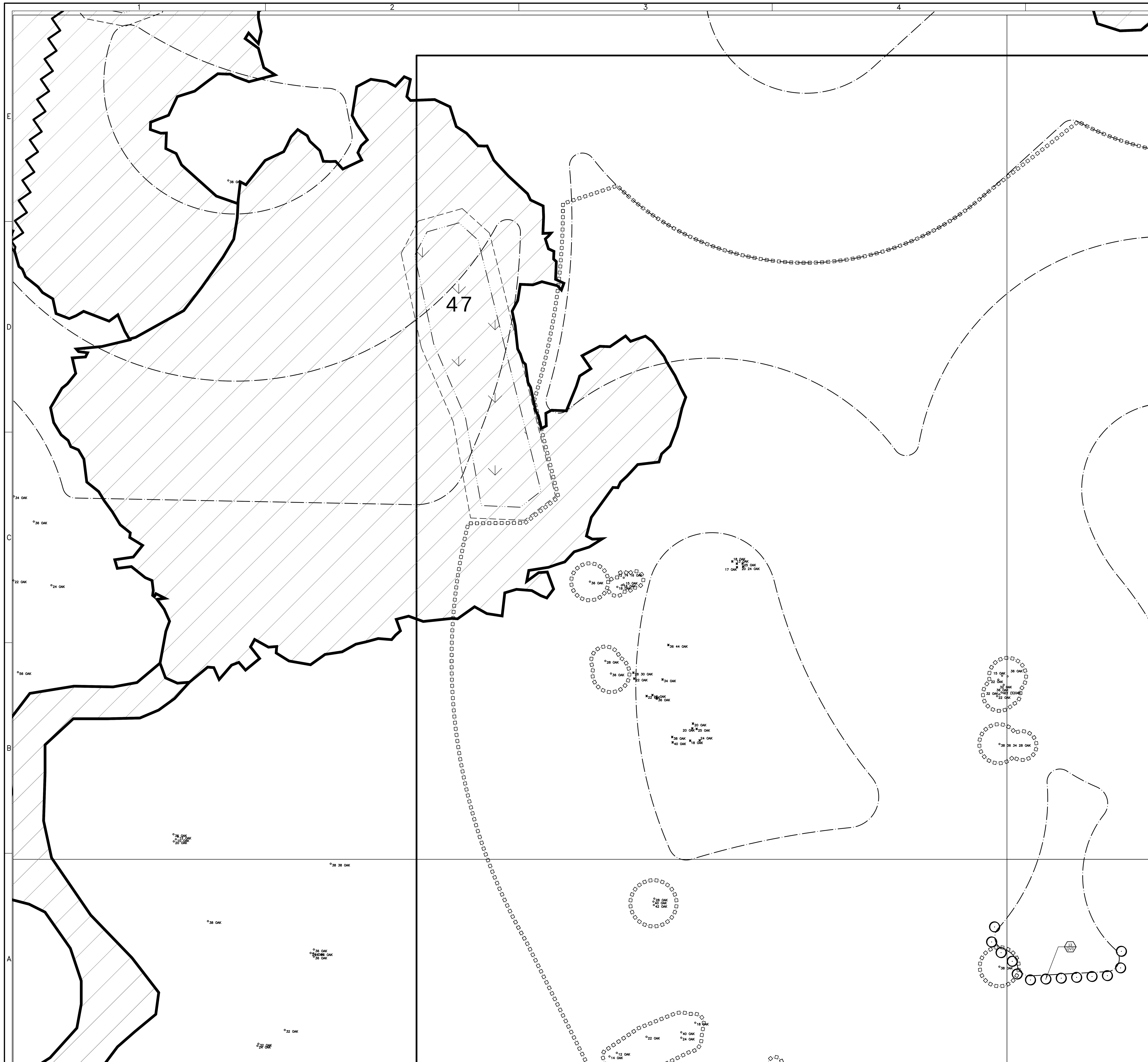
PROJECT NO:	CRP CR 1024
FILE:	L-100-MG
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

DOUG DIERLICH
DATE:
REGISTRATION NO. 0001696

L-100

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\L-100-MG.DWG -L-100 TREE REPLACEMENT CHARTS 2014/12/13 2:55 PM ERIC FRANCIS



N

0 50 100

GRAPHIC SCALE: 1" = 50'

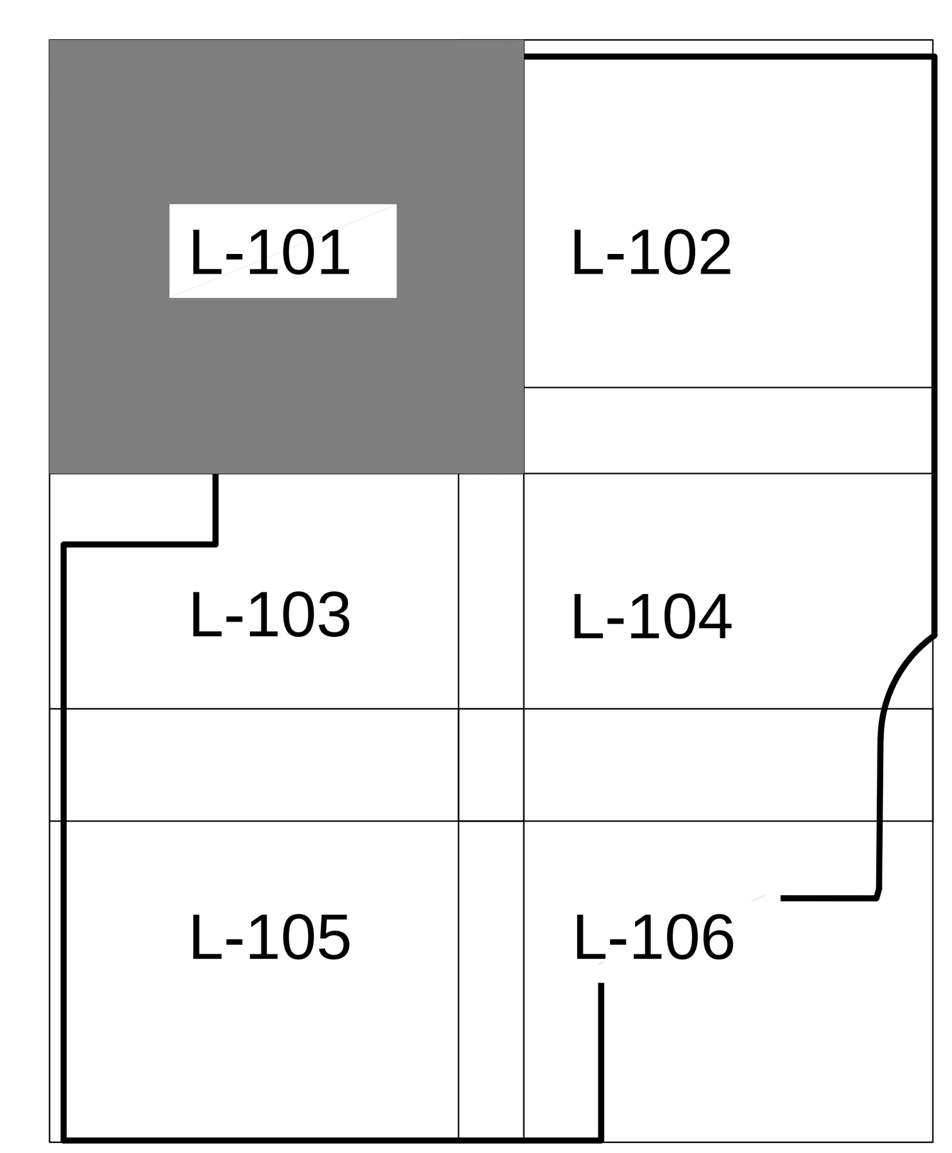
LEGEND

- EXISTING WETLAND BOUNDARY
- PROJECT BOUNDARY LIMITS
- PHASE 1 BOUNDARY LIMITS
- PROPOSED POND LIMITS
- 100YR FLOOD PLAIN LIMITS
- PROPOSED POND LIMITS
- SILT FENCE
- CONSTRUCTION ACCESS
- FILL LIMITS
- 12"LI TREE TO REMAIN
- 14"LI TREE TO BE REMOVED

EXISTING TREE CODES

AP	AUSTRALIAN PINE
C	CYPRESS
CL	CHERRY LAUREL
CM	CAMPHOR
CO	COCONUT PALM
CP	CABBAGE PALM/SABAL PALM
EL	ELM
F	FIG (STRANGLER FIG)
FW	FIDDLEWOOD
H	HICKORY
LA	LAUREL (DIAMOND OAK)
LB	LOBLOLLY BAY
LI	LIVE OAK
M	MAGNOLIA
MB	MARLBERRY
MG	SOUTHERN MAGNOLIA
MH	MAHOGANY
MY	MYRTLE OAK
NP	NORFOLK PINE
P	LONELEAF PINE
PC	PECAN
PE	PERSIMMON
PM	ROYAL PALM
PT	PAPER TREE
QP	QUEEN PALM
RB	RED BAY
RM	RED MAPLE
SB	SWEET BAY MAGNOLIA
SC	SYCAMORE
SG	SWEET GUM
SL	SLASH (YELLOW PINE)
SP	SAND PINE (SCRUB PINE)
T	TALLOW WOOD
TO	TURKEY OAK
WO	WATER OAK
WP	WASHINGTON PALM
WX	WAX MYRTLE

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
TREE REMOVAL & REPLACEMENT PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

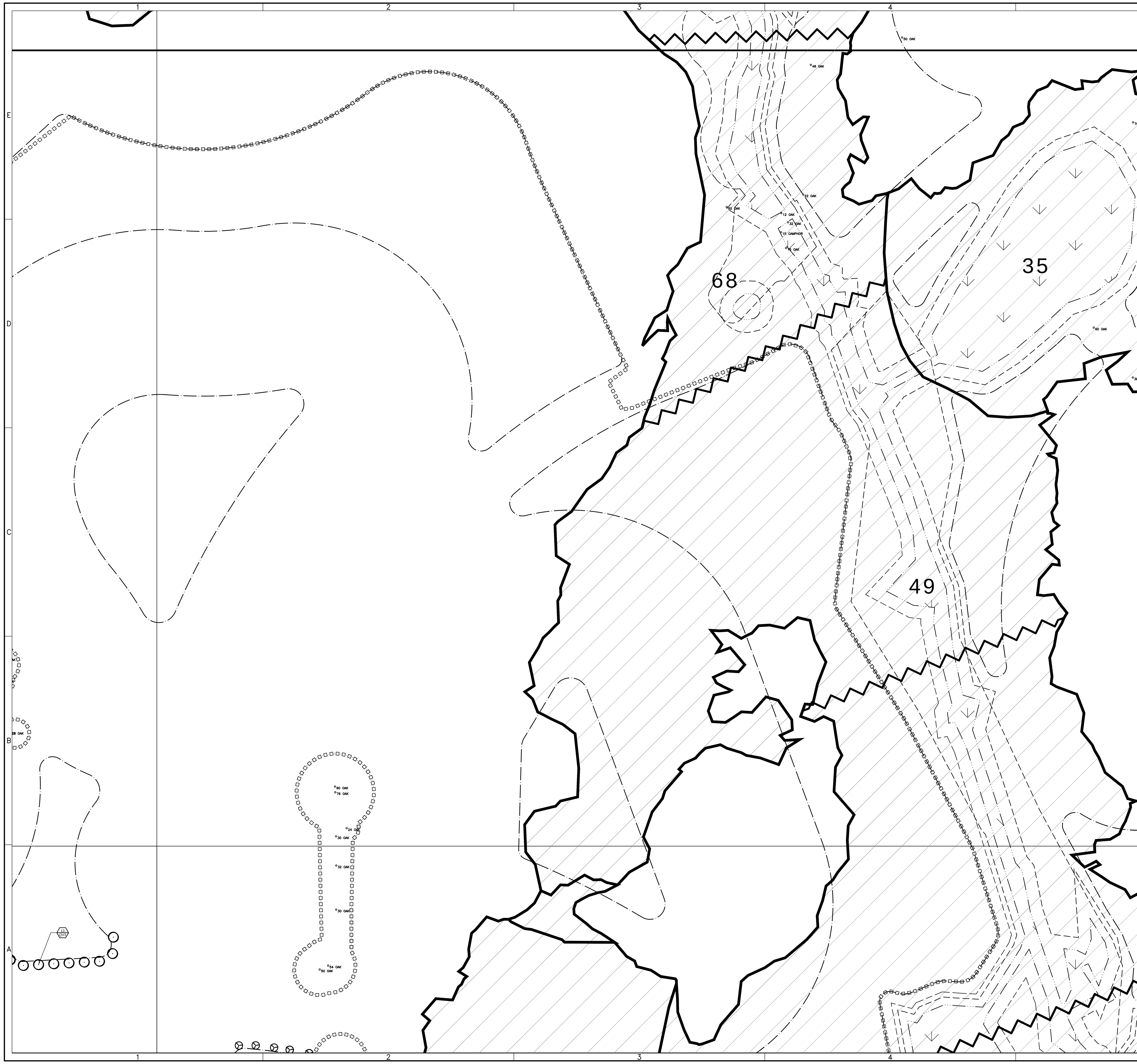
PROJECT NO:	CRP CR 1024
FILE:	L-101-MG
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

DOUG DIERLICH
DATE:
REGISTRATION NO. 0001696

L-101

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\L-101-MG.DWG -L-101 2014/12/13 2:56 PM ERIC FRANCIS



GRAPHIC SCALE: 1" = 50'

LEGEND

- EXISTING WETLAND BOUNDARY
- PROJECT BOUNDARY LIMITS
- PHASE 1 BOUNDARY LIMITS
- PROPOSED POND LIMITS
- 100YR FLOOD PLAIN LIMITS
- PROPOSED POND LIMITS
- SILT FENCE
- CONSTRUCTION ACCESS
- FILL LIMITS
- 12"LI TREE TO REMAIN
- 14"LI TREE TO BE REMOVED

EXISTING TREE CODES

AP	AUSTRALIAN PINE
C	CYPRESS
CL	CHERRY LAUREL
CM	CAMPHOR
CO	COCONUT PALM
CP	CABBAGE PALM/SABAL PALM
EL	ELM
F	FIG (STRANGLER FIG)
FW	FIDDLEWOOD
H	HICKORY
LA	LAUREL (DIAMOND OAK)
LB	LOBLOLLY BAY
LI	LIVE OAK
M	MAGNOLIA
MB	MARLBERRY
MG	SOUTHERN MAGNOLIA
MH	MAHOGANY
MY	MYRTLE OAK
NP	NORFOLK PINE
P	LONELEAF PINE
PC	PECAN
PE	PERSIMMON
PM	ROYAL PALM
PT	PAPER TREE
QP	QUEEN PALM
RB	RED BAY
RM	RED MAPLE
SB	SWEET BAY MAGNOLIA
SC	SYCAMORE
SG	SWEET GUM
SL	SLASH (YELLOW PINE)
SP	SAND PINE (SCRUB PINE)
T	TALLOW WOOD
TO	TURKEY OAK
WO	WATER OAK
WP	WASHINGTON PALM
WX	WAX MYRTLE

KEY MAP

L-101	L-102
L-103	L-104
L-105	L-106

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
TREE REMOVAL & REPLACEMENT PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

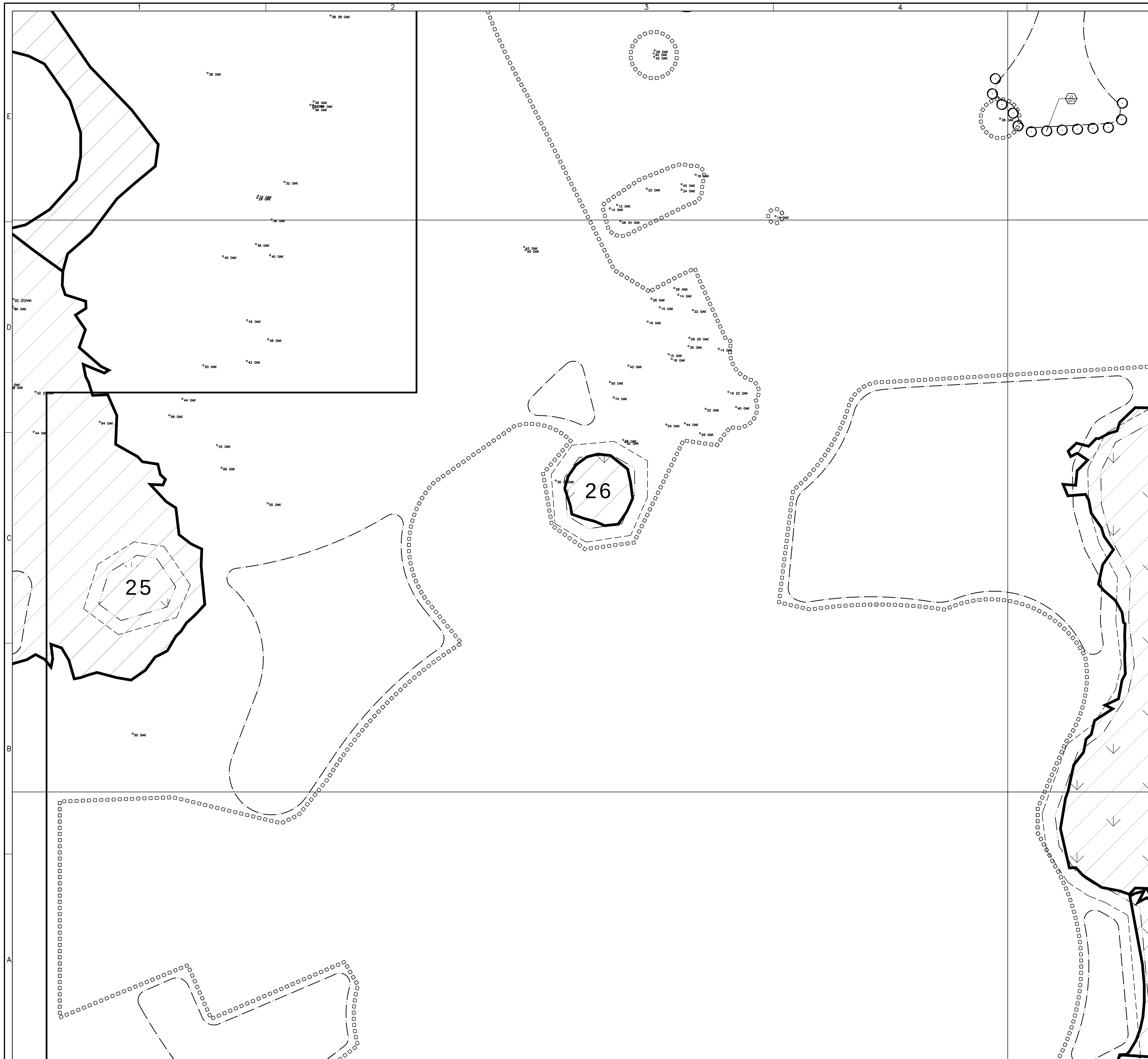
PROJECT NO:	CRP CR 1024
FILE:	L-101-MG
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

DOUG DIERLICH
DATE:
REGISTRATION NO. 0001696

L-102

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\L-101-MG.DWG -L-102 2014/12/13 2:56 PM ERIC FRANCIS



N

GRAPHIC SCALE: 1" = 50'

0 50 100

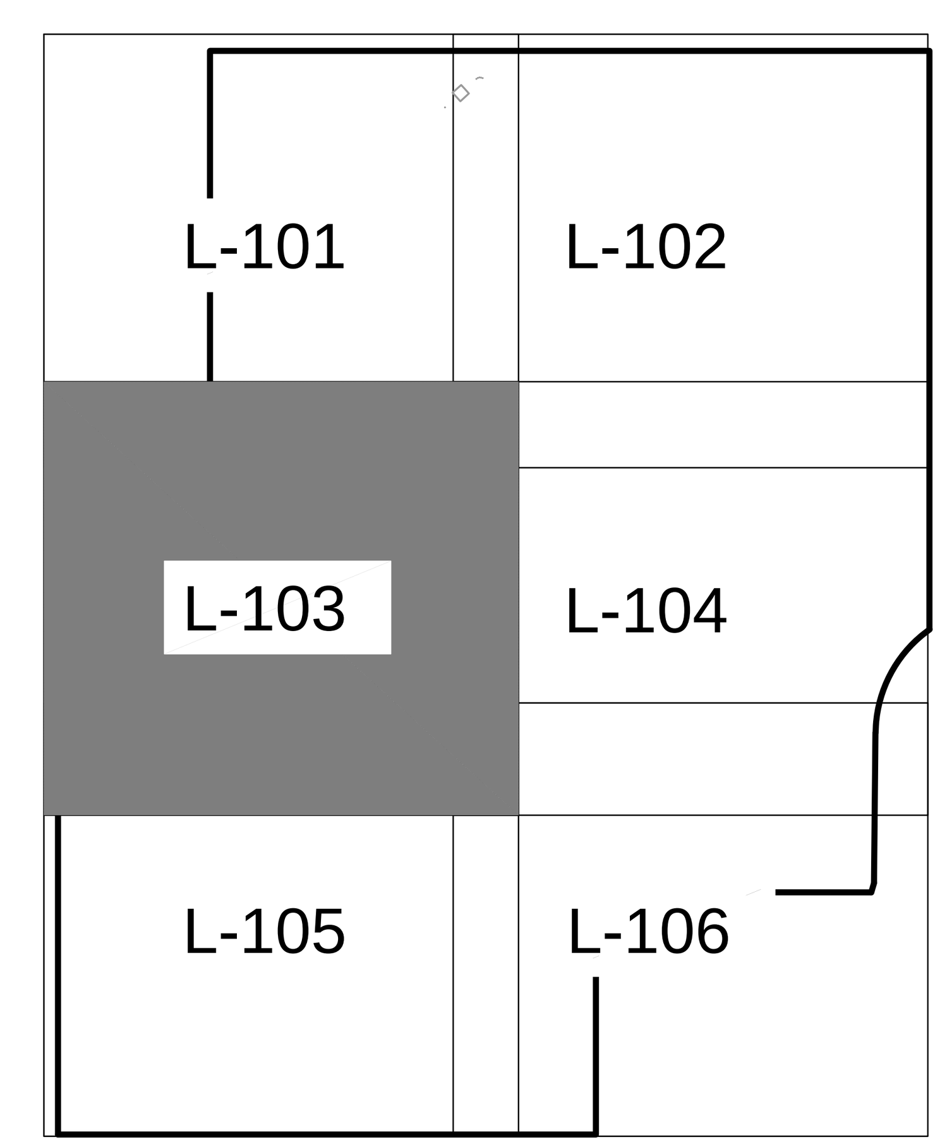
LEGEND

	EXISTING WETLAND BOUNDARY
	PROJECT BOUNDARY LIMITS
	PHASE 1 BOUNDARY LIMITS
	PROPOSED POND LIMITS
	100YR FLOOD PLAIN LIMITS
	PROPOSED POND LIMITS
	SILT FENCE
	CONSTRUCTION ACCESS
	FILL LIMITS
12"LI	TREE TO REMAIN
14"LI	TREE TO BE REMOVED

EXISTING TREE CODES

AP	AUSTRALIAN PINE
C	CYPRESS
CL	CHERRY LAUREL
CM	CAMPHOR
CO	COCONUT PALM
CP	CABBAGE PALM/SABAL PALM
EL	ELM
F	FIG (STRANGLER FIG)
FW	FIDDLEWOOD
H	HICKORY
LA	LAUREL (DIAMOND OAK)
LB	LOBLOLLY BAY
LI	LIVE OAK
M	MAGNOLIA
MB	MARLBERRY
MG	SOUTHERN MAGNOLIA
MH	MAHOGANY
MY	MYRTLE OAK
NP	NORFOLK PINE
P	LONELEAF PINE
PC	PECAN
PE	PERSIMMON
PM	ROYAL PALM
PT	PAPER TREE
QP	QUEEN PALM
RB	RED BAY
RM	RED MAPLE
SB	SWEET BAY MAGNOLIA
SC	SYCAMORE
SG	SWEET GUM
SL	SLASH (YELLOW PINE)
SP	SAND PINE (SCRUB PINE)
T	TALLOW WOOD
TO	TURKEY OAK
WO	WATER OAK
WP	WASHINGTON PALM
WX	WAX MYRTLE

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
TREE REMOVAL & REPLACEMENT PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

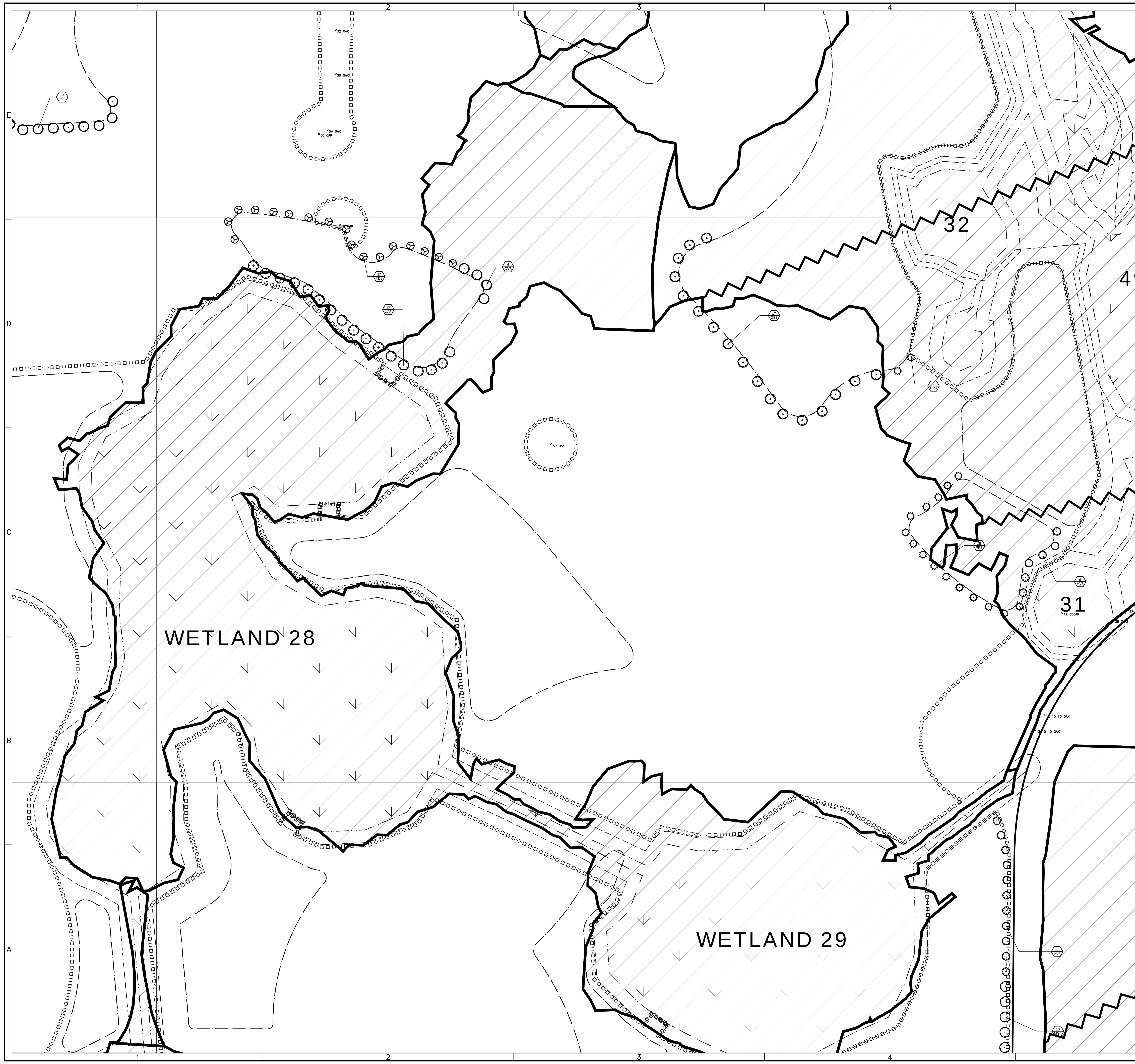
	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	L-101-MG
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

DOUG DIERLICH
DATE:
REGISTRATION NO. 0001696

L-103



N

0 50 100
GRAPHIC SCALE: 1" = 50'

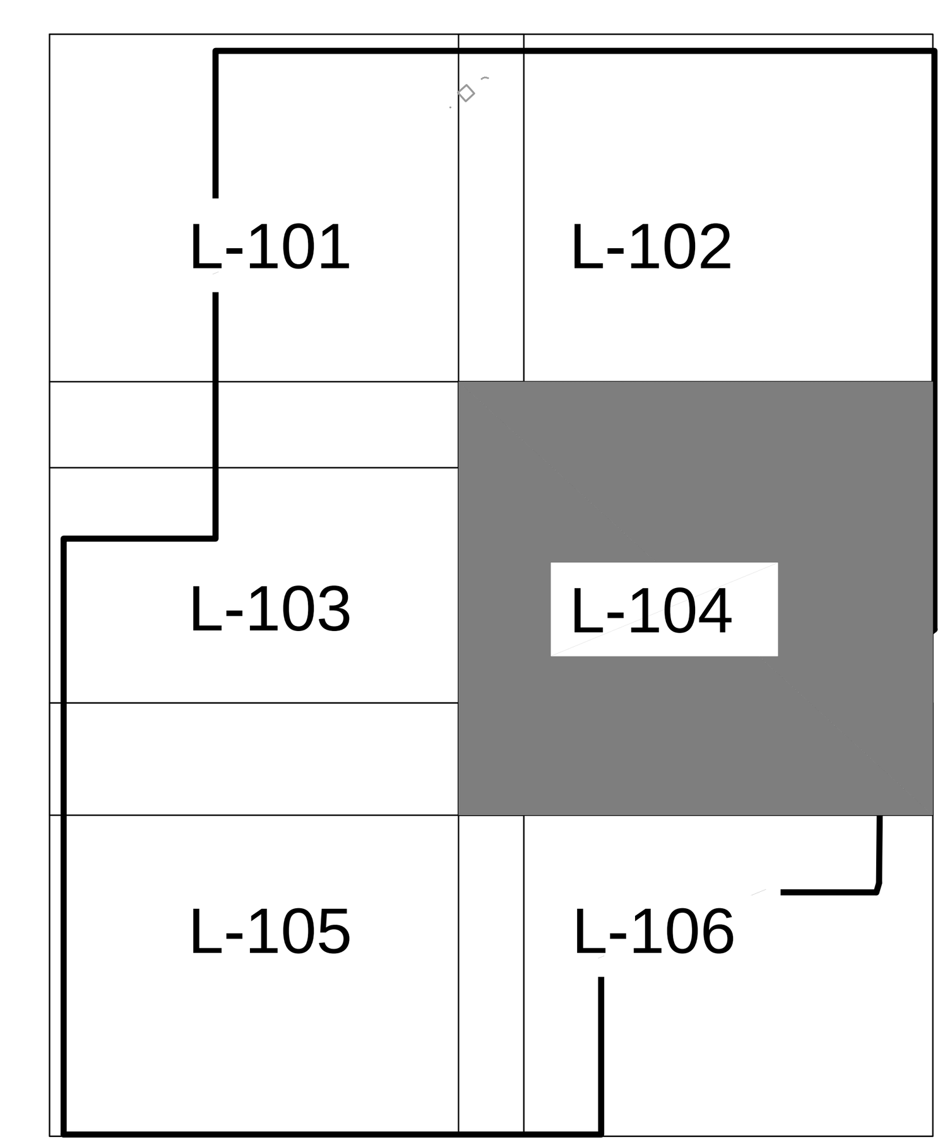
LEGEND

- EXISTING WETLAND BOUNDARY
- PROJECT BOUNDARY LIMITS
- PHASE 1 BOUNDARY LIMITS
- PROPOSED POND LIMITS
- 100YR FLOOD PLAIN LIMITS
- PROPOSED POND LIMITS
- SILT FENCE
- CONSTRUCTION ACCESS
- FILL LIMITS
- 12"LI TREE TO REMAIN
- 14"LI TREE TO BE REMOVED

EXISTING TREE CODES

AP	AUSTRALIAN PINE
C	CYPRESS
CL	CHERRY LAUREL
CM	CAMPHOR
CO	COCONUT PALM
CP	CABBAGE PALM/SABAL PALM
EL	ELM
F	FIG (STRANGLER FIG)
FW	FIDDLEWOOD
H	HICKORY
LA	LAUREL (DIAMOND OAK)
LB	LOBLOLLY BAY
LI	LIVE OAK
M	MAGNOLIA
MB	MARLBERRY
MG	SOUTHERN MAGNOLIA
MH	MAHOGANY
MY	MYRTLE OAK
NP	NORFOLK PINE
P	LONELEAF PINE
PC	PECAN
PE	PERSIMMON
PM	ROYAL PALM
PT	PAPER TREE
QP	QUEEN PALM
RB	RED BAY
RM	RED MAPLE
SB	SWEET BAY MAGNOLIA
SC	SYCAMORE
SG	SWEET GUM
SL	SLASH (YELLOW PINE)
SP	SAND PINE (SCRUB PINE)
T	TALLOW WOOD
TO	TURKEY OAK
WO	WATER OAK
WP	WASHINGTON PALM
WX	WAX MYRTLE

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
TREE REMOVAL & REPLACEMENT PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\L-101-MG.DWG -L-104 2014/12/13 2:56 PM ERIC FRANCIS

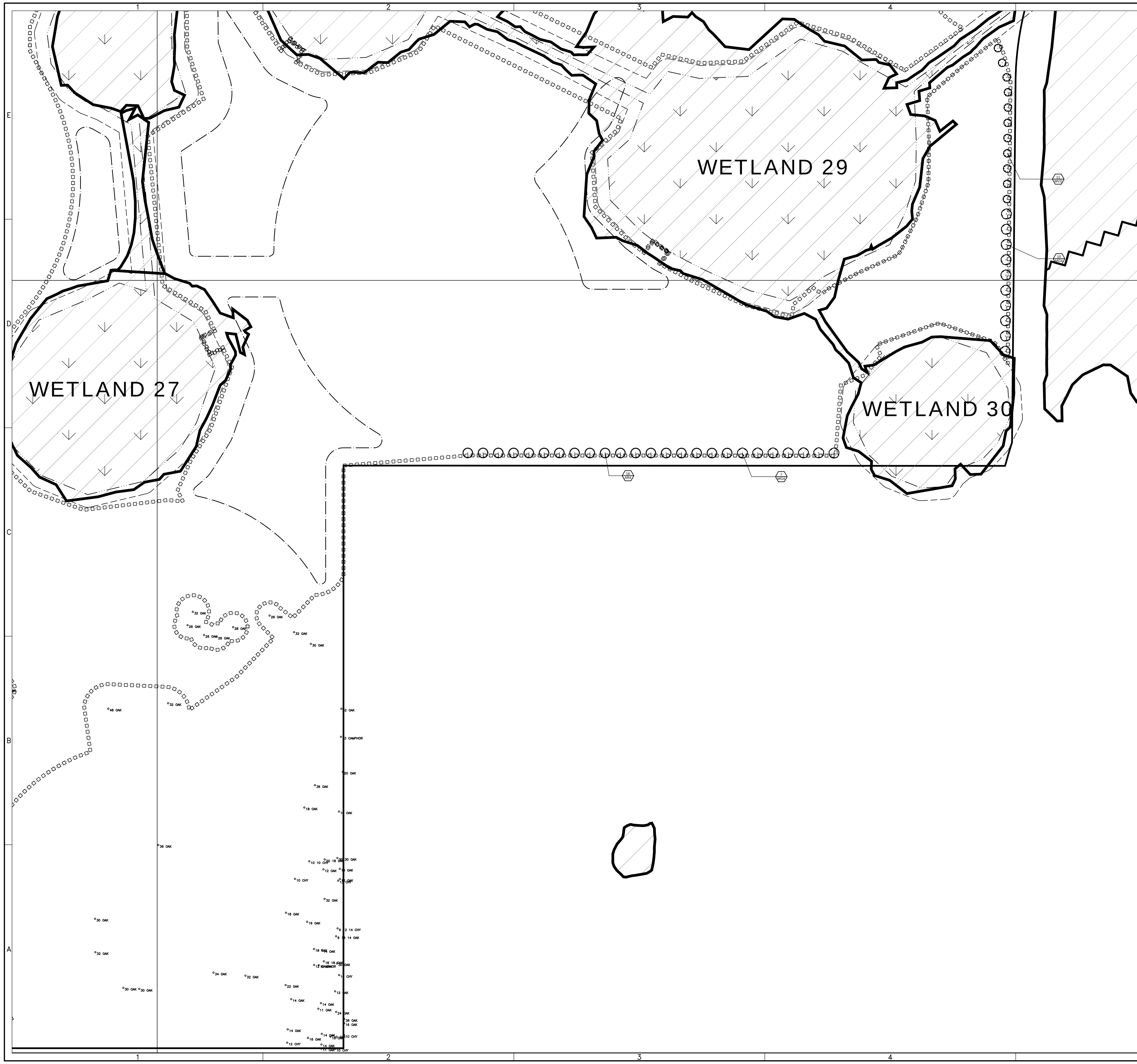
	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	L-101-MG
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

DOUG DIERLICH
DATE:__________
REGISTRATION NO. 0001696

L-104



N

0 50 100

GRAPHIC SCALE: 1" = 50'

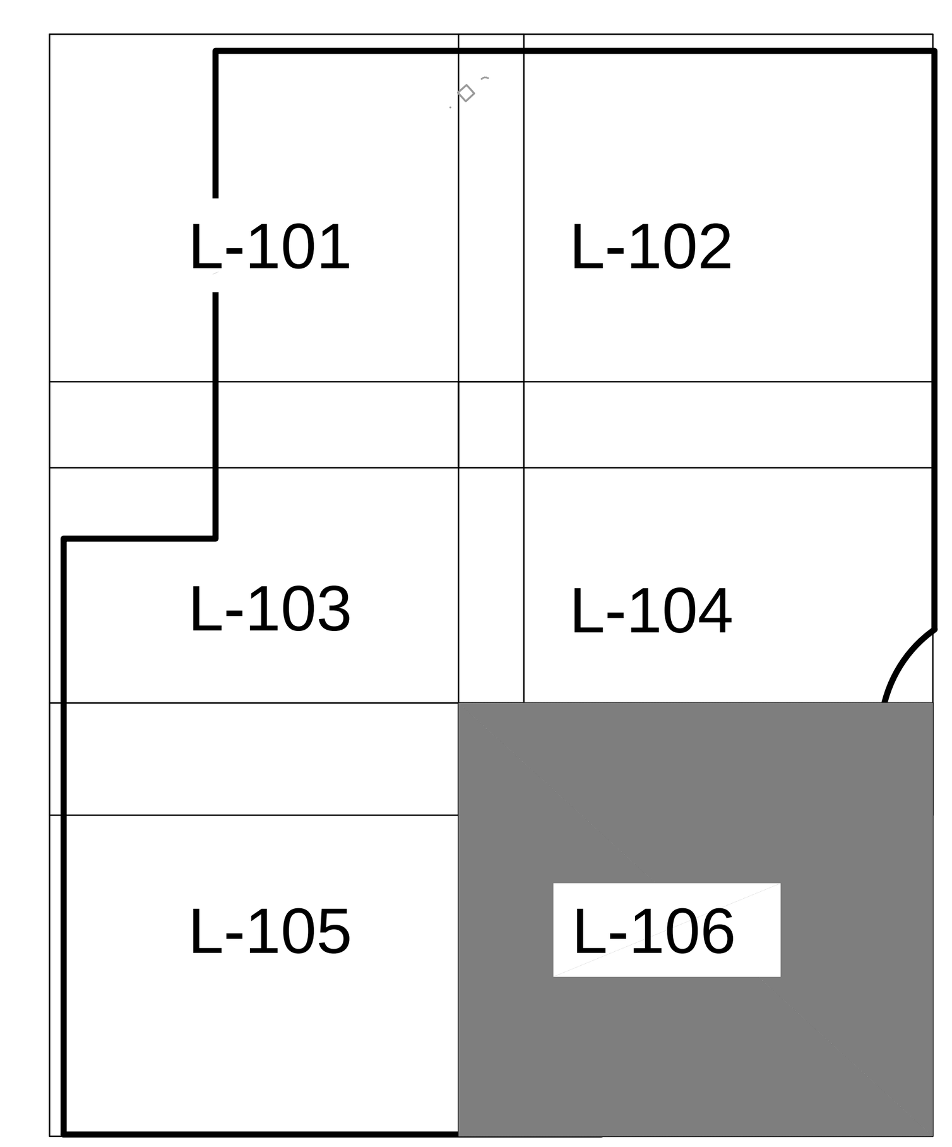
LEGEND

- EXISTING WETLAND BOUNDARY
- PROJECT BOUNDARY LIMITS
- PHASE 1 BOUNDARY LIMITS
- PROPOSED POND LIMITS
- 100YR FLOOD PLAIN LIMITS
- PROPOSED POND LIMITS
- SILT FENCE
- CONSTRUCTION ACCESS
- FILL LIMITS
- 12"LI TREE TO REMAIN
- 14"LI TREE TO BE REMOVED

EXISTING TREE CODES

AP	AUSTRALIAN PINE
C	CYPRESS
CL	CHERRY LAUREL
CM	CAMPHOR
CO	COCONUT PALM
CP	CABBAGE PALM/SABAL PALM
EL	ELM
F	FIG (STRANGLER FIG)
FW	FIDDLEWOOD
H	HICKORY
LA	LAUREL (DIAMOND OAK)
LB	LOBLOLLY BAY
LI	LIVE OAK
M	MAGNOLIA
MB	MARLBERRY
MG	SOUTHERN MAGNOLIA
MH	MAHOGANY
MY	MYRTLE OAK
NP	NORFOLK PINE
P	LONELEAF PINE
PC	PECAN
PE	PERSIMMON
PM	ROYAL PALM
PT	PAPER TREE
QP	QUEEN PALM
RB	RED BAY
RM	RED MAPLE
SB	SWEET BAY MAGNOLIA
SC	SYCAMORE
SG	SWEET GUM
SL	SLASH (YELLOW PINE)
SP	SAND PINE (SCRUB PINE)
T	TALLOW WOOD
TO	TURKEY OAK
WO	WATER OAK
WP	WASHINGTON PALM
WX	WAX MYRTLE

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
TREE REMOVAL & REPLACEMENT PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

1	12/15/2015	REVIEW SUBMITTAL
	DATE	DESCRIPTION

PROJECT NO:	CRP CR 1024
FILE:	L-101-MG
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

DOUG DIERLICH
DATE:__________
REGISTRATION NO. 0001696

L-106

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\L-101-MG.DWG -L-106 2014/12/13 2:56 PM ERIC FRANCIS

N

GRAPHIC SCALE: 1" = 50'
0 50 100

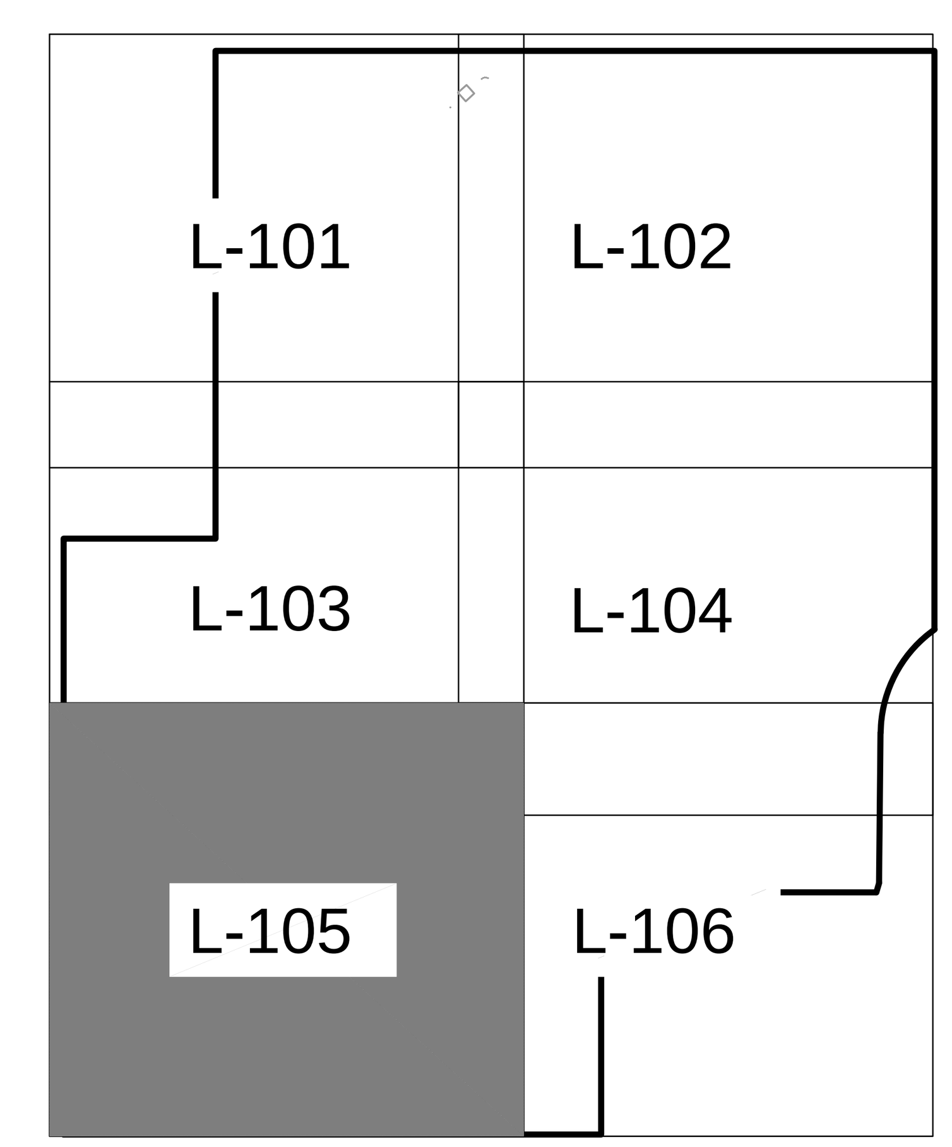
LEGEND

- EXISTING WETLAND BOUNDARY
- PROJECT BOUNDARY LIMITS
- PHASE 1 BOUNDARY LIMITS
- PROPOSED POND LIMITS
- 100YR FLOOD PLAIN LIMITS
- PROPOSED POND LIMITS
- SILT FENCE
- CONSTRUCTION ACCESS
- FILL LIMITS
- 12"LI TREE TO REMAIN
- 14"LI TREE TO BE REMOVED

EXISTING TREE CODES

AP	AUSTRALIAN PINE
C	CYPRESS
CL	CHERRY LAUREL
CM	CAMPHOR
CO	COCONUT PALM
CP	CABBAGE PALM/SABAL PALM
EL	ELM
F	FIG (STRANGLER FIG)
FW	FIDDLEWOOD
H	HICKORY
LA	LAUREL (DIAMOND OAK)
LB	LOBLOLLY BAY
LI	LIVE OAK
M	MAGNOLIA
MB	MARLBERRY
MG	SOUTHERN MAGNOLIA
MH	MAHOGANY
MY	MYRTLE OAK
NP	NORFOLK PINE
P	LONELEAF PINE
PC	PECAN
PE	PERSIMMON
PM	ROYAL PALM
PT	PAPER TREE
QP	QUEEN PALM
RB	RED BAY
RM	RED MAPLE
SB	SWEET BAY MAGNOLIA
SC	SYCAMORE
SG	SWEET GUM
SL	SLASH (YELLOW PINE)
SP	SAND PINE (SCRUB PINE)
T	TALLOW WOOD
TO	TURKEY OAK
WO	WATER OAK
WP	WASHINGTON PALM
WX	WAX MYRTLE

KEY MAP



HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405
5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

MIRADA
PHASE 1 MASS GRADING PLAN
TREE REMOVAL & REPLACEMENT PLAN

PREPARED FOR: METRO DEVELOPMENT GROUP, LLC

	DATE	DESCRIPTION
1	12/15/2015	REVIEW SUBMITTAL

PROJECT NO:	CRP CR 1024
FILE:	L-101-MG
DESIGN BY:	RUSSUM
DRAWN BY:	FRANCIS

FLORIDA PROFESSIONAL ENGINEER

DOUG DIERLICH
DATE:
REGISTRATION NO. 0001696

L-105

R:\MIRADA\PHASE 1 MASS GRADING\ENGINEERING\L-101-MG.DWG -L-105 2014/12/13 2:56 PM ERIC FRANCIS