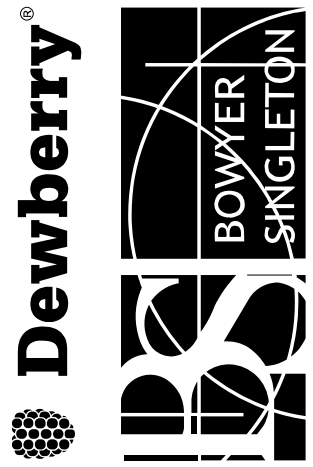


# REVISED CONSTRUCTION DOCUMENTS-PHASE 3

## WATERSIDE POINTE PLANNED UNIT DEVELOPMENT

Sec. 22 & 23; Twp. 22 S; Rge. 25 E; Lake County  
**GROVELAND, FLORIDA**  
**MARCH 2015**



FLORIDA  
CITY OF GROVELAND  
REVISED CONSTRUCTION DOCUMENTS  
PHASE 3  
CORPORATE OFFICE • 520 SOUTH MAGNOLIA AVENUE • ORLANDO, FLORIDA 32801  
407-843-5120 • ENGINEERING BUSINESS - 8794

### OWNER/DEVELOPER

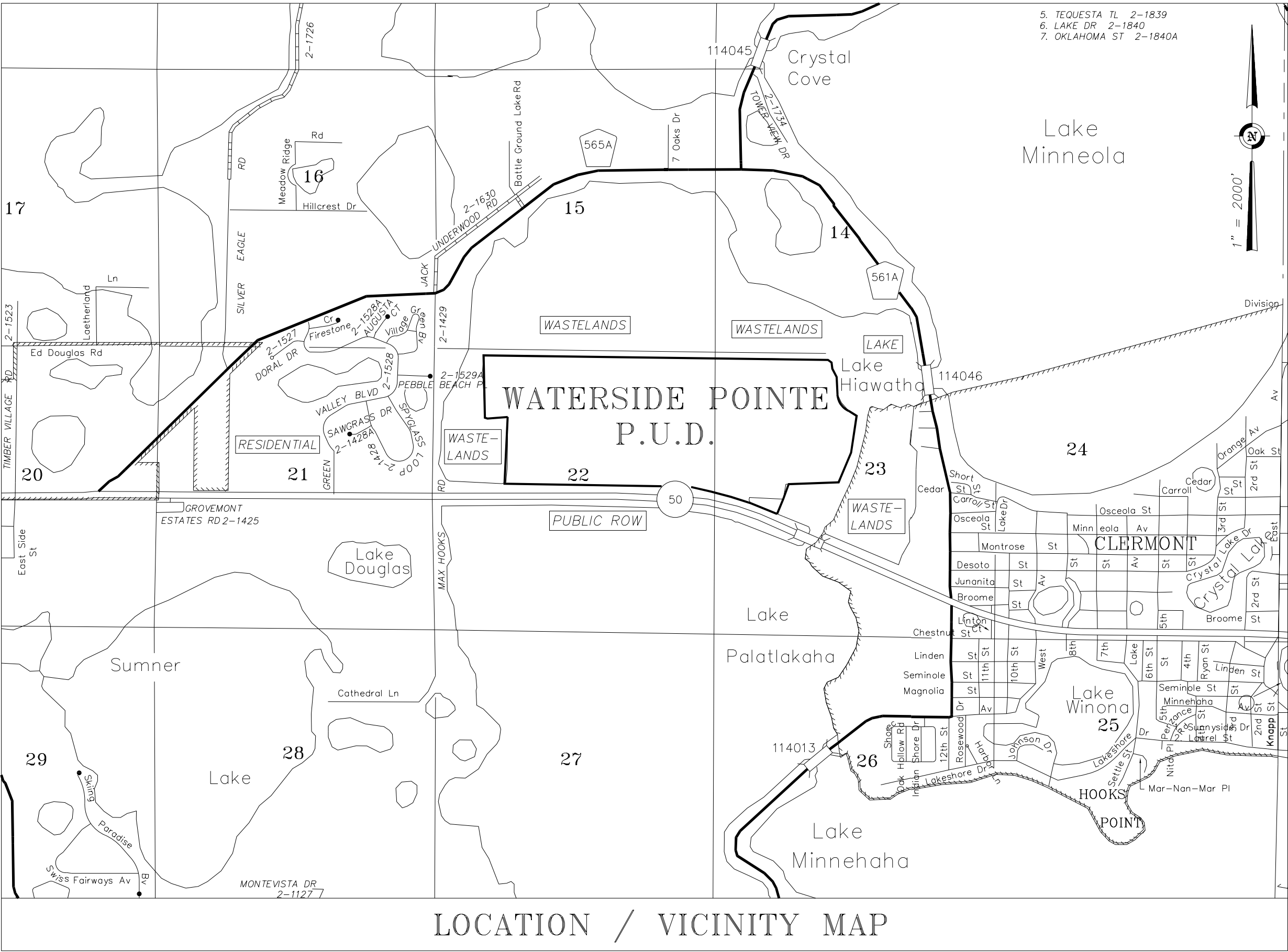
RYLAND HOMES  
2822 COMMERCE PARK DRIVE  
SUITE 100  
ORLANDO, FLORIDA 32819  
PHONE: (407) 226-2500  
CONTACT: DAVID BASELICE

### PLANNERS/ENGINEERS

DEWBERRY / BOWYER-SINGLETON  
520 SOUTH MAGNOLIA AVE.  
ORLANDO, FLORIDA 32801  
PHONE: (407) 843-5120  
CONTACT: SCOTT STEARNS, P.E.

### SURVEYOR

ASSOCIATED LAND SURVEYING  
& MAPPING, INC.  
101 WYMORE ROAD, SUITE 111  
ALTAMONTE SPRINGS, FLORIDA 32714  
PH (407) 869-5002, FAX (407) 869-8393



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### VACUUM SEWER SYSTEM BY ECKLER ENGINEERING, INC.

1-7	VACUUM SEWER SYSTEM
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NOTE:  
ALL ON-SITE PROJECT CONSTRUCTION SHALL CONFORM TO THE CURRENT CITY OF GROVELAND STANDARDS AND SPECIFICATIONS.  
ALL CONSTRUCTION WITHIN THE F.D.O.T. ROW SHALL CONFORM TO THE LATEST EDITIONS OF 'DESIGN STANDARDS' AND 'STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION'.

Mc&A #04-024

REVISIONS		DATE		BY	
	DESCRIPTION				
CONTRACTOR "AS-BUILT" "As-Built" were furnished to me by the contractor listed below. I, or an employee under my direct supervision have reviewed these "As-Built" and believe them to be in accordance with the plans and specifications actually constructed. This statement is based upon site observations of the construction.					
Contractor's Name _____				Engineer _____	Not valid without the signature and the original seal of a Florida Registered Engineer.
Michael Scott Stearns Florida Reg. Number 57602					
DATE	DESIGNED	DECEMBER 2014	SKH		
CHECKED	MSS				
SCALE	N/A				
PROJECT NO.	PL017/Final-Phase 3 Rev				
FILE NAME	PL017-Cover				
SHEET	1 OF 26				



# GENERAL

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1. Unless otherwise specified, all construction shall be performed consistent with the most recent publication of the following codes, standards and specifications as well as the latest editions of all other applicable specifications & standards:  
City of Groveland  
Lake County  
St. Johns River Water Management District (SJRWMD)  
Florida Department Of Environmental Protection (FDEP)  
Florida Department Of Transportation (FDOT)  
Americans with Disabilities Act (ADA) by U.S. Department Of Justice  
\*Manual On Uniform Traffic Control Devices (MUTCD) published by the U.S. Department of Transportation, Federal Highway Administration
2. All construction is to be governed by all applicable federal, state and local laws, ordinances, building and safety codes.
3. In the event that any standards or specifications as described herein are in conflict with each other, or that shown in the plans, the more stringent criteria will apply. Contractor shall notify the engineer of record immediately and in writing should the more stringent criteria be unclear, for engineer's interpretation of the more stringent criteria to be used.
4. These plans were based on the boundary and topographic survey by Associated Land Surveying & Mapping, Inc., 101 Wymore Road, Suite III, Altamonte Springs, Florida 32714, Phone (407) 869-5002, Fax (407) 869-8393.
5. Geotechnical recommendations or recommendations as provided in supplemental reports by others are not the responsibility of Dewberry/Bowyer-Singleton, Inc., who has relied upon the referenced geotechnical report(s). In the preparation of the plans, any conflict between information contained in the report(s) and these plans shall be reported to the engineer and owner immediately and in writing. Dewberry/Bowyer-Singleton, Inc., assumes no responsibility for the correctness, completeness, or accuracy of the report(s). When the plans and/or specifications contain the results of a soils survey, the contractor shall not assume the information is a guarantee of the depth, extent or character of material present. It is the responsibility of the contractor to make a necessary examination of the site and of any material sources indicated on the plans to be informed of the conditions under which construction is to occur.
6. The contractor shall obtain from the owner copies of permits for all agencies having jurisdiction, such as governmental, regulatory or local entities. The contractor shall be expected to review and abide by all the terms, conditions, requirements and limitations set forth in all of these permits. A copy of the permits shall be kept on the construction site and made available for review at all times.
7. The standards and specifications as listed herein, the geotechnical report(s), boundary and topographic survey(s), and required documents are hereby incorporated along with the plans by Bowyer-Singleton and Associates, Inc. as the complete "Site Civil Construction Documents."
8. If items appearing to be historical or archeological artifacts are discovered at any time during construction within the project limits, immediate notification shall be provided to the owner, the engineer, and the Bureau of Historical Preservation, Division of Historical Resources, R.A. Gray Building, 500 S. Bronough St., Tallahassee, Florida 32399-0250.

<i>CONTRACTOR RESPONSIBILITIES</i>
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1. The contractor shall familiarize himself with the site, including all surface and subsurface conditions, the work required and all other conditions that may effect the successful completion of the job prior to commencement of work.
2. The location of existing utility services, facilities, and structural features shown on these plans have been determined from the best information and are provided for the convenience of the contractor. The engineer does not guarantee the accuracy or the completeness of the location information provided. Any inaccuracy or omission in such information shall not relieve the contractor of its responsibility to protect the existing features from damage or unscheduled interruption of service. Should a discrepancy arise between these plans and actual field conditions which would appreciably affect the execution of these plans, the contractor shall stop all construction and notify the engineer immediately.
3. The contractor shall give all notices and comply with all laws, ordinances, rules, regulations and permit conditions bearing on the conduct of the work, as drawn and specified. If the contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the engineer, in writing, and any necessary changes shall be adjusted, as provided in the agreement for changes in the work.
4. The contractor shall be responsible for the maintenance of all landscape buffers, retention and detention facilities until the project has been accepted by the owner. All disturbed areas shall be returned to equal or better condition.
5. The contractor shall be responsible to the owner and the engineer for the acts and omissions of contractor's employees and all his subcontractors and their agents and employees and other persons performing any of the work under a contract with the contractor.
6. All work and furnished materials shall be in reasonable conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements and testing requirements that are specified in the contract, plans, details or specifications.
7. The contractor shall be responsible for making all necessary arrangements with governmental departments, public utilities, public carriers, service companies, and corporations owning or controlling roadways, railways, water, sewer, gas, electrical, telephone, and telegraph facilities such as pavements, tracks, piping, wires, cables, conduits, poles, guys, or other similar facilities, including incidental structures connected therewith that are encountered in the work in order that such items may be properly supported, protected or located.
8. Prior to commencing work, the contractor shall furnish, erect and maintain all barricades, lights, warning signs, and pavement markings for hazards and the control of traffic through the construction zone in conformity with the all agencies having jurisdiction standards to effectively prevent accidents at all locations where construction causes an obstruction to the normal flow of traffic or creates a hazard in any way to the public.
9. In the event the contractor discovers any errors or omissions in the plans he shall immediately notify the owner or owner's agent.
10. The contractor shall comply with all legal road restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the contractor of liability for any damage that may result from the moving of materials and equipment.
11. The contractor shall be responsible for protecting all existing survey monumentation, such as the preservation of all permanent reference monuments, permanent control points, permanent bench marks, property corners, points or markers. In the event any monumentation is disturbed, it shall be restored by a Florida licensed surveyor and mapper selected by the owner at the contractor's expense.
12. The owner, owner's representatives and inspectors of applicable government agencies having jurisdiction, shall at all times have access to the work site wherever and whenever it is in preparation or progress. The contractor shall provide proper facilities for such access and inspections.
13. It is the contractor's responsibility to take all reasonable and prudent precautions to insure that all completed work, materials and equipment stored on site are safe and secured from unauthorized access or use. Such precautions may include installation of signs, fences, or posting of security guards.
14. Contractor shall, at all times, utilize all normally accepted and reasonably expected safety practices and comply with all federal, state and local regulations, ordinances and guidelines pertaining to safe utilization of equipment or materials as published by manufacturer.
15. Adequate traffic control, signage, barricades and flagman services shall be furnished and maintained by the contractor at all points where construction equipment engaged in work enters onto or crosses functioning traffic-carrying roadway.
16. Those parts of work in place that are subject to damage because of operations being carried on adjacent thereto shall be covered, boarded up or substantially enclosed with adequate protection by the contractor at contractor's expense, protecting work completed.
17. The contractor shall comply in every respect with the Federal Occupational Health and Safety Act of 1970 and all rules and regulations now or hereafter in effect under said Act, and the contractor further agrees to comply with any and all applicable state laws and regulations pertaining to job safety and health.
18. The contractor shall protect and keep owner (including their agents and employees) free and harmless from any and all liability, public or private, penalties, contractual or otherwise, losses, damages, costs, attorney's fees, expenses, causes of action, claims or judgments resulting from the Federal Occupational Health and Safety Act of 1970 as amended or any rule or regulation promulgated thereunder or of any state laws or regulations pertaining to job safety and health arising out of or in any way connected with the performance of work or work to be performed under this contract, and contractor shall indemnify owner from any such claims, penalties, suits or actions, public or private, administrative or judicial, including attorney's fees paid or incurred by or on behalf of owner, jointly or severally, and/or their agents and employees. The contractor further agrees, in the event of a claimed violation of any federal or state safety and health law or regulation arising out of or in any way connected with the performance of work or work to be performed under this contract, owner may immediately take whatever action is deemed necessary by owner to remedy the claimed violation. Any and all costs or expenses paid or incurred by owner in taking such action shall be borne by contractor, and contractor agrees to protect, hold harmless and indemnify owner against any and all such costs or expenses.

19. The contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:
- All employees on the work site and all other persons who may be affected thereby;
  - All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the contractor or any of its subcontractors; and
  - Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadway, structures and utilities not designated for demolition in the course of construction.
20. The contractor shall comply with all applicable safety codes and with all applicable laws, ordinances, rules, regulations and lawful orders of any public, quasi public or other authority having jurisdiction for the safety of persons or property or for their protection against damage, injury or loss, or designed to protect the environment. The contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities of the existence of hazards and of the safety regulations.
21. All damage or loss to any property referred to in herein caused in whole or in part by the contractor, a subcontractor, or by anyone for whose acts any of them may be liable, shall be remedied by the contractor, except damage or loss properly attributable solely to the acts or omissions of the owner, or the engineer or anyone employed by them, or for whose acts any of them may be liable, and not properly attributable in whole or in part, to the fault or negligence of the contractor.
22. Until final acceptance of the work by owner, the contractor shall have the charge and care of and shall bear the risk of injury or damage, loss or expense to any part thereof, or to any materials stored on site, by the action of the elements or from any other cause whether arising from the execution or non-execution of the work. The contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expenses thereof.
23. The contractor shall be responsible for meeting all inspection criteria and schedules, and signing for said inspections.
24. The contractor shall control and be responsible for their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the public. The contractor shall maintain free and unobstructed movement of vehicular traffic and shall limit their operations in relation to the safety and convenience of the traveling public. Under all circumstances, safety shall be the most important consideration.
25. The contractor shall familiarize himself with the policies and guidelines established by all agencies having jurisdiction for the preservation of all public and private property. The contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in their manner or method of executing the work, or at anytime due to defective work or materials.
26. The contractor shall not excavate, remove, or otherwise disturb any material, structure or part of a structure which is located outside the lines, grades or grading sections established for this project, except where such excavation or removal is provided for in the contract, plans or specifications.
27. The contractor should verify the quantities and lengths of materials shown on the plans. Any discrepancy between material callouts and actual shown in plan view is to be brought to the engineer's attention by the contractor prior to bidding. It is the engineer's intention to construct what is shown on the plans.
28. Any discrepancy between the dimensions and measurements shown on the plans and the actual field conditions shall immediately be brought to the engineer's attention. Failure to do so and to continue construction shall make the contractor responsible for all errors and necessary corrections that may subsequently arise.

# EROSION CONTROL

1. The contractor shall comply with all federal, state and local laws and all regulations controlling pollution of the environment.
2. The contractor shall develop and implement a stormwater pollution prevention plan (SWPPP) according to EPA/FDEP NPDES criteria to minimize erosion and insure proper functioning of storm water management system upon completion of construction. In addition to meeting EPA/FDEP NPDES criteria, the SWPPP shall be submitted to and comply with local agency having jurisdiction's minimum erosion control criteria.
3. Contractor shall execute all measures necessary to limit the transportation of sediments outside the limits of the project to the volume and amount as those that exist prior to commencement of construction. This condition must be satisfied until project is fully completed and accepted. Contractor shall provide routine maintenance on temporary erosion control features at his expense. Provision must be made to preserve the integrity and capacity of check wells, sediment basins, slope drains, grading patterns, etc. Required to meet this provision through out the life of construction. Contractor shall provide hay bales, silt barriers, murrat filters, temporary grassing, etc. as related to fully comply with the intent of this specification. Contractor shall provide continuous monitoring of erosion and sediment controls taken and shall document all corrective measures. A copy of the approved SWPPP shall be kept on site at all times for review by owner's representative and by NPDES inspectors. This permit must be submitted to City of Orlando by the contractor prior to the issuance of permits.
4. The owner and/or contractor shall provide a notice of intent in accordance with criteria set forth in the NPDES permit requirements 48 hours prior to beginning construction, clearing, or demolition.
5. Provide effective temporary and permanent erosion control following the requirements in Section 104 of the State Dept. of Transportation standards specifications for road and bridge construction, latest edition, (F.D.O.T. Section 104)
6. Inlets and catch basins shall be protected from sedimentation resulting from surface runoff until completion of all construction operation that may cause sediment runoff. Filter fabric shall be placed and maintained under the grate and filter socks placed in front of the throat of curb inlets during construction.
7. Turbidity barriers must be installed at all locations where the possibility of transferring sediments and suspended solids into the receiving water body exists due to construction. Turbidity barriers shall remain in place until construction is completed, soils are stabilized and vegetation has been established.
8. All slopes 5:1 or greater shall be sodded. All pond slopes and rights-of-way shall be sodded.
9. In accordance with FDEP and Water Management District permits, all disturbed areas shall be seeded and mulched within 7 days of no construction activities.

## DEMOLITION AND CLEARING

1. Prior to construction, the contractor shall clearly designate the limits of construction on-site. The contractor shall not perform any work outside the limits of construction.
2. The contractor shall be extremely cautious when working near trees that are to be saved, whether shown in the plans or designated in the field.
3. All practical and necessary effort shall be taken during construction to prevent unnecessary tree removal.
4. Any proposed cut or fill material to be removed or placed within the drip line of specimen trees to remain, including trenching for proposed improvements such as utilities, will require the advanced pre-treatment of each impacted tree by a qualified arborist or of the direction of the landscape architect to minimize the potentially adverse impacts of construction.
5. Tree protection barricades or equivalent protective measures will be constructed according to the local jurisdiction's criteria for trees to remain within the limits of construction.
6. In areas requiring fill material, the contractor shall strip or otherwise remove all vegetation such as brush, heavy sods, heavy growth of grass, decayed vegetation matter, rubbish and any other deleterious material before embankment is placed, immediately prior to the placing of fill material, the entire area upon which fill is to be placed, shall be scarified in a direction approximately parallel to the axis of fill. The geotechnical engineer shall approve the area prior to the placement of fill.

## PAVING, GRADING & DRAINAGE

1. The contractor shall perform all work pertaining to drainage including excavation of stormwater management ponds or equivalent facilities prior to the commencement of other work included in these plans.
2. The contractor shall stake all improvements using the record plat. The contractor shall verify with the engineer that the plat is correct prior to any construction. If a plat does not exist, contractor is to verify use of the survey for layout with engineer prior to starting work. It is the contractor's responsibility to completely stake and check all improvements to insure correct positioning, both horizontal and vertical, including minimum building setbacks prior to the installation of any improvement. Any discrepancy between platted information and the plans shall be reported to the engineer immediately and in writing.
3. Prior to initiating any excavation (including but not limited to tunnels, ditches, storm water ponds, canals, artificial lakes) contractor shall install fences and take all other reasonable and prudent steps to insure that access to excavation by unauthorized personnel is prevented.

4. All drainage structures are to be traffic bearing unless otherwise noted. All precast circular structures shall be constructed with a minimum 5-inch wall thickness.
5. All proposed paving surfaces in Intersections and adjacent existing sections shall be graded to drain positively in the direction shown by the proposed grades and flow arrows on the plans and to provide a smoothly transitioned driving surface for vehicles with no sharp breaks in grade, and no unusually steep or reverse cross slopes. Approaches to Intersections and entrance and exit grades to Intersections may require minor local field adjustments should actual conditions vary from the surveyed information the design was based upon in order to accomplish the intent of the plans. In addition, the standard crown will have to be changed in order to drain positively in the area of Intersections. It is the contractor's responsibility to accomplish the above and consult the engineer as needed to make any and all required interpretations of the plans or give supplementary instructions should the intent of the plans be unclear.
6. Construction of roadways shall meet the minimum standards and specifications of the local agency(s) having jurisdiction and the minimum suggested sections as outlined in the soils report's recommendations, unless otherwise noted.
7. The contractor is responsible for removing any excess cuts or supplying fill as necessary to grade the site to the proposed elevations as designed within the construction documents.
8. If limestone bedrock is encountered during excavation of the retention basins or a sinkhole or solution cavity forms during construction, excavation of the basin must be halted immediately, the owner, engineer, and water management district must be notified, and remedial action will be required. The permittee must inspect all permitted surface water management basins monthly for the occurrence of sinkholes and document these inspections on water management district condition compliance form number ENH-33. Two copies of the completed forms must be sent to the water management district and the local agency having jurisdiction annually by May 31st of each year. The permittee must report any sinkhole that develops within the surface water management system. The permittee must notify the water management district and local agency having jurisdiction of any sinkhole development. In the surface water management system within 48 hours of its discovery and complete sinkhole repair within 10 days of such discovery using a district approved methodology.
9. After the roadway has been constructed to subgrade, it shall be proof-rolled to assure that proper compaction has been attained. The proof-rolling and compaction operations shall be inspected and tested by a Florida licensed geotechnical engineer to assure that the specified compaction is maintained and all deleterious materials have been removed.
10. The contractor shall insure that a minimum soil density of 98% compaction is achieved unless otherwise noted for placement of all headwall/retaining footings, retaining wall footings, and in general, any footing support described on these plans. It will also be the responsibility of the contractor to insure that sufficient geotechnical testing and design has been performed prior to construction.
11. Blue reflective pavement markers shall be placed in the center of the driving lane opposite each fire hydrant.
12. Storm pipe lengths shown on the plans include mitered end sections, if the contractor elects to use an approved alternate, the pipe lengths must be adjusted.
13. Inlet offsets are to the centerlines shown on F.D.O.T. design standards Indexes.
14. The contractor is responsible for paving all roadways to drain positively. Intersections shall be transitioned to provide a smooth driving surface while maintaining positive drainage. If an area of poor drainage is observed, the contractor shall notify the engineer prior to paving so that a solution or recommendation for correction may be made.
15. All reinforced concrete pipe (R.C.P.) shall be minimum Class III, unless otherwise approved or noted on the plans or specifications.
16. All stormwater pipe joints shall be wrapped with filter fabric.

## PUBLIC RIGHTS-OF-WAY

1. The contractor shall coordinate all work within public rights-of-way with the respective local agency(s) having jurisdiction (city or county) Director of Public Works and the jurisdiction's engineer. In addition, any work within a state road right-of-way must be approved and coordinated with the FDOT through the local maintenance office for each district.
2. Prior to performing any work within any public or utility right-of-way, contractor shall obtain authorization and permit from all jurisdictions responsible for such right-of-way.
3. Prior to performing any work within any public right-of-way, contractor shall develop and submit a maintenance of traffic plan to the local agency having jurisdiction over said ROW for their approval. This plan must meet the minimum requirements as outlined in the "Manual On Uniform Traffic Control Devices" published by the U.S. Department of Transportation, Federal Highway Administration and the Florida Department Of Transportation design standards.

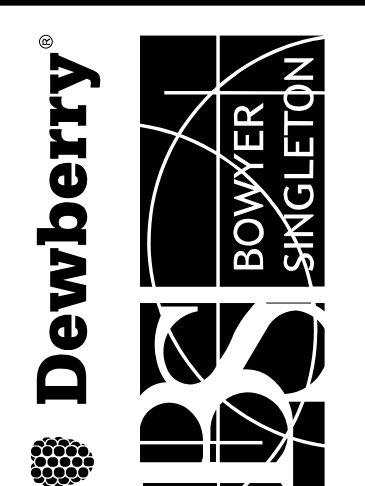
## UTILITIES

<u>UTILITY PROVIDERS:</u>	
Water:.....	CITY OF GROVELAND
Reclaimed Water:.....	CITY OF GROVELAND
Sanitary Sewer:.....	CITY OF GROVELAND
Solid Waste:.....	INDEPENDENT CONTRACTOR
Electric:.....	DUKE ENERGY
Telephone:.....	SPRINT
Cable:.....	BRIGHT HOUSE
Gas:.....	APOPKA NATURAL GAS

1. The existing utilities shown are approximate. The contractor shall field locate all existing utilities as to size, location, and elevation. The contractor shall notify the engineer of any and all conflicts prior to beginning construction.
2. The contractor shall be responsible for locating and verifying size, type, location, and elevation of all existing utilities prior to construction and notifying the involved utility providers to make any necessary arrangements for relocation, disruption of service, or clarification of activity regarding said utility. The contractor shall use extreme caution when crossing an underground utility, whether shown on these plans or field located. The respective utility providers shall relocate utilities that interfere with the proposed construction and the contractor shall cooperate with the utility providers during relocation operations. Any delay or inconvenience caused by the involved utilities shall be incidental to the contract. The contractor shall conform to Florida Statute Chapter 556 and the Sunshine State One-Call of Florida.
3. Contractor shall notify all utility owners and the Sunshine Underground Utilities Notification Center at 1-800-432-4770 at least 72 hours prior to start of work. Contractor is responsible for continual maintenance of all utility locates, flags, marking, etc. cetera during the entire duration of construction.

4. *Utility services to the proposed building(s) shall terminate 5 feet outside of the building unless otherwise noted. Prior to construction, the contractor shall review building architectural and plumbing plans to verify proper continuation of the proposed utilities for location, alignment and elevation(s) for each service to the building(s). Should utility service laterals shown on the site civil construction plans not correspond with building architectural or plumbing plans the contractor shall notify the engineer immediately.*
5. *The power distribution system shall be designed and installed by the power service provider. The contractor shall coordinate with said power service provider to insure proper construction phasing is achieved, and to allow the installation of street crossings, sleeves, conduits, poles, transformers, and other required equipment. It is the owner's responsibility to acquire any necessary easements as a result of the power service provider's design and respective installation locations.*
6. *The telephone, cable TV, data, and/or communication systems shall be designed and installed by their respective service provider. The contractor shall coordinate with said service provider to insure proper construction phasing is achieved, conflict free, and to allow the installation of street crossings, sleeves, conduits, poles, and other required equipment. It is the owner's responsibility to acquire any necessary easements as a result of the service providers' designs and respective installation locations.*
7. *It is the contractor's responsibility to properly coordinate the final designs and subsequent installations of all service providers' utilities and their minimum criteria as set forth therein for items such as maintaining the minimum separation distances between the various utilities.*
8. *Unless otherwise noted, the top 24 inches of all utility trenches within roadways in maximum 12" lifts, shall be compacted to 98% of the modified proctor maximum density; all other utility trenches shall be compacted to 95% of the modified proctor maximum density.*
9. *The contractor shall notify the applicable utilities construction department for the corresponding local utility provided a minimum of 48 hours prior to starting any utilities construction.*
10. *Pipe alignment, deflection, and integrity testing shall be performed by the 'damping' method and utilizing video inspection. The contractor shall perform interval video inspection for the gravity sewer to check pipe alignment and deflection.*
11. *All fire hydrants and apparatus must comply with FFPC Section 3-5.6 and Section 3-7.J when applicable.*
12. *Maximum spacing of fire hydrants is 500' in accordance with City Code 24.30 (f.XI).*

13. Underground main contractor must apply for a Fire permit for the installation or modification of any underground mains serving fire hydrants and/or fire protection systems prior to any installation, if the water distribution system and fire hydrants are located in a right-of-way or recorded easement and owned/installed/maintained by the water purveyor, we will only require installation to the water purveyor's standards for underground components and connections. However, hydrants must be in compliance with hydrant spacing, location, distribution, color coding, and needed fire flow minimum as specified in City Fire Code, Underground Main and fire hydrant installations on private property will require an FIR permit and full compliance with NFPA 24, ICFire Code, Section 24.3.11(X)131.



FLORIDA	
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CITY OF GROVELAND

GENERAL NOTES

REVISED CONSTRUCTION DOCUMENTS - PHASE 3

CORPORATE OFFICE - 520 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801  
407-843-5120 - ENGINEERING BUSINESS - 4794

DATE	BY	REVISIONS DESCRIPTION

CONTRACTOR: "AS-BUILT'S" were furnished to me by the contractor listed below, I or an employee under my direct supervision have reviewed this statement for accuracy and compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.

Contractor's Name \_\_\_\_\_

Engineer \_\_\_\_\_

Not valid without the signature and the original seal of a Florida Registered Engineer.

<p><b>Michael Scott Stearns</b>  <b>Florida Reg. Number</b>  <b>57602</b></p>	
DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	N/A
DATUM	N/A
PROJECT NO.	PL017-Final Phase 3 Rev
FILE NAME	PL017-General Notes-01
SHEET	2 OF 26



# POTABLE WATER

1. All PVC watermains 2" or less shall be SDR21 (200 psi) unless otherwise noted.
2. Water mains shall comply with AWWA standards. All PVC pipe 3 to 12 inches shall be AWWA C900 DR18; all PVC pipe 14 inches and larger shall comply with AWWA C905 DR25. All water mains shall bear the NSF logo and shall be color-coded or marked using blue as a predominant color to differentiate drinking water from other water lines.
3. Where ductile iron pipe is required for water mains, it shall conform to ANSI/AWWA A21.51. A minimum thickness for pressure class 350 per ANSI/AWWA shall be supplied. Dip sizes up to 12 inches in diameter shall be pressure class 350. Dip sizes 14 inches and larger shall be pressure class 250.
4. All water main fittings, valves, restrainers, couplings, pipe, and in general, those materials required for installing the water supply system shall comply with the minimum material standards, ratings and classifications established by the respective utility provider. All water main fittings shall be DIP for all 3" thru 12" PVC and DIP water mains conforming to the requirements of ANSI/AWWA C153/A21.53 and epoxy coated exterior, unless noted otherwise. These fittings shall incorporate restraining rings, mega-lugs or other approved equivalent mechanical devices.
5. Ductile iron pipe and fittings shall have a cement mortar interior lining conforming to the requirements of ANSI/AWWA C104/A21.4.
6. Valves for potable and raw water mains shall be ductile iron (DI) epoxy coated gate valves or butterfly valves. See specifications for details.
7. All polyethylene pressure pipe and fittings 4-inch and larger shall conform to AWWA Standard C906-99 (DR11) Pressure Class 160 and ASTM Standard D3350.02B37 PE 3408.
8. All polyethylene pipes for service tubing shall conform to AWWA Standard C901 (DR9) Pressure Class 200 and Standard D2737 PE 3408.
9. All pipe and polyethylene service tubing shall bear the National Sanitation Foundation (NSF) seal of approval for potable water service.
10. PVC pipe less than 2-inches shall conform to ASTM D1785. Threaded pipe and fittings shall be Sch.80 and conform to ASTM D2464. Unthreaded pipe and fittings shall be Sch.40 with solvent-cemented joints. Cemented joints and fittings shall comply with ASTM D2466 and D2855.
11. 2", 2 1/2" and 3" PVC pipe shall conform to ASTM D2241. Pipe shall be furnished in 20-foot lengths, shall have dimension ratio (DR21) and a water pressure rating of 200 psi.
12. Pipe measurements shall be center to center of fittings or valves.
13. Contractor shall provide temporary thrust restrainers, bracing, test plugs and/or other devices necessary to successfully complete pressure testing of all pressure piping systems, ancillary to the work.
14. Automatic air release/vacuum air release valves for underground installation shall conform with 62-555.320(x)(b) IFAC & RSWW 8.4.2.
15. All buried piping specified for pressure service shall be provided with restraining devices at all directional changes, unless noted otherwise.
16. All fasteners shall be manufactured of non-corrosive materials.
17. Locations and dimensions of existing rights-of-way and easements are based on the best available information. The contractor shall verify all the limits of rights-of-way and easements in order to avoid encroachments.
18. The contractor shall repair or replace with equal materials in kind or as directed by the owner or inspector any items disturbed or damaged by the utility construction or its related activities for items such as but not limited to, paving, stabilized earth, driveways, etc.
19. Contractor shall paint the hydrants according to fire department requirements.
20. Where applicable fire hydrants shall be installed within the ROW.
21. Proper backflow prevention assemblies shall be provided in accordance with Rule 62-555.360, F.A.C. and AWWA Manual M14, "Recommended Practice for Backflow Prevention And Cross Connection Control" (latest editions as incorporated in Rule 62-555-330 F.A.C. The method of connection to the existing active main shall be chosen to ensure that the pressure does not drop below 20psi otherwise a boil water notice is required to be issued by the utility supplying the water.
22. Contractor shall coordinate with agency having jurisdiction and water service provider to have water samples taken at locations as specified by their minimum standards and as outlined in the Florida Department of Environmental Protection permit for construction of the water distribution system (if permit is required). Documentation of the minimum testing results such as bacteriological reports with residual CL levels shall be submitted to the engineer within 4 days from the day of sample. It is the contractor's responsibility to review and verify the results as passing prior to submitting to the engineer.
23. All water mains shall be hydrostatically tested and disinfected in accordance with AWWA Standards, latest revisions. Hydrostatic testing for PVC mains shall be 150 psi for minimum of 2 hours and meet AWWA Standard C605/M23. Ductile iron mains shall be tested at 150 psi for 2 hours per AWWA C600. All new mains shall be disinfected per AWWA Standard C651. Bacteriological tests for 2 consecutive days shall be approved prior to placing system into service.
24. All water mains shall have an "Early Warning" protection tape installed continuously along the entire length. The protection tape shall be installed during the backfilling 6 to 12 inches below finish grade directly over the pipe and be continuously marked with "Caution - Water Main Buried Below". The tape shall have an embedded metallic detectable strip and be blue in color for potable water.
25. The contractor shall submit shop drawings on all equipment and materials for approval to the engineer and water service provider prior to procurement.

<p style="text-align: center;">WATER LINE CONSTRUCTION NOTES PER FDEP</p>
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1. All pipe, pipe fittings, pipe joint packing and jointing materials, valves, fire hydrants, and meters Installed will conform to applicable American Water Works Association (AWWA) standards.
2. All public water system components, excluding fire hydrants, that will be installed and that will come into contact with drinking water will conform to NSF International Standard 61 as adopted in Rule 62-555.335, F.A.C., or other applicable standards, regulations, or requirements referenced in paragraph 62-555.320 (13)(b), F.A.C.
3. All pipe and pipe fittings installed will contain no more than 8.0% lead, and any solder or flux used in this project will contain no more than 0.2% lead.
4. All pipe and pipe fittings installed will be color-coded or marked in accordance with subparagraph 62-555.320 (2)(b) 3, F.A.C., using blue as a predominant color. (Underground plastic pipe will be solid-wall blue pipe, will have a co-extruded blue external skin, or will be white or black pipe with blue stripes incorporated into, or applied to, the pipe walls; underground metal or concrete pipe will have blue stripes applied to the pipe wall. Pipe striped during manufacturing of the pipe will have continuous stripes that run parallel to the axis of the pipe, that are located at no greater than 90-degree intervals around the pipe, and that will remain intact during and after installation of the pipe. If tape or paint is used to stripe pipe during installation of the pipe, the tape or paint will be applied in a continuous line that runs parallel to the axis of the pipe and that is located along the top of the pipe for pipe with an internal diameter of 2 inches or greater; tape or paint will be applied in continuous lines along each side of the pipe as well as along the top of the pipe. Aboveground pipe will be painted blue or will be color-coded or marked like underground pipe.)
5. All fire hydrants that have unplugged, underground drains will be located at least three feet from any existing or proposed storm sewer, stormwater force main, pipeline conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C., or vacuum-type sanitary sewer; at least six feet from any existing or proposed gravity- or pressure-type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.; and at least ten feet from any existing or proposed "on-site sewage treatment and disposal system".
6. New or altered chambers, pits, or manholes that contain valves, blow-offs, meters, or other such water distribution systems appurtenances will not be connected directly to any sanitary or storm sewer, and blow-offs or air relief valves installed under this project will not be connected directly to any sanitary or storm sewer.
7. New or altered water mains will be installed in accordance with applicable AWWA standards or in accordance with manufacturers' recommended procedures.
8. A continuous and uniform bedding will be provided in trenches for underground pipe installed; backfill material will be tamped in layers around underground pipe installed and to a sufficient height above the pipe to adequately support and protect the pipe and unsuitably sized stones (as described in applicable AWWA standards or manufacturer's recommended installation procedures) found in trenches will be removed for a depth of at least six inches below the bottom of underground pipe.
9. All water main tees, bends, plugs, and hydrants installed will be provided with restrained joints to prevent movement.
10. Water mains that are constructed of asbestos-cement or polyvinyl chloride pipe will be pressure and leakage tested in accordance with AWWA Standard C603 or C605, respectively, as incorporated into Rule 62-555.330, F.A.C., and all other new or altered water mains included in this project will be pressure and leakage tested in accordance with AWWA Standard C600 as incorporated into Rule 62-555.330 F.A.C.
11. Water mains, including fire hydrant leads and including service lines that will be under the control of a public water system and that have an inside diameter of three inches or greater, will be disinfected and bacteriologically evaluated in accordance with Rule 62-555.340, F.A.C.

12. New or relocated, underground water mains shall be laid to provide a horizontal distance of at least six feet, and preferably ten feet, between the outside of the water main and the outside of any existing or proposed gravity- or pressure-type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C. The minimum horizontal separation distance between water mains and gravity-type sanitary sewers shall be reduced to three feet where the bottom of the water main is laid at least six inches above the top of the sewer. However, it is preferable to lay the water main above the other pipeline.
- New or relocated, underground water mains shall be laid to provide a horizontal distance of at least three feet, and preferably ten feet, between the outside of the water main and the outside of any existing or proposed vacuum-type sanitary-sewer.
13. New or relocated, underground water mains crossing any existing or proposed gravity- or vacuum-type sanitary sewer, shall be laid so the outside of the water main is at least 6 inches, and preferably 12 inches, above or at least 12 inches below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline.
- New or relocated, underground water mains crossing any existing or proposed pressure-type sanitary sewer, wastewater or stormwater force main, or pipeline conveying reclaimed water shall be laid so the outside of the water main is at least 12 inches above or below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline.
14. At the utility crossings described above, one full length of water main pipe shall be centered above or below the other pipeline so the water main joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipes shall be arranged so that the water main joints are at least three feet from all joints in vacuum-type sanitary sewers or pipelines conveying reclaimed water, regulated under Part III of Chapter 62-610, F.A.C., and at least six feet from all joints in gravity- or pressure-type sanitary sewers, wastewater force mains, or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.
15. Where automatic air relief valves are installed the ARV will be extended such that the open end of the air relief pipe will be separated from the ground by at least one foot and will be provided with a screened, downward facing elbow.

## SANITARY GRAVITY & FORCE MAINS

1. All PVC sanitary sewer shall be SDR35, unless otherwise noted; and all PVC sanitary sewer force main 12" thru 18" shall be C900/DR18, unless otherwise noted.
2. Leakage tests for the sanitary sewer system shall meet provider's specifications using the low pressure air test method, 5 psi for 15 minutes and shall not exceed 400 feet in length and shall be tested between adjacent manholes and shall include all laterals.
3. All PVC sanitary force mains shall be color-coded or marked using green as a predominant color to differentiate the force main from other utility lines.
4. Minimum slope allowed for sanitary sewer pipe is 0.40X.
5. PVC pipe and fittings 4-inches through 15-inches shall conform to ASTM D3034, SDR35 or 26.
6. PVC pipe and fittings 18-inches through 27-inches shall conform to ASTM F679-T1, SDR35.
7. PVC pipe and fittings shall be solid green in color.
8. Ductile iron pipe for gravity or non-pressure service shall be designed in accordance with and conforming to the requirements of ASTM A746 for installation with trench type II, or in accordance with ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51.
9. Ductile iron fittings for use in gravity or non-pressure service shall conform to the requirements of ANSI/AWWA C153/A21.53, compact ductile iron fittings.
10. Ductile iron pipe and fittings for gravity or non-pressure service shall have an interior lining consisting of a minimum 40 mils of a ceramic epoxy coating. Refer to specifications for details.
11. Material for gravity sewer pipe and fittings shall be as shown for the following depths of excavation:
  - a. 5' to 12' PVC, ASTM 3034/ASTM F679, SDR 35
  - b. Less than 5' or greater than 12' PVC, ASTM 3034, SDR 26
12. The contractor shall submit shop drawings on all equipment and materials for approval by the engineer and service provider prior to procurement.
13. Pipe measurements on the main "trunk" sewer shall be from center to center of manholes or cleanouts, unless otherwise noted.
14. Pipe measurements for service laterals shall be from the main "trunk" sewer to the property line. The depth of the lateral at the property line shall be measured and recorded on the record drawings.
15. For a scheduled interruption of sanitary sewer main flow, the contractor shall provide to the agency having jurisdiction and service provider for review a written schedule as to the method and duration of flow interruption.
16. During normal sanitary sewer main flow interruption, the contractor shall provide uninterrupted by-pass flow and shall provide all equipment necessary to accomplish the same in the form of, but not limited to, the following: power, pumps, piping, appurtenant valves and fittings and/or septic tanker truck pumping, hauling and disposal services.
17. Contractor shall pay for inspection of the gravity sewer line by a TV camera system. A VHS tape and report shall be submitted to engineer for review and approval prior to final inspection by service provider's authorized representative.

HAZARDOUS MATERIALS
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1. Hazardous material means any substance (a) the presence of which requires investigation or remediation under any present federal, state or local statute, regulation, ordinance, rule, order, action, policy or common law, or (b) which is or becomes defined as a "hazardous waste," "hazardous substance," pollutant or contaminant under any present federal, state or local statute, regulation, rule or ordinance or amendments thereto including, without limitation, the Comprehensive Environmental Response Compensation and Liability Act (42 U.S.C. Sections 9601 et seq.) and/or the Resource Conservation and Recovery Act (42 U.S.C. Sections 6901 et seq.) or (c) which is toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic, or otherwise hazardous and is regulated by any governmental authority, agency, department, commission, board, agency or Instrumentality of the United States, the state in which the premises are located or any political subdivision thereof, or
- (d) The presence of which on the premises causes or threatens to cause a nuisance upon the premises or to adjacent properties or creates a hazard to the health or safety of persons on or about the premises, or (e) which contains gasoline, diesel fuel or other petroleum hydrocarbons, or (f) which contains polychlorinated biphenyls (PCBS), asbestos, lead or urea formaldehyde foam insulation.
2. Contractor and its subcontractors shall use, handle, transport, and dispose of all hazardous materials (as defined herein) in compliance with all present federal, state and local environmental, health or safety law, including, but not limited to, all such statutes, regulations, rules, ordinances, codes, and rules of common law.
3. Contractor further agrees that contractor and its subcontractors shall not cause the discharge, release or disposal of any hazardous material created by its work on or about the job site. In the event of any spill, release or any other reportable occurrence, contractor shall notify the appropriate governmental agency and shall take such action as may be necessary to minimize the deleterious effect of such spill on persons or property.
4. Contractor and its subcontractors shall, upon completion of performance of all duties under this contract, remove all supplies, materials, and waste containing any hazardous material from the job site. Contractor shall bear full financial responsibility, as between the parties of this contract, for the compliance of contractor and its subcontractors with the provisions as outlined herein.
5. Contractor agrees to indemnify, defend, protect and hold the owner harmless from and against any claims including, without limitation, actual attorney's fees and any costs of investigation, soils testing, governmental approvals, remediation and cleanup arising out of or in any way connected with the failure of contractor or its subcontractors, or their agents, employees, officers, or representatives, to comply with the terms as described herein.
6. Should contractor or its subcontractors discharge, release or dispose of any hazardous material on or about the job site in violation of this paragraph, contractor shall immediately inform the owner in writing. In the event of any spill, release or any other reportable occurrence, contractor shall notify the appropriate governmental agency(s) and shall take such action as may be necessary to minimize the deleterious effect of such spill on persons, property or the environment.
7. In the event contractor or its subcontractors encounter on the premises any pipeline, underground storage tank or other container, of any kind, that may contain a hazardous material, or encounter material reasonably believed to be a hazardous material, contractor shall immediately stop work in the area affected and report the condition to the owner in writing.
8. If contractor or its subcontractors do not comply with the requirements as outlined herein, owner may, but is not obligated to, give written notice of violation to contractor. Should contractor or its subcontractors fail to comply with the requirements of the paragraph within twenty-four (24) hours from the time owner issues such written notice of noncompliance or within the time of an abatement period specified by any governmental agency, whichever period is shorter, contractor shall be in material default of this contract.
9. All areas used for fuel storage shall have the property owner's prior approval and appropriate measures shall be taken to insure protection of groundwater and soil resources.

PRE-CONSTRUCTION	



1. Contractor shall attend a mandatory pre-construction meeting with the engineer of record and applicable staff of the local agency having jurisdiction (e.g. city or county) prior to any disturbance of land, clearing or demolition. Contractor must provide written notice of the pre-construction meeting's time, date and location to the owner and engineer of record a minimum of 48 hours prior to.
2. If any testing, inspection or approval under this paragraph reveal defective work, contractor shall not be allowed to receive any associated costs and the owner shall be entitled to deduct from the contract price, by Issuing a change order, owner's costs arising out of the defective work, including costs of repeated procedures, compensation for engineer's and design engineer's services and other related costs.
3. Shop drawings and certifications for all storm drainage, water system, sewer system, and paving system materials and structures are required. The contractor shall submit shop drawings to the engineer for approval prior to ordering the materials required for construction.
4. The contractor shall provide the engineer 48-hour advance notification for the following construction and observation activities:
  - Sanitary sewer lamping and video inspection
  - Connections to existing systems
  - Storm drainage lamping
  - inlet top pours (reinforcing steel check)
  - Water and force main pressure tests
  - Bacteriological sampling
  - Base observation & sounding
  - Asphalt placement
  - Pre-final observation
  - Final observation

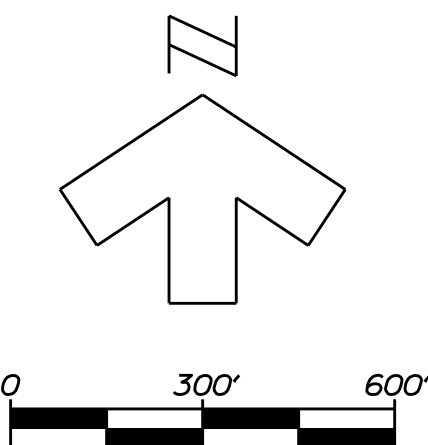
# RECORD DRAWINGS & CERTIFICATION

1. Prior to construction, the contractor will obtain a copy of the minimum requirements for as-built record drawing acceptance for the agency having jurisdiction (such as the city or county) and/or utility service provider, familiarize themselves with these requirements, and produce as-built record drawings that substantially comply with or exceed these requirements, including any required electronic data submittals.
2. As-built drawings shall be accurately recorded and certified by a licensed land surveyor registered in the State of Florida and shall meet the minimal technical standards set forth by the Florida Board of Surveyor's and Mappers in Charter 6IG17-6, Florida Administrative Code, pursuant to Section 472.027 Florida Statutes.
3. The contractor will be responsible to provide sufficient as-built information to convey that the construction has been completed within acceptable tolerances to the approved design and shall include but is not limited to the following:
  - Sanitary sewer
    1. Top elevation of each manhole frame and cover.
    2. Invert of each line entering and leaving each manhole/structure.
    3. Length of each run of main between manholes (center to center).
    4. Actual grade of pipe between manholes.
    5. Locate all service wyes from downstream manhole with depth at lot line and distance from the main line.
    6. Locate with measurements from permanent visible objects all fittings/accessories not visible from the surface (minimum two point ties).
  - Storm drainage
    1. Top elevation of each manhole frame and cover/grate as well as all other structures (headwalls, control structures, etc.).
    2. Invert of each line entering and leaving each structure, including underdrain pipes.
    3. Inverts of all altered end sections.
    4. Actual grade of pipe between the structures.
    5. Invert elevation and two horizontal ties from permanent visible objects to all storm stub-outs.
    6. Underdrains
  - Water and reuse system and force mains
    1. Actual lengths of pipe between branches and valves in the run.
    2. Locate with measurements from permanent visible objects all fittings/accessories not visible from the surface (minimum two point ties).
    3. List the depths of the lines at all valves, fittings and fire hydrants.
  - Other Improvements

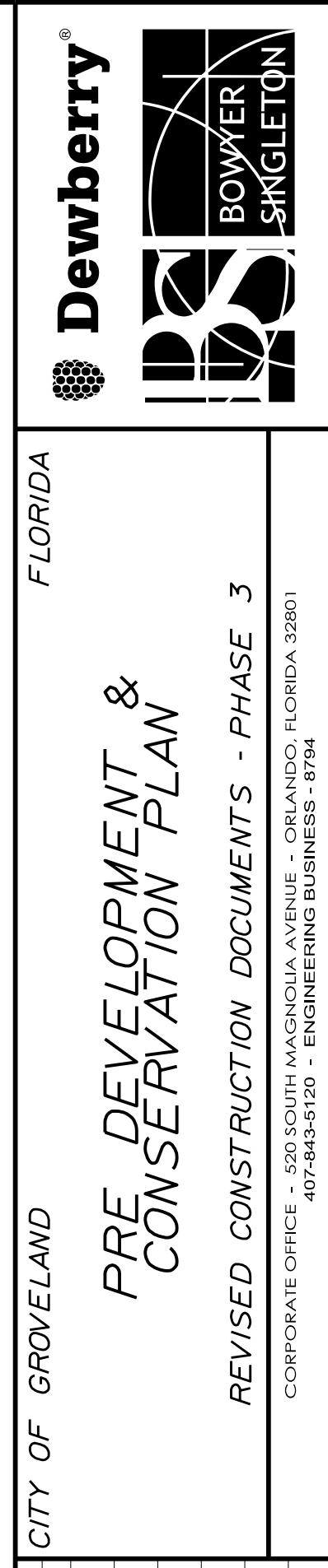
Buildings, sidewalks, pavement, curb & gutter. Submit certified drawings to the engineer two weeks prior to final inspection of the work to be certified.

4. The engineer strongly recommends that the contractor keep a daily "as-built" set of drawings while the work being done is visible exposed according to the criteria outlined herein.
5. The engineer reserves the right to require the contractor to uncover, retest and/or perform any action necessary to ensure that the Improvements have been constructed in accordance with the plans and specifications.
6. Final "as-built" drawings for potable water shall clearly indicate compliance to minimum separation distances or required pipe upgrades. All water main and force main pipe fittings shall be referenced to at least two visible reference points (swing ties) and the nearest distance to the centerline of road.
7. The contractor's geotechnical engineer shall certify all site, utility, and roadway compaction and all underdrain and pavement construction to Bowyer-Singleton & Associates, Inc.
8. All PVC water mains and PVC force mains shall be installed with a solid copper "locating wire" with sufficient grounding points at maximum 500 feet spacing.

 <b>Dewberry</b> CONSULTANTS		 <b>BOWLER-SINGLETON</b>	
CITY OF GROVELAND FLORIDA		REVISED CONSTRUCTION DOCUMENTS - PHASE 3 CORPORATE OFFICE - 525 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801 407-863-5120 - ENGINEERING BUSINESS - 8794	
GENERAL NOTES			
CONTRACTOR "AS-BUILTS" were furnished herewith, state that these "As-Built's" were furnished by the Contractor and that the Contractor's employee under my direct supervision have reviewed these "As-Built's" and believe them to be in accordance with the original construction documents actually constructed. This statement is based upon site observations of the construction.			
Contractor's Name _____ Engineer _____ Not valid without the signature and the original seal of a Florida Registered Engineer.			
Michael Scott Stearns Florida Reg. Number 57602			
DATE	DESIGNED	DATE	DECEMBER 2014
CHECKED	SCALE	DATE	N/A
PROJECT NO.	PL017-Final Phase 3	DATE	N/A
FILE NAME	PL017-General Notes-02		
SHEET	3 OF 26		







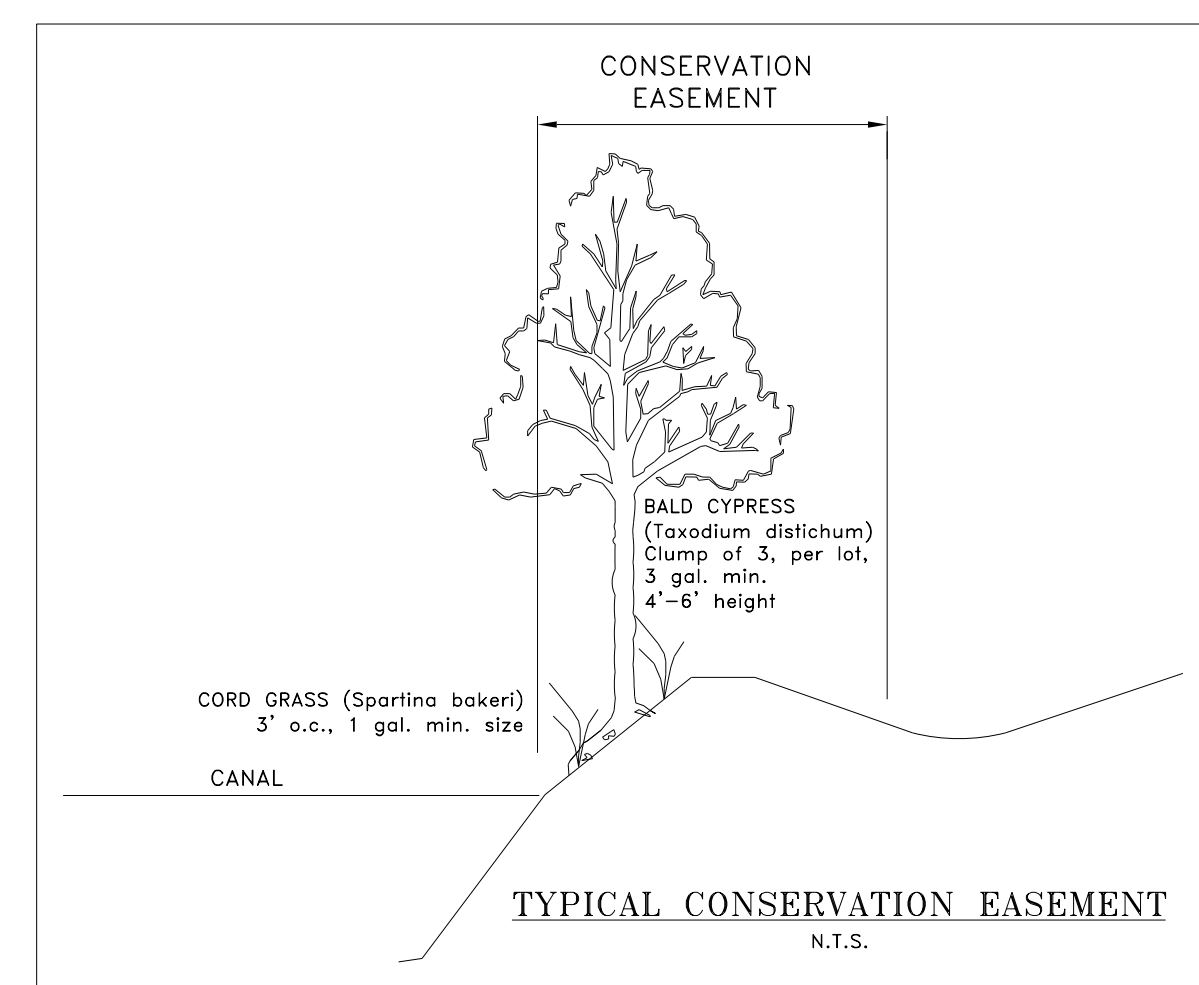
AN EROSION CONTROL PLAN SHALL BE CONDUCTED BY THE CONTRACTOR AND CONTRACTOR SHALL EXECUTE ALL MEASURES NECESSARY TO LIMIT THE TRANSPORT OF SEDIMENTS OUTSIDE THE LIMITS OF THE PROJECT TO THE VOLUME AND AMOUNT AS THAT ARE EXISTING PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS CONDITION WILL BE SATISFIED FOR THE TOTAL PROJECT AREA AND ALL SUB-AREAS OF THE PROJECT. EROSION CONTROL MEASURES SHALL BE INSTALLED AT ALL EROSION PRONE AREAS, INLETS, SEDIMENT BASINS, SLOPE DRAINS, GRADING PATTERNS, ETC. REQUIRED TO MEET THIS PROVISION THROUGHOUT THE LIFE OF THE CONSTRUCTION. CONTRACTOR SHALL PROVIDE HAY BAILS, SILT BARRIERS, TEMPORARY GRASSING, ETC. AS REQUIRED TO FULLY COMPLY WITH THE INTENT OF THIS SPECIFICATION. ALL WORK ADJACENT TO THE PERIMETER CANAL SHALL REQUIRE THE USE OF SODS, EROSION CONTROL MATS, CURB AND GUTTER, ETC. TO PROTECT THE PERIMETER CANAL. UPON COMPLETION OF CONSTRUCTION AND COMPLETED STABILIZATION OF POTENTIAL EROSION AREAS, THE CONTRACTOR SHALL REMOVE SEDIMENTATION CONTROL MEASURES AND CLEAN AND REPAIR ANY AREAS AFFECTED BY THE CONSTRUCTION ACTIVITIES.

THE DETENTION AREAS SHALL RECEIVE PRIORITY STATUS IN THE SCHEDULING OF CONSTRUCTION OPERATIONS. THE DETENTION AREAS SHALL BE COMPLETED AND SODDED PRIOR TO ANY UPLAND EXCAVATION. ALL NECESSARY MEASURES, INCLUDING TURBIDITY BARRIERS, SHALL BE TAKEN TO INSURE THAT THE WATER QUALITY OF THE LAKE AND THE ADJACENT WETLANDS AND CANALS WILL NOT BE DEGRADED. IN THE EVENT OF DETENTION AREA SEDIMENTATION DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL TAKE SUCH MEASURES AS REQUIRED TO MAINTAIN THE DIMENSIONS, ELEVATIONS, VOLUMES AND SOIL PERMEABILITY CHARACTERISTICS OF SAID DETENTION AREAS.

NO EXCAVATED MATERIAL SHALL BE STOCKPILED IN SUCH A MANNER AS TO DIRECT STORMWATER OFF THE PROJECT SITE OR INTO ANY ADJACENT WATER BODY OR STORMWATER COLLECTION SYSTEM.

AREAS OPENED BY CONSTRUCTION OPERATIONS THAT ARE NOT ANTICIPATED TO BE DRESSED AND RECEIVE FINAL GRASSING TREATMENT WITHIN TWENTY-ONE DAYS SHALL BE SEEDED WITH A QUICK GROWING GRASS SPECIES WHICH WILL PROVIDE AN EARLY COVER DURING THE SEASON IN WHICH IT IS PLANTED, AND WILL NOT LATER COMPETE WITH THE PERMANENT GRASSING. THE MINIMUM RATE OF SEEDING SHALL BE 30 LB. PER ACRE.

ALL FEATURES OF THE PROJECT SHALL BE CONSTRUCTED TO PREVENT EROSION AND SEDIMENT AND SHALL BE MAINTAINED DURING THE LIFE OF THE CONSTRUCTION SO AS TO FUNCTION PROPERLY WITHOUT THE TRANSPORT OF SEDIMENTS OUTSIDE THE LIMITS OF THE PROJECT. ANY SEDIMENT ACCUMULATIONS IN THE DRAINAGE SYSTEM SHALL BE REMOVED AND THE SYSTEM RESTORED TO ORIGINAL SPECIFICATIONS PRIOR TO THE COMPLETION AND FINAL APPROVAL OF THE PROJECT.



AREA	ACRES
CE-1	0.28ac
CE-2	0.36ac
CE-3	8.32ac
CE-4	0.69ac
CE-5	1.54ac
CE-6	0.57ac
CE-7	1.57ac
CE-8	2.22ac
TOTAL	15.55ac

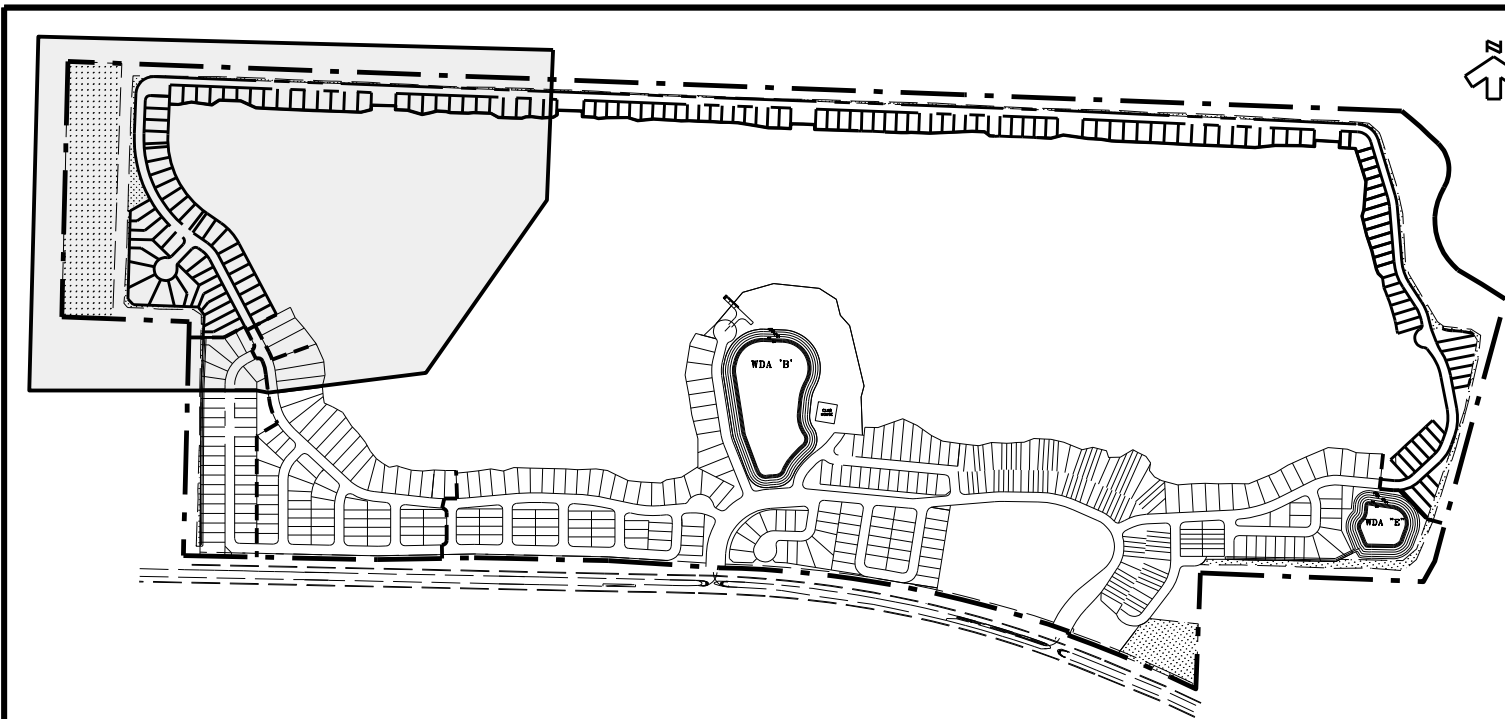
AREAS CE-1 THROUGH CE-8 ARE SUBJECT TO A CONSERVATION EASEMENT IN FAVOR OF THE SAINT JOHN'S RIVER WATER MANAGEMENT DISTRICT PURSUANT TO SECTION 704.06 OF THE FLORIDA STATUTES.

[illegible]









PROJECT NO.	PL017/FinalPhase 3 Rev
FILE NAME	PL017-Geometry Plan-01
SHEET	7 OF 26

DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	1" = 100'

Michael Scott Stearns  
Florida Reg. Number  
57602

CONTRACTOR "AS-BUILTS": \_\_\_\_\_  
I hereby state that these "As-BUILTS" were furnished to me by the contractor listed below, 1, or an employee under my direct supervision have reviewed these "As-BUILTS" and believe them to be in accordance with the contract documents and actual observations of the construction.

Contractor's Name \_\_\_\_\_  
Engineer \_\_\_\_\_  
Not valid without the signature and the original seal of a Florida Registered Engineer.

REVISIONS		DESCRIPTION
DATE	BY	
		△
		△
		△
		△
		△

CITY OF GROVELAND

# GEOMETRY PLAN

REVISED CONSTRUCTION DOCUMENTS - PHASE 3

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CORPORATE OFFICE - 520 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801

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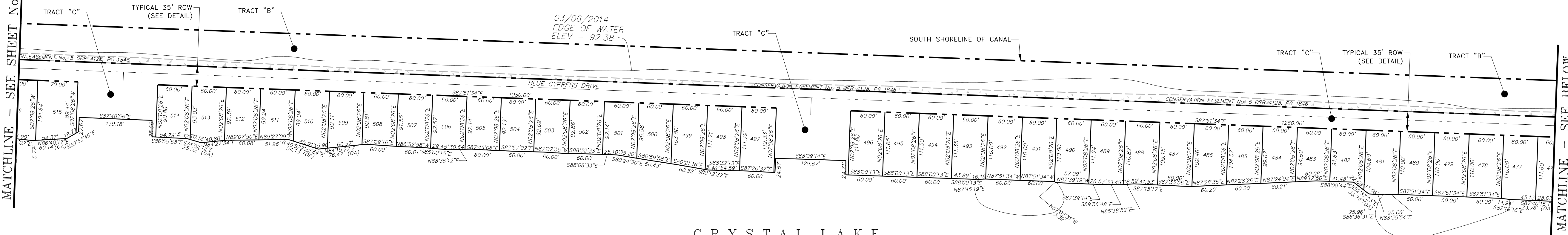
3/10/2015

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MATCHLINE - SEE SHEET No. 7



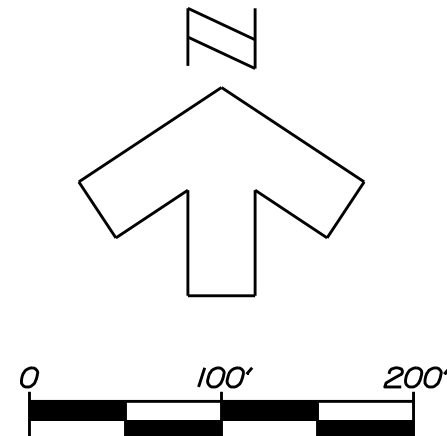
CRYSTAL LAKE

TRACT "D"

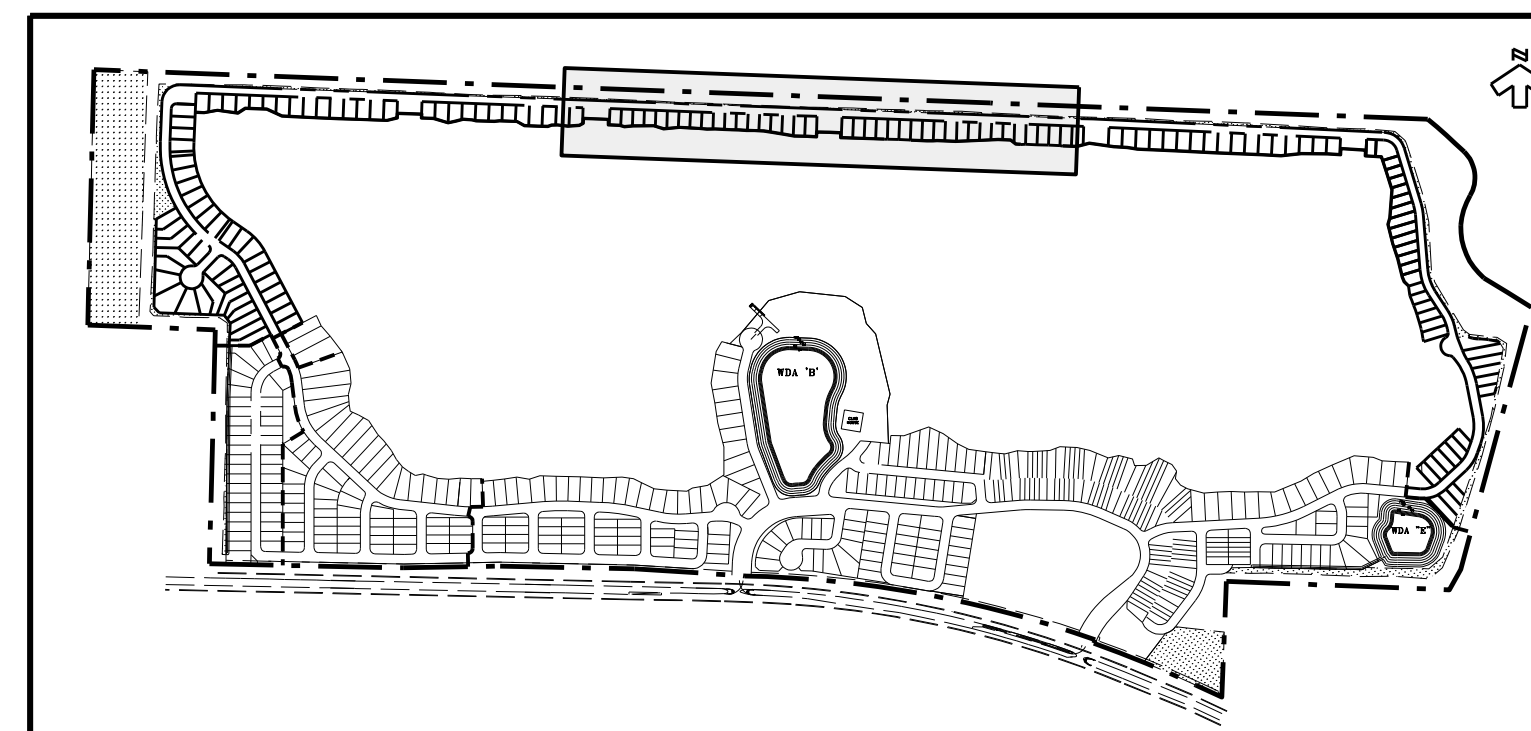
EDGE OF WATER OF LAKE = 90.14' ON  
03/06/2014

PHASE 3 TRACT TABLE

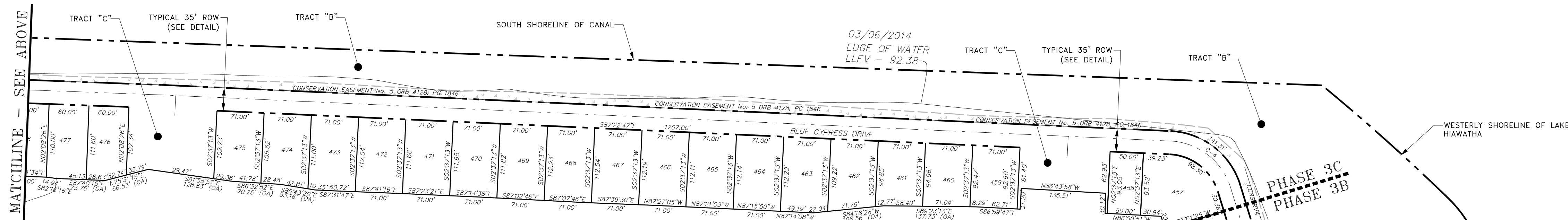
OPEN SPACE (TRACT A).....	±0.25 ac.
WETLANDS / CANALS (TRACT B).....	±30.73 ac.
TOTAL AREA OF INTERIOR RIGHTS-OF-WAY (TRACT C).....	±10.79 ac.
CRYSTAL LAKE (TRACT D).....	±160.55 ac.
OPEN SPACE (TRACT E).....	±0.41 ac.
OPEN SPACE (TRACT F).....	±0.90 ac.



KEY MAP



MATCHLINE - SEE ABOVE



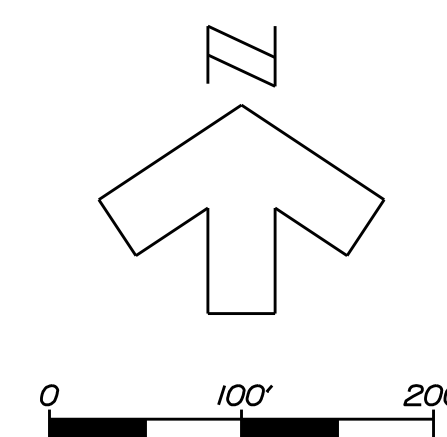
CRYSTAL LAKE

TRACT "D"

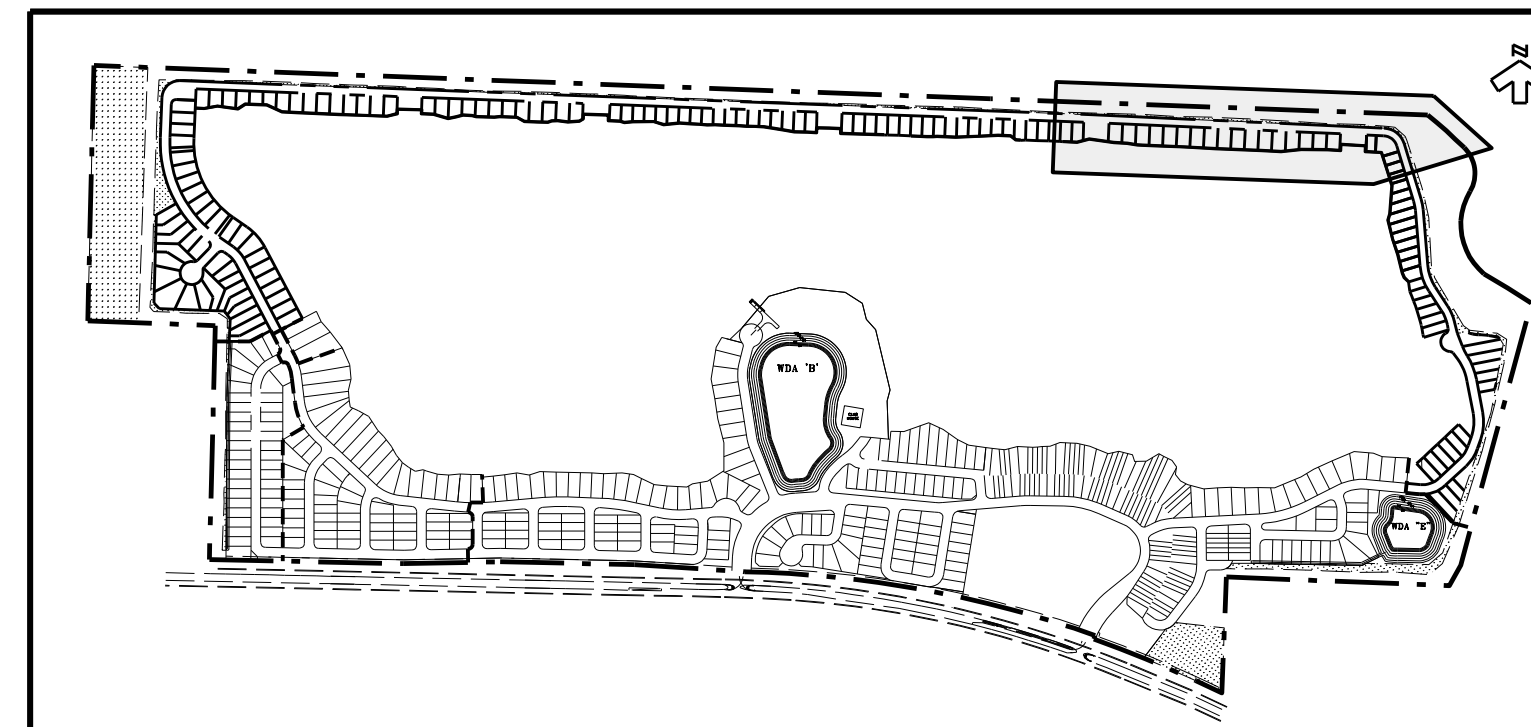
EDGE OF WATER OF LAKE = 90.14' ON  
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PHASE 3 TRACT TABLE

OPEN SPACE (TRACT A).....	±0.25 ac.
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OPEN SPACE (TRACT F).....	±0.90 ac.

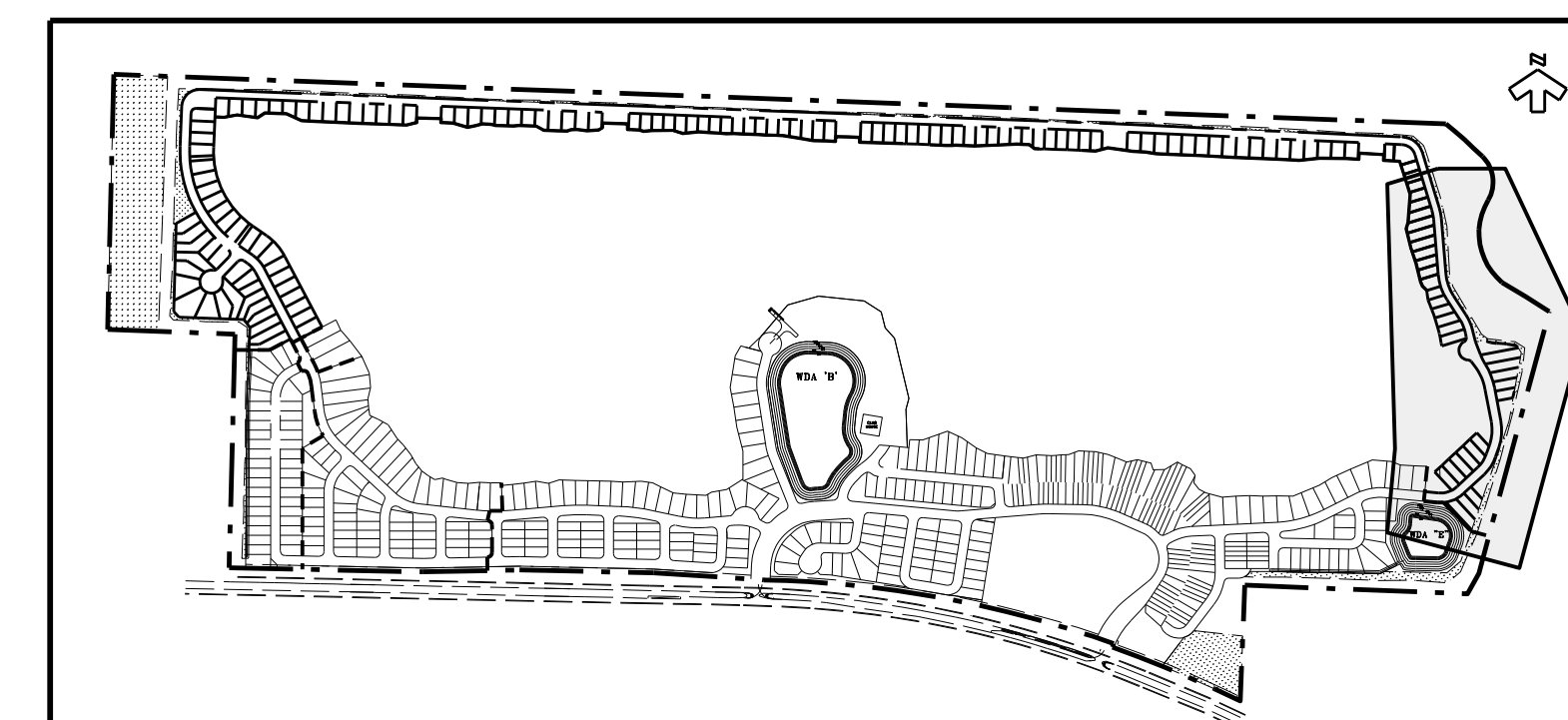
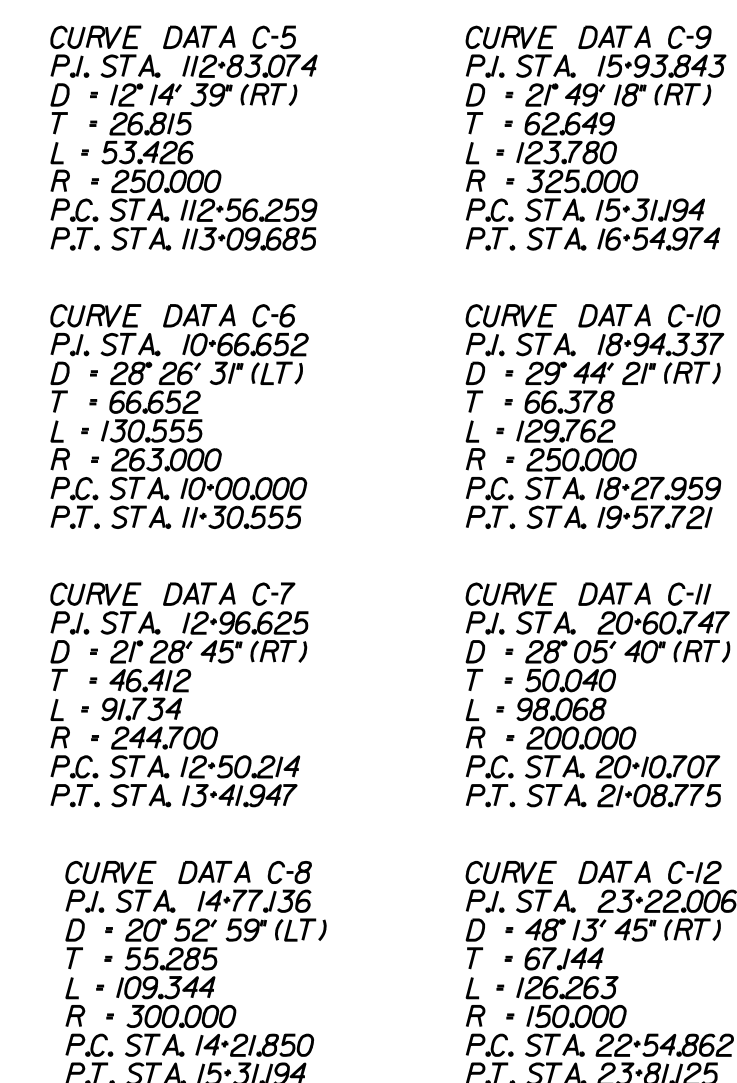
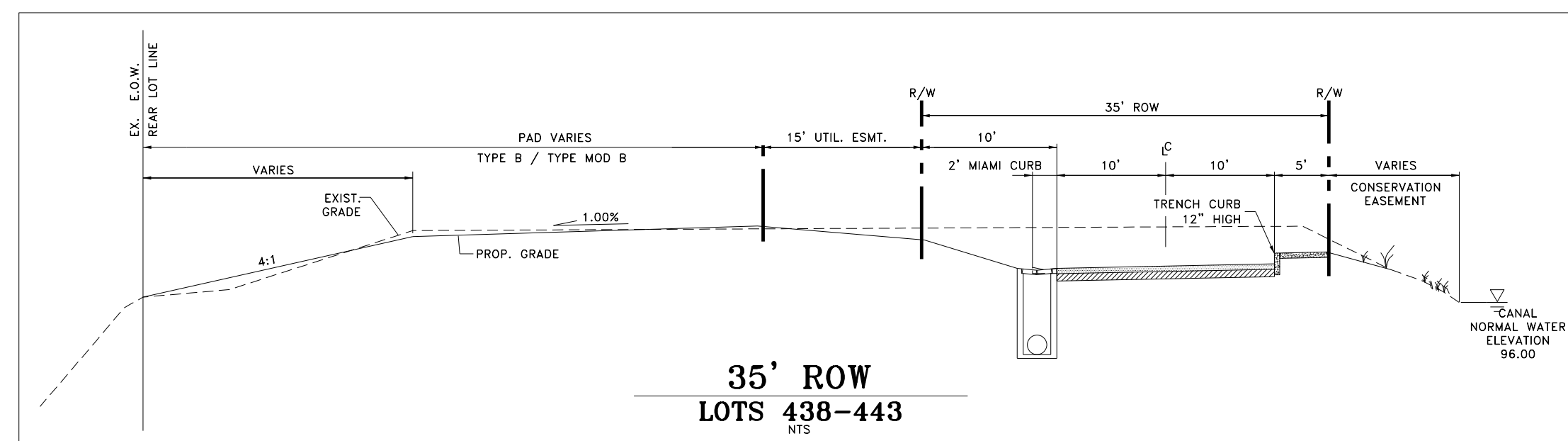


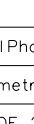
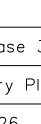
KEY MAP

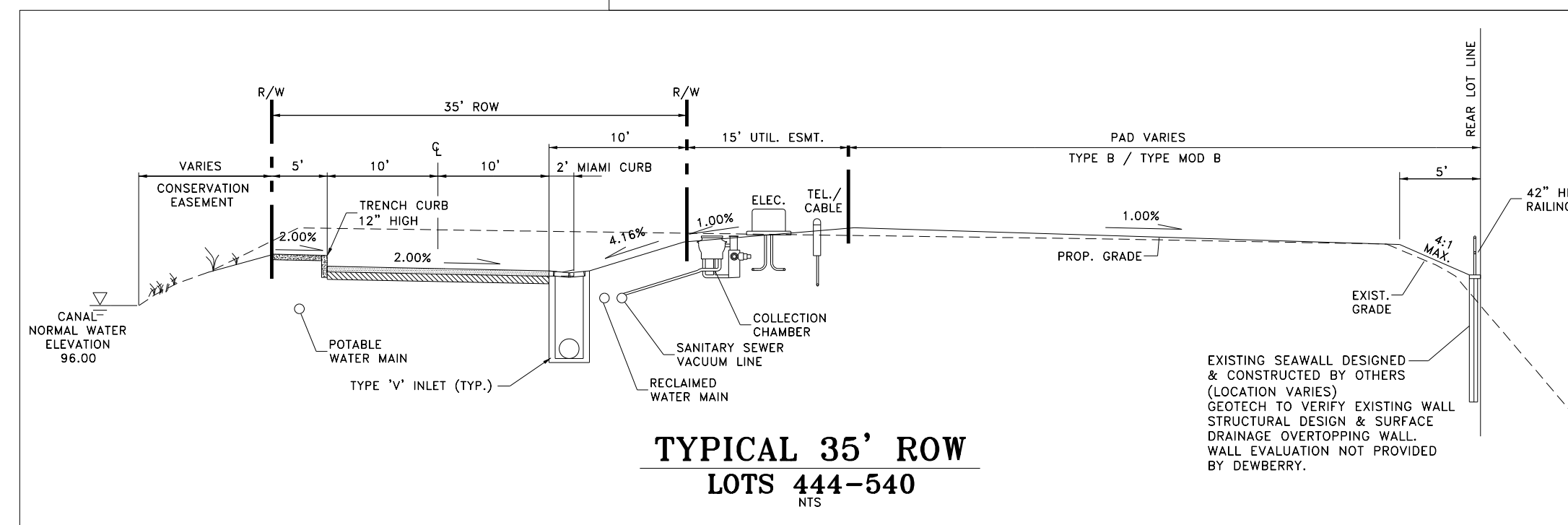
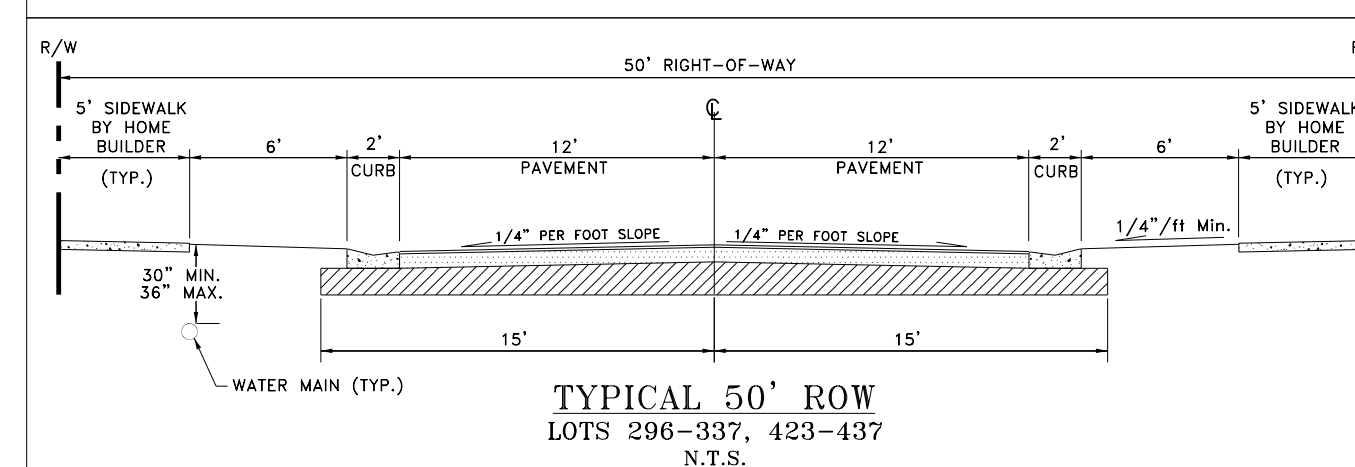
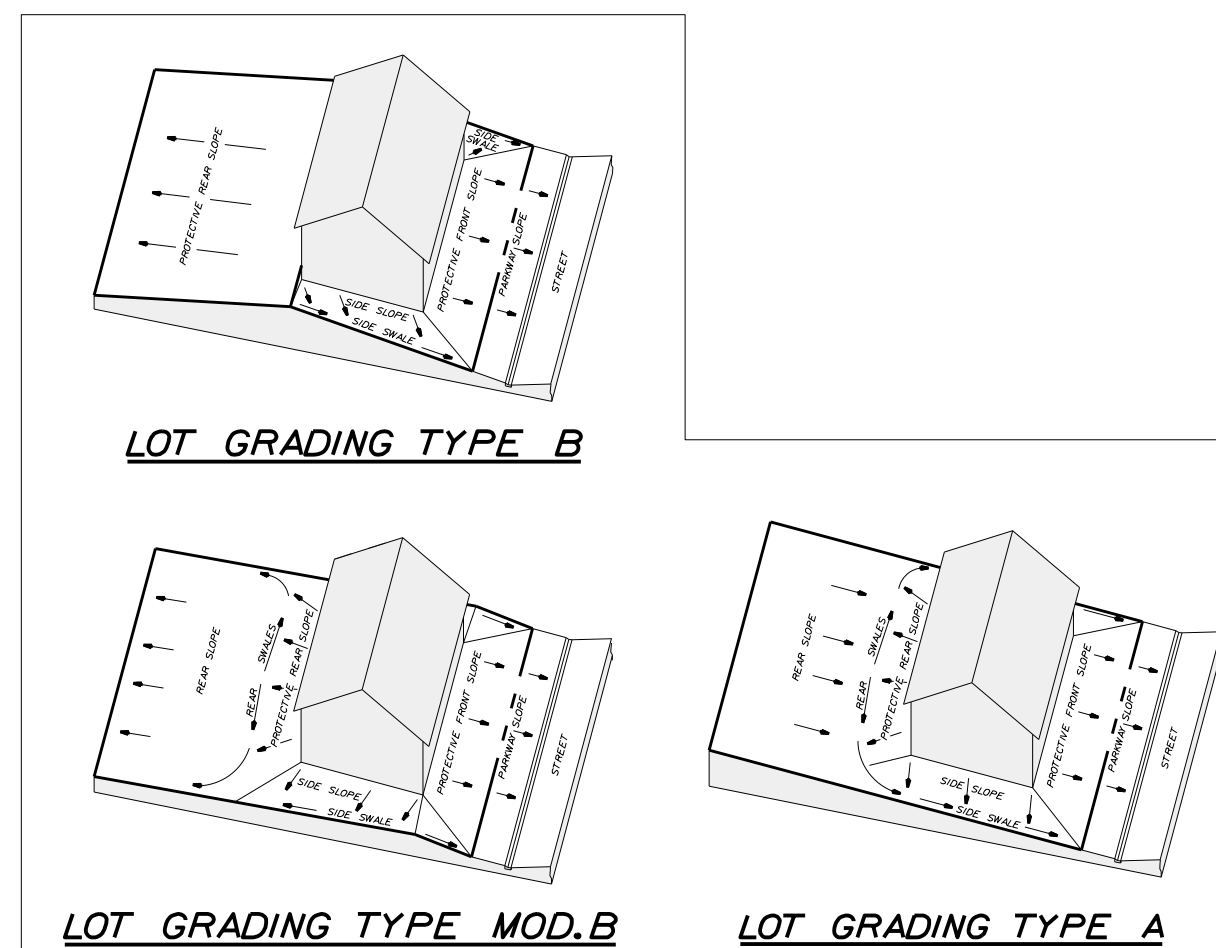
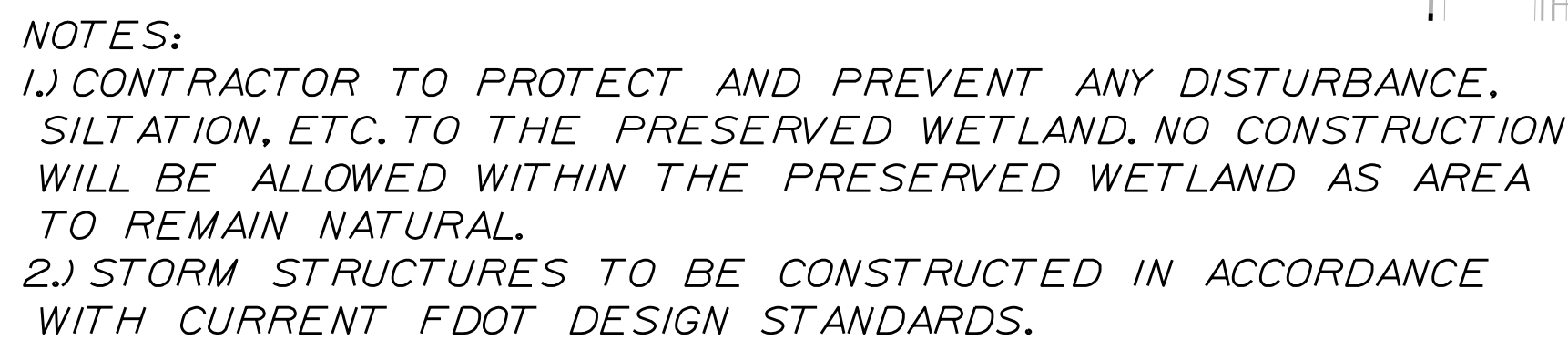


CURVE DATA C-4  
P.I. STA. 109-02.950  
D • 70' 24' 12" (RT)  
T • 70.547  
L • 122.877  
R • 100.000  
P.C. STA. 109-32.404  
P.T. STA. 109-55.281

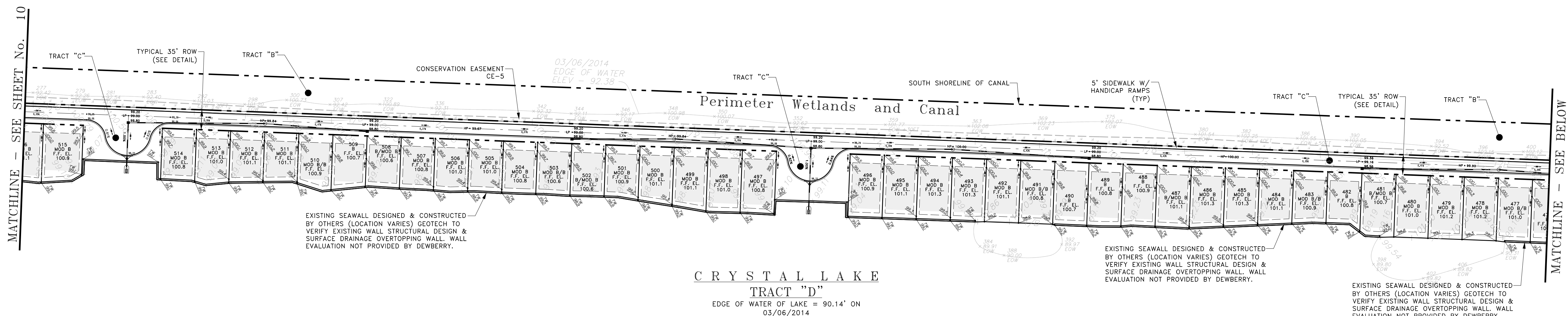




 Dewberry®  BOWLER SKIGLETON		FLORIDA	
CITY OF GROVELAND		GEOMETRY PLAN	
		REVISED CONSTRUCTION DOCUMENTS - PHASE 3	
		CORPORATE OFFICE • 520 SOUTH MAGNOLIA AVENUE • ORLANDO, FLORIDA 32803 407-448-9120 • ENGINEERING BUSINESS - 8794	
CONTRACTOR "AS-BUILT'S"		REVISIONS	
I hereby state that these "As-Built's" were furnished to me by the contractor listed below, I, or an authorized representative of the contractor reviewed these "As-Built's" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.  Contractor's Name _____ Engineer _____ Not valid without the signature and the original seal of a Florida Registered Engineer.		DATE	BY
DESIGNED	DECEMBER 2014		
CHECKED	MSS		
SCALE	1" = 100'		
PROJECT NO.	PL017/FinalPhase 3_Rev		
FILE NAME	PL017-Geometry Plan-03		
SHEET	9 OF 56		



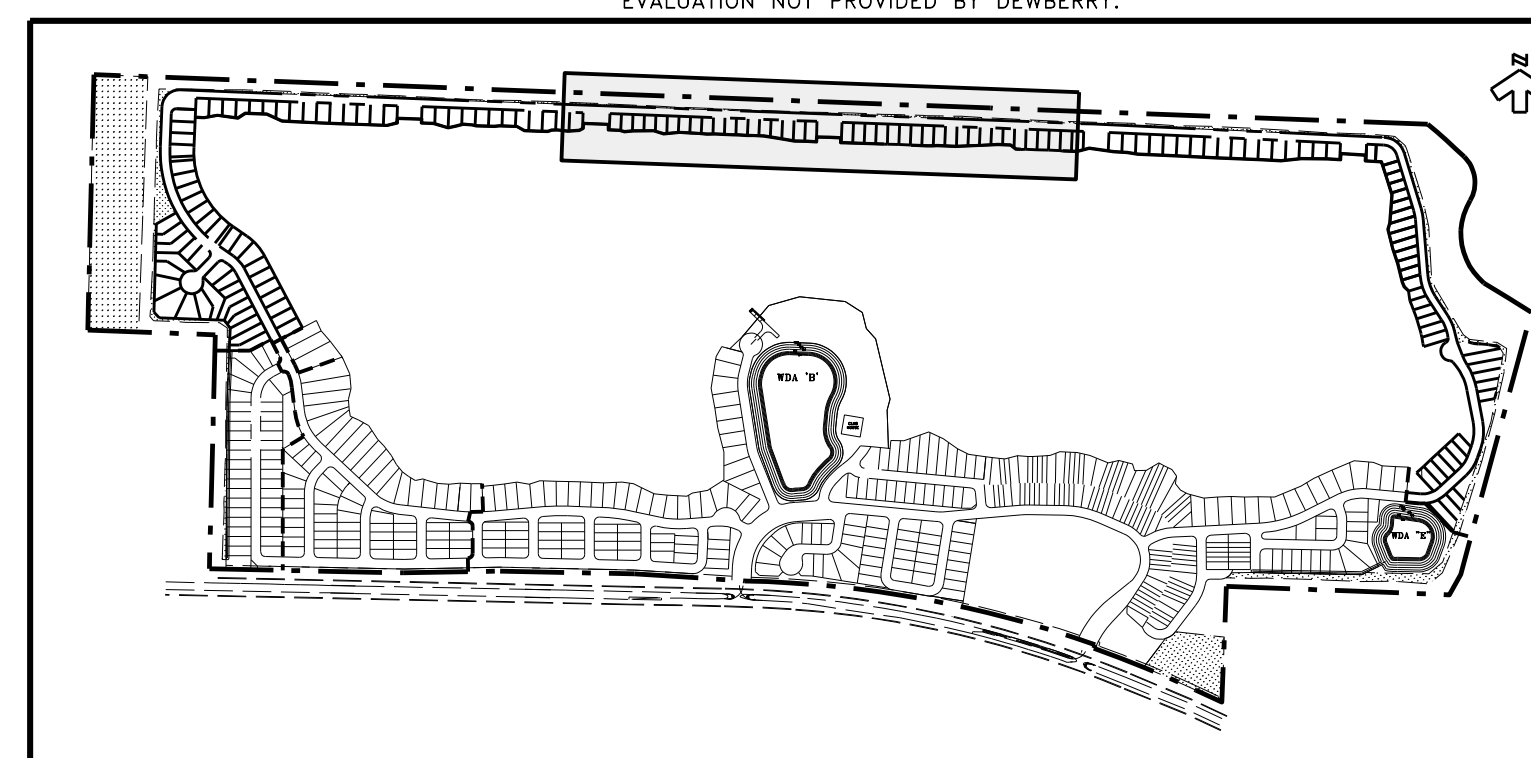
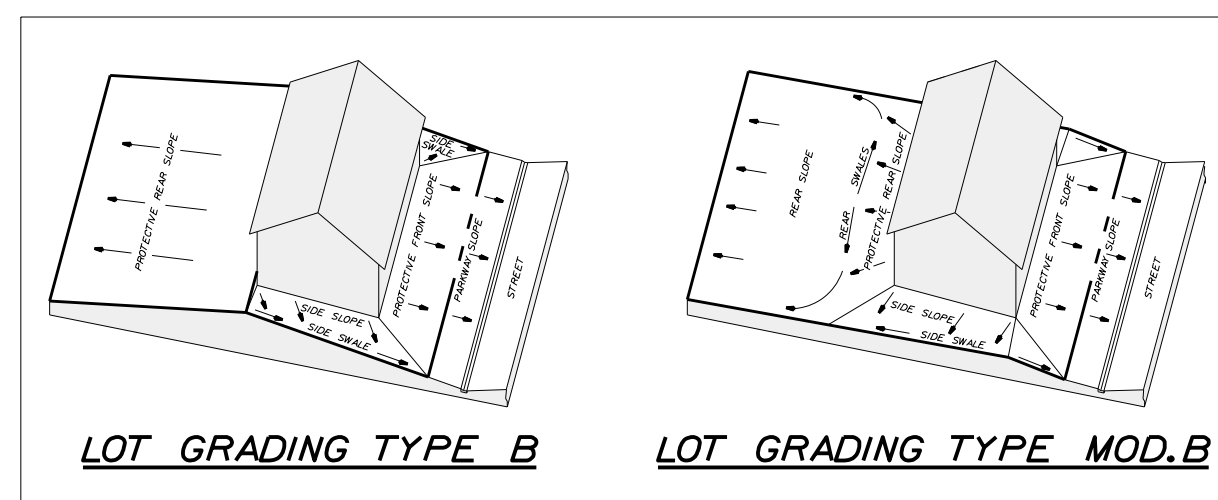
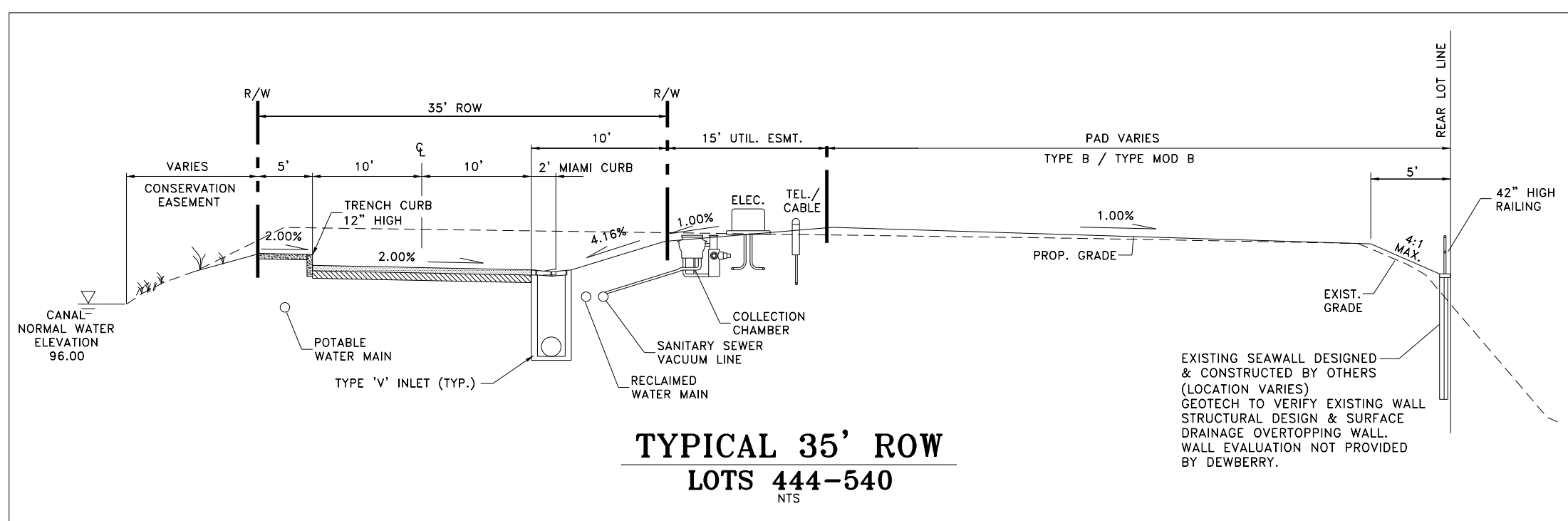




CRYSTAL LAKE

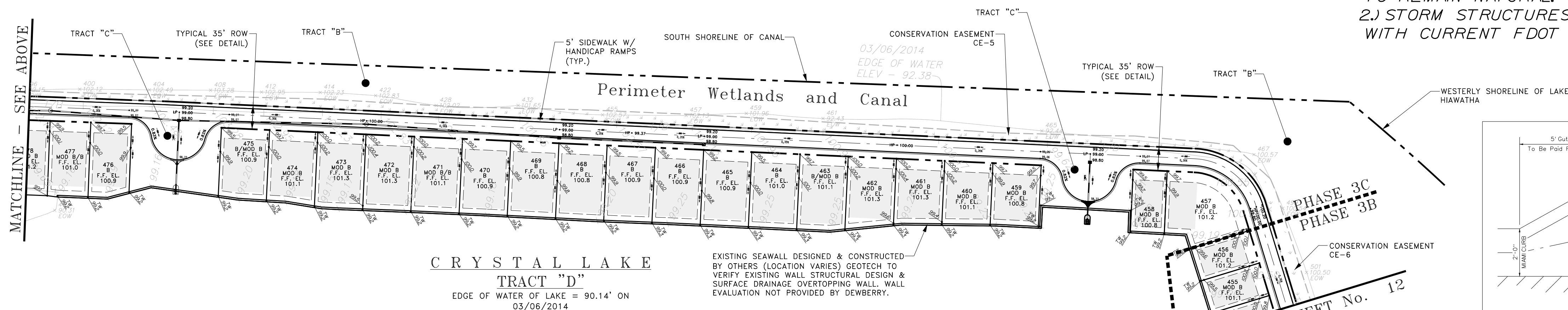
TRACT "D"

EDGE OF WATER OF LAKE = 90.14' ON  
03/06/2014



KEY MAP

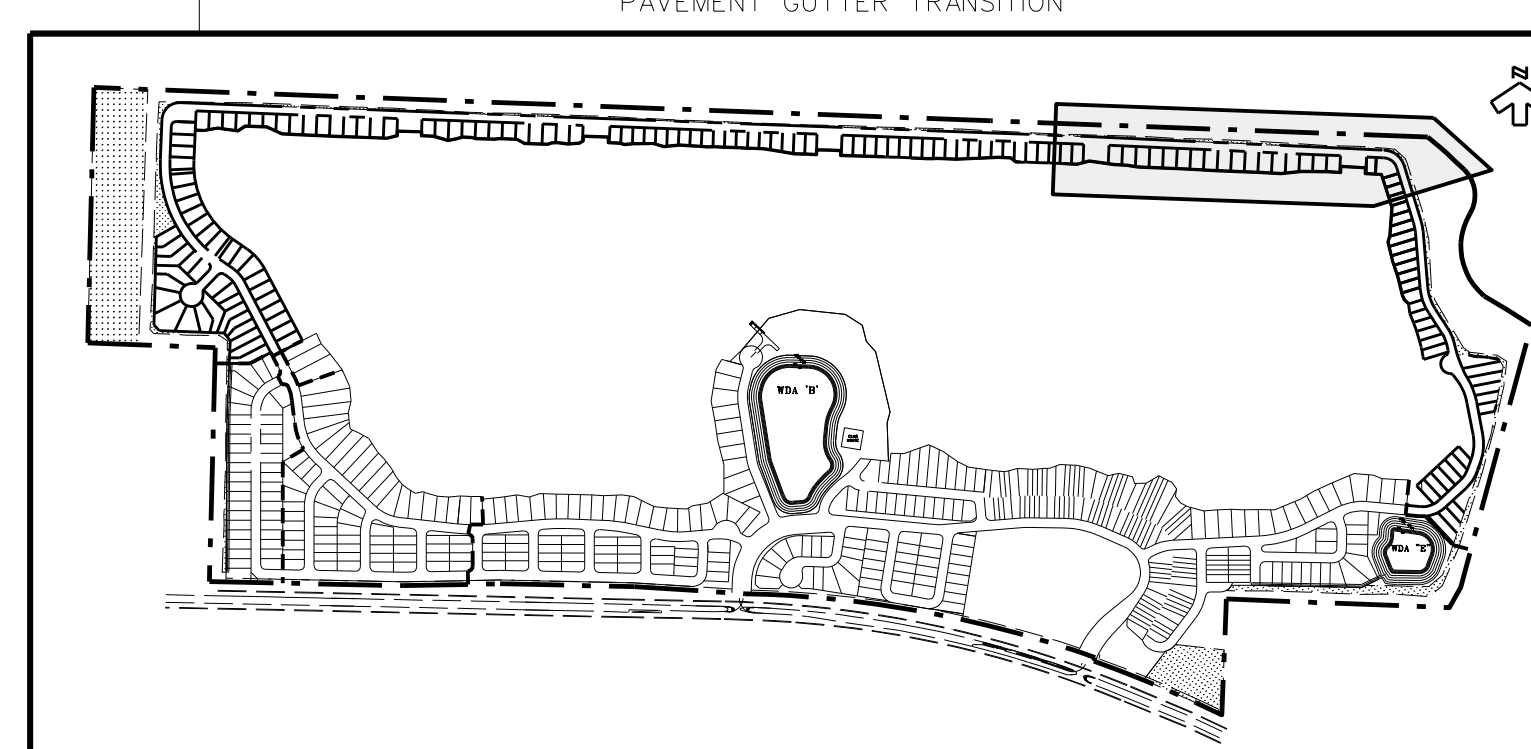
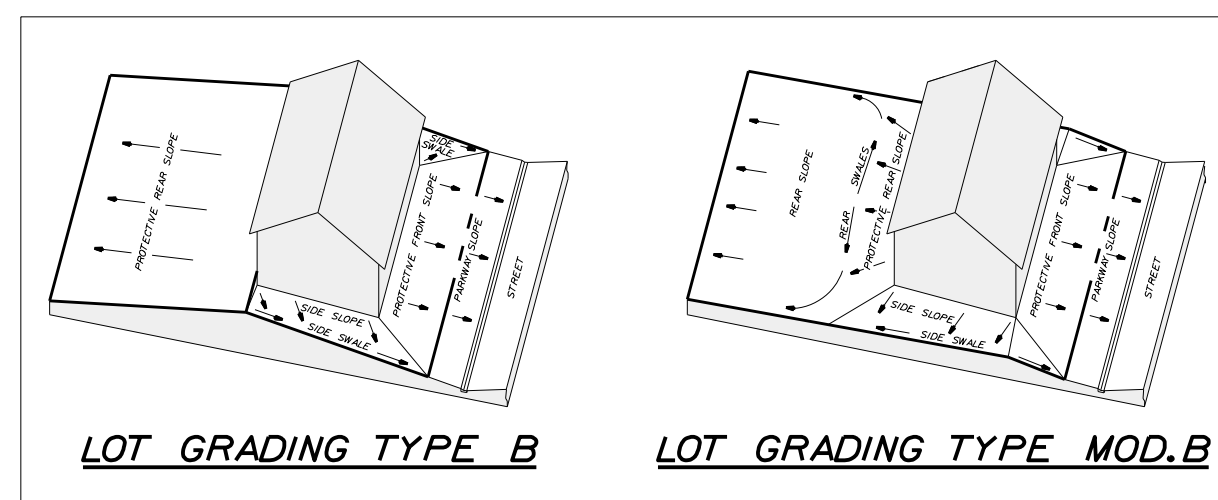
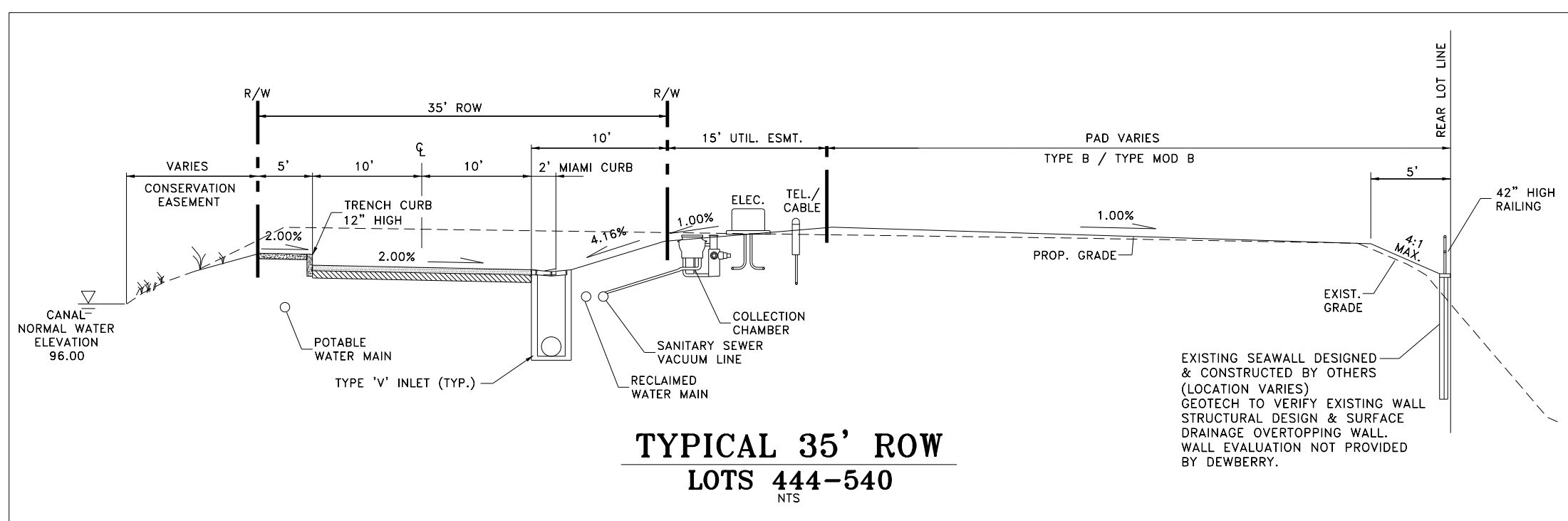
- NOTES:
- 1.) CONTRACTOR TO PROTECT AND PREVENT ANY DISTURBANCE, SILTATION, ETC. TO THE PRESERVED WETLAND. NO CONSTRUCTION WILL BE ALLOWED WITHIN THE PRESERVED WETLAND AS AREA TO REMAIN NATURAL.
  - 2.) STORM STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH CURRENT FDOT DESIGN STANDARDS.



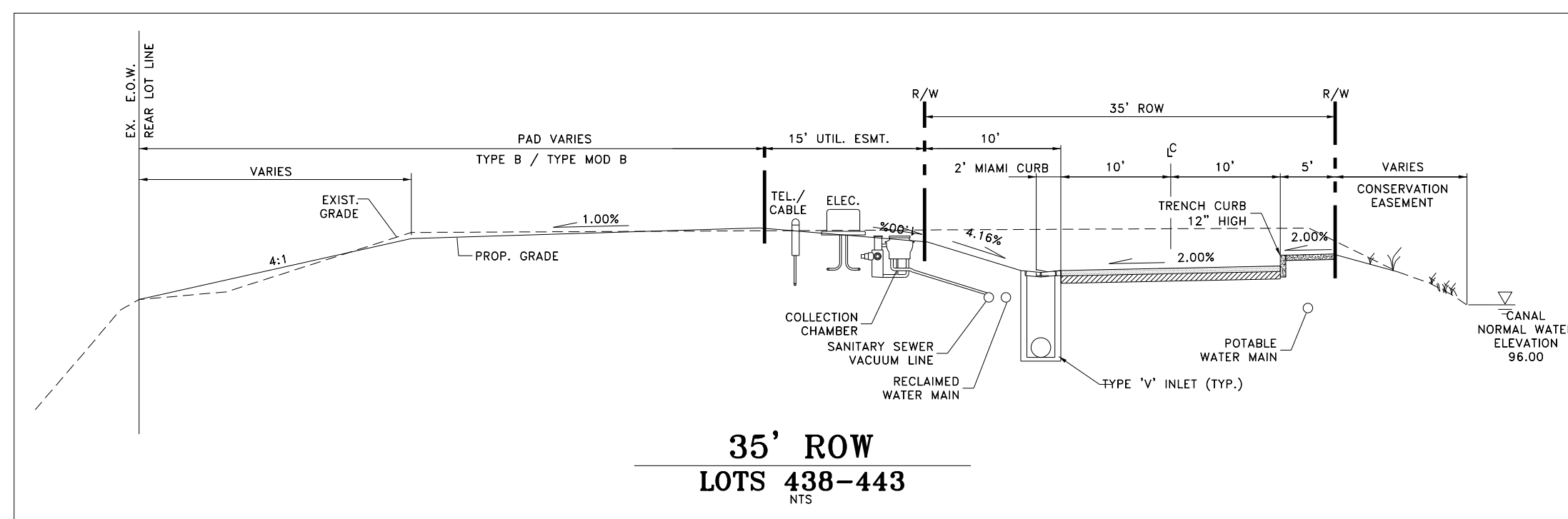
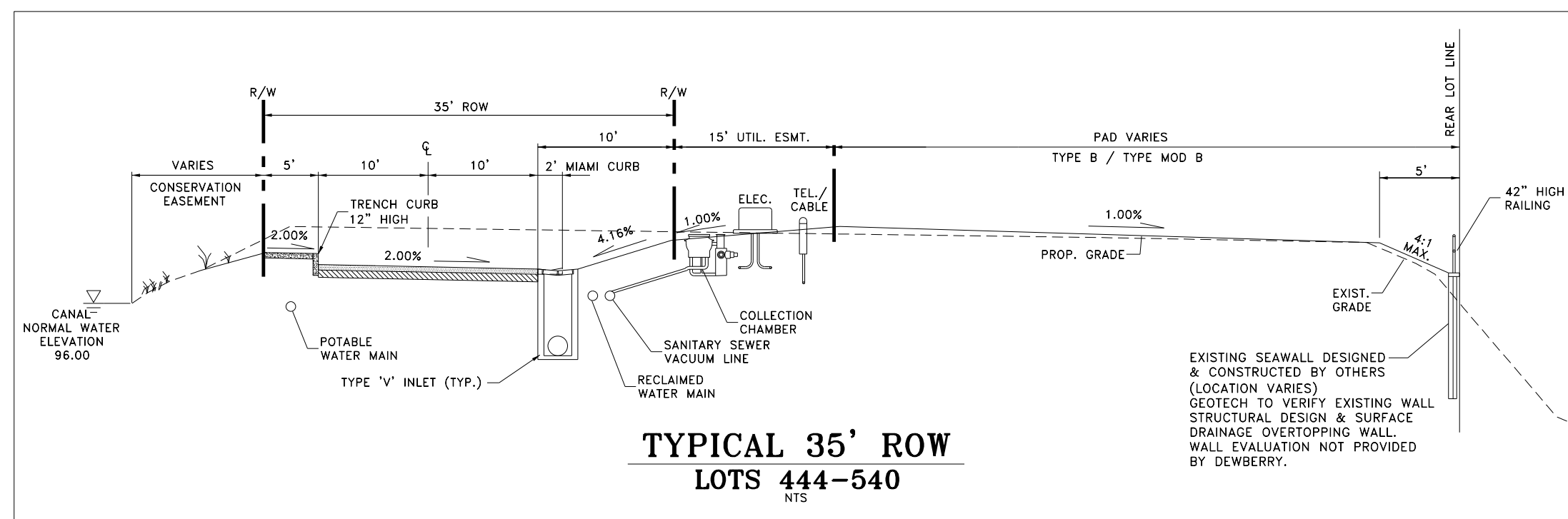
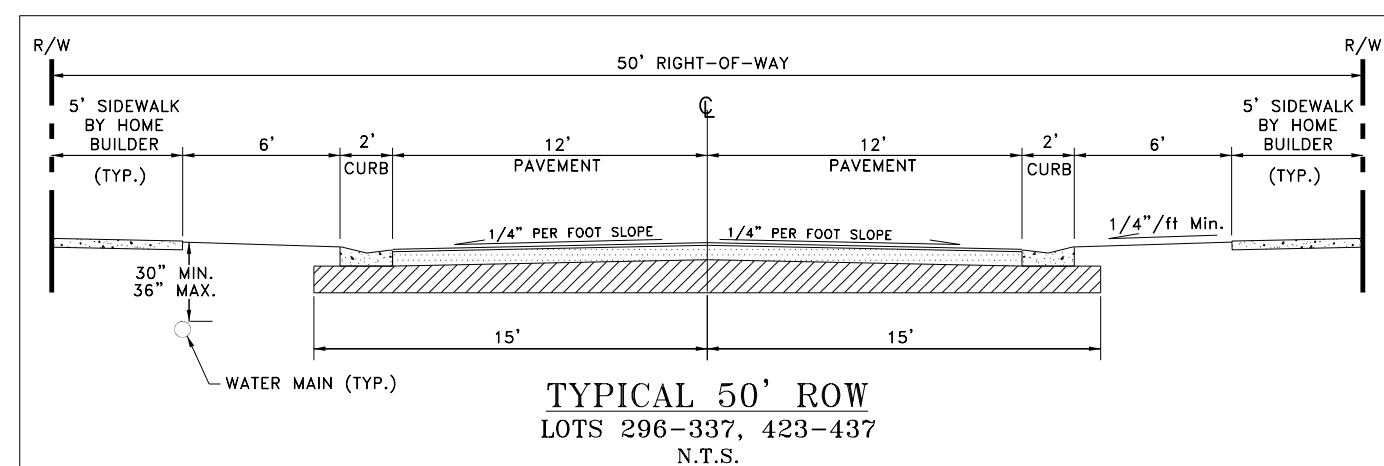
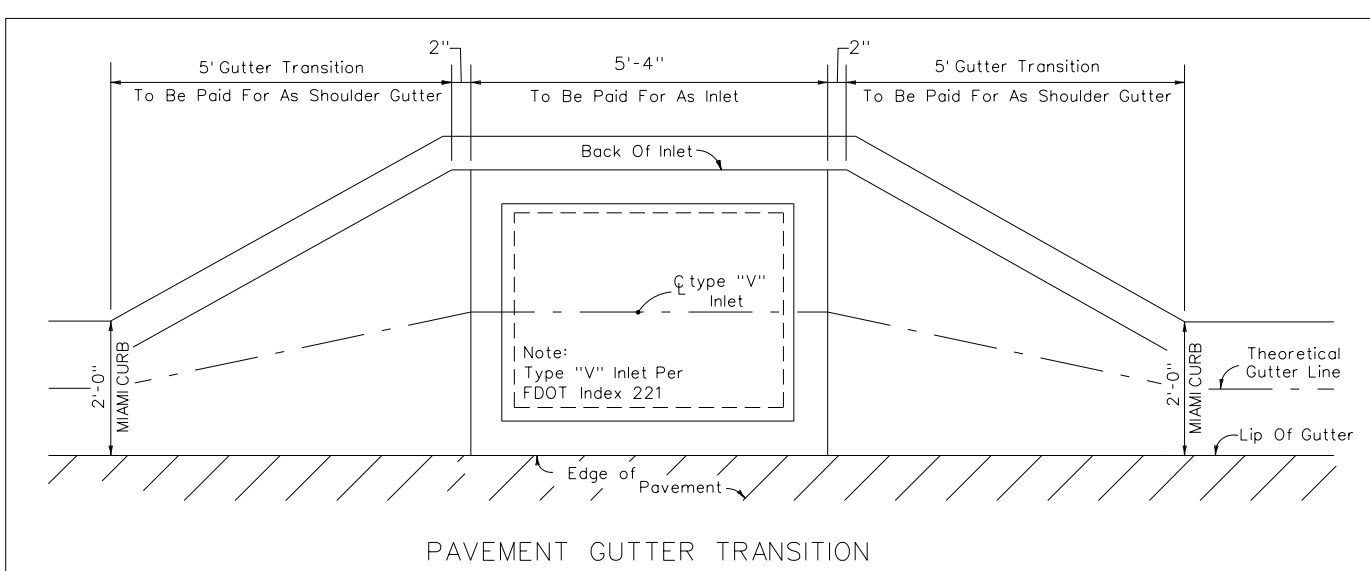
CRYSTAL LAKE

TRACT "D"

EDGE OF WATER OF LAKE = 90.14' ON  
03/06/2014

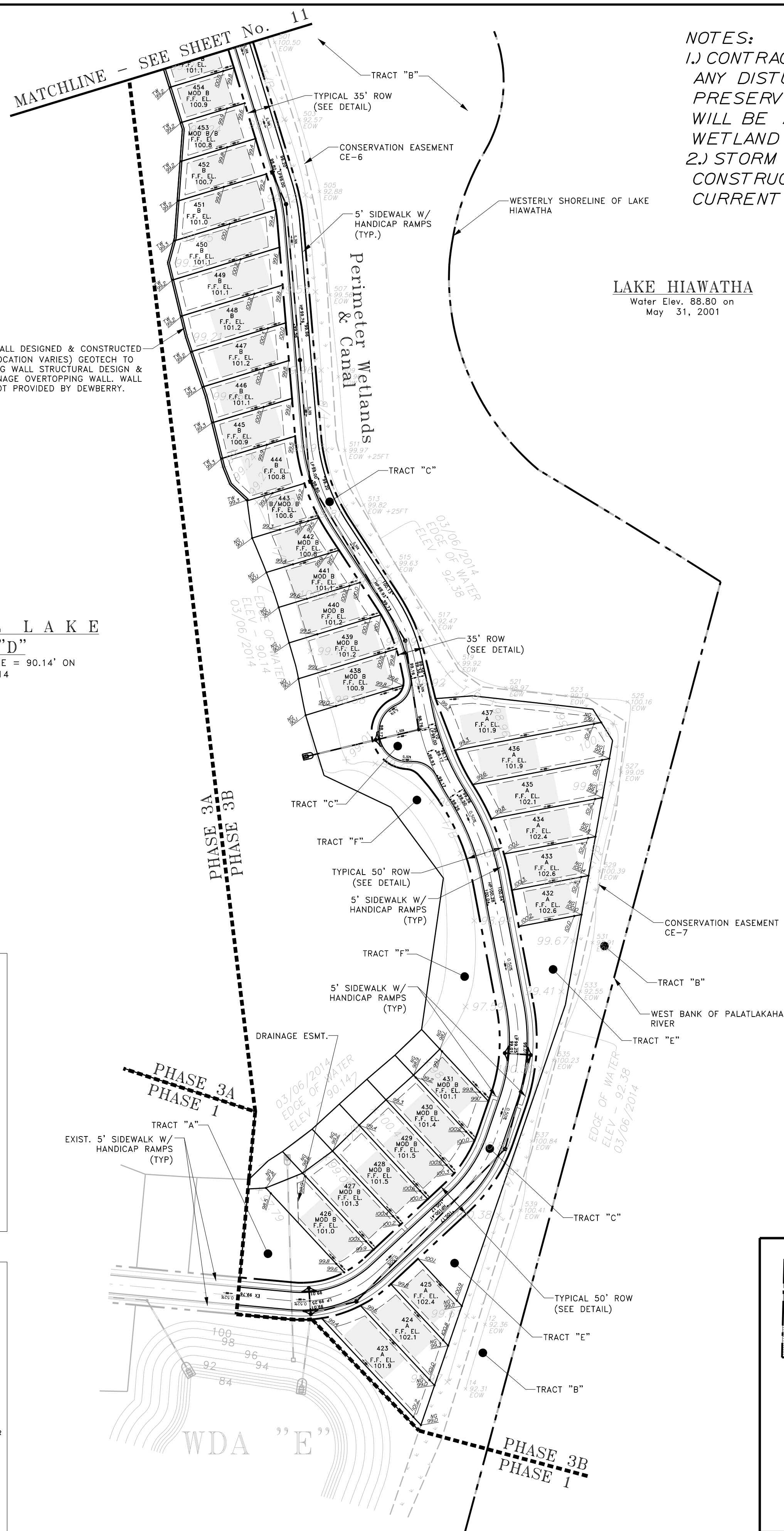


KEY MAP



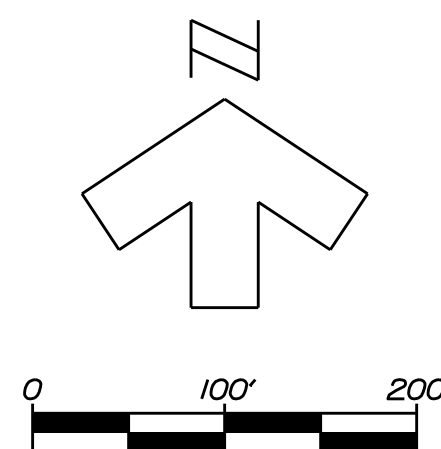
EXISTING SEAWALL DESIGNED & CONSTRUCTED BY OTHERS (LOCATION VARIES) GEOTECH TO VERIFY EXISTING WALL STRUCTURAL DESIGN & SURFACE DRAINAGE OVERTOPPING WALL. WALL EVALUATION NOT PROVIDED BY DEWBERRY.

CRYSTAL LAKE  
TRACT "D"  
EDGE OF WATER OF LAKE = 90.14' ON  
03/06/2014



NOTES:

- 1.) CONTRACTOR TO PROTECT AND PREVENT ANY DISTURBANCE, SILTATION, ETC. TO THE PRESERVED WETLAND. NO CONSTRUCTION WILL BE ALLOWED WITHIN THE PRESERVED WETLAND AS AREA TO REMAIN NATURAL.
- 2.) STORM STRUCTURES TO BE CONSTRUCTED IN ACCORDANCE WITH CURRENT FDOT DESIGN STANDARDS.



FLORIDA

CITY OF GROVELAND

# GRADING & DRAINAGE PLAN

REVISED CONSTRUCTION DOCUMENTS - PHASE 3

CORPORATE OFFICE - 520 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801  
407-843-5120 - ENGINEERING BUSINESS - 8794

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3/10/2015

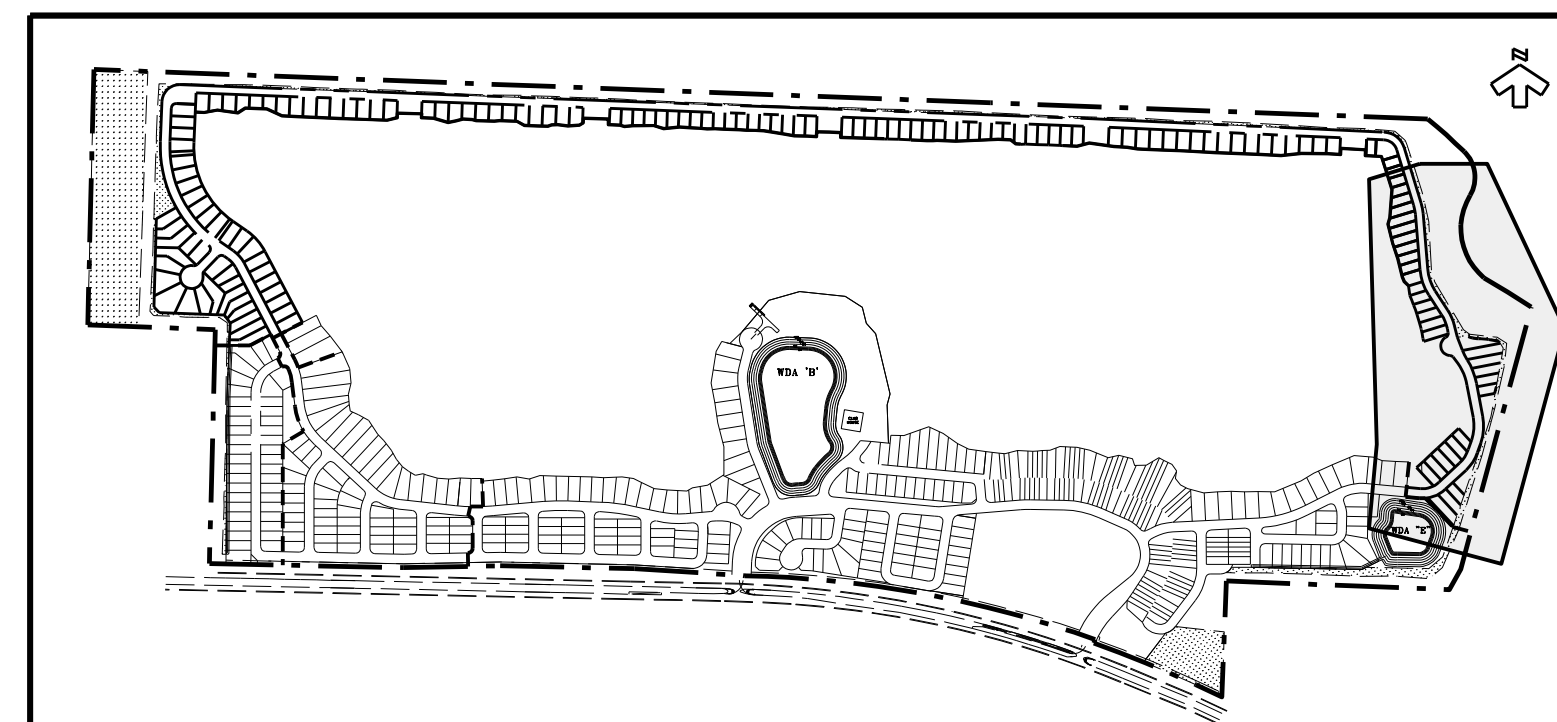
[illegible]

CONTRACTOR "AS-BUILTS" hereby state that these "As-BUILTS" were furnished to me by the contractor listed below, I, or an employee under my direct supervision have reviewed these "As-BUILTS" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.

Contractor's Name \_\_\_\_\_  
Engineer \_\_\_\_\_

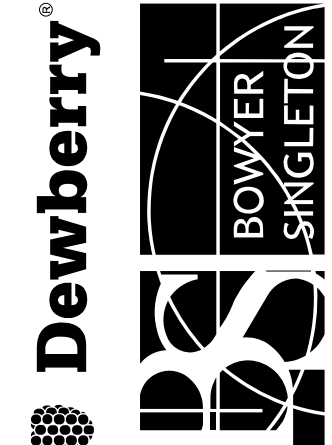
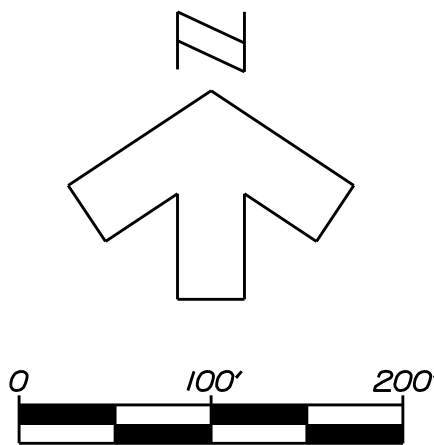
Michael Scott Stearns  
Florida Reg. Number  
57602

DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	1" = 100'
PROJECT NO.	PL017/FinalPhase 3 Re
FILE NAME	PL017-Grading Plan-03
SHEET	12 OF 26



## KEY MAP





FLORIDA

# POTABLE WATER/RECLAIM PLAN

REVISED CONSTRUCTION DOCUMENTS - PHASE 3

CORPORATE OFFICE - 520 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801

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CITY OF GROVELAND

[illegible]

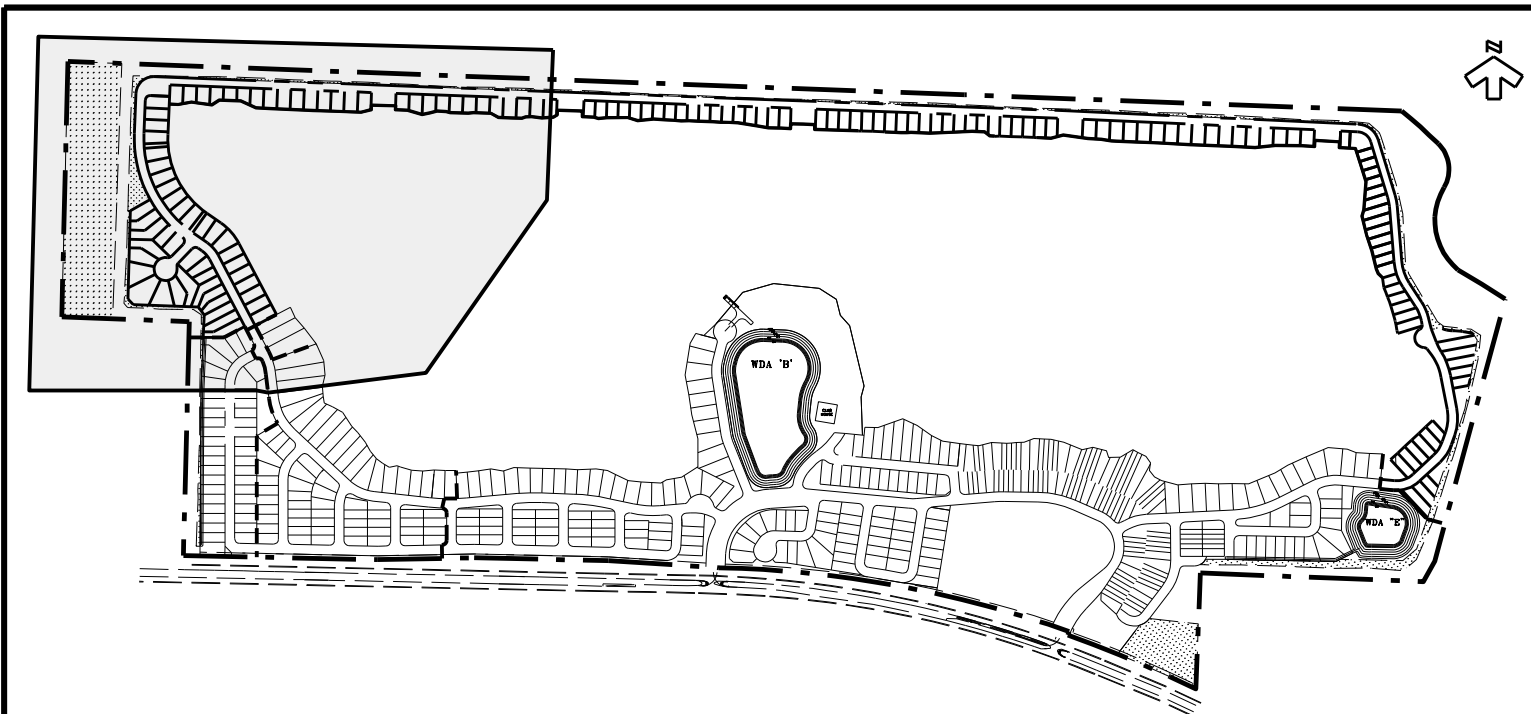
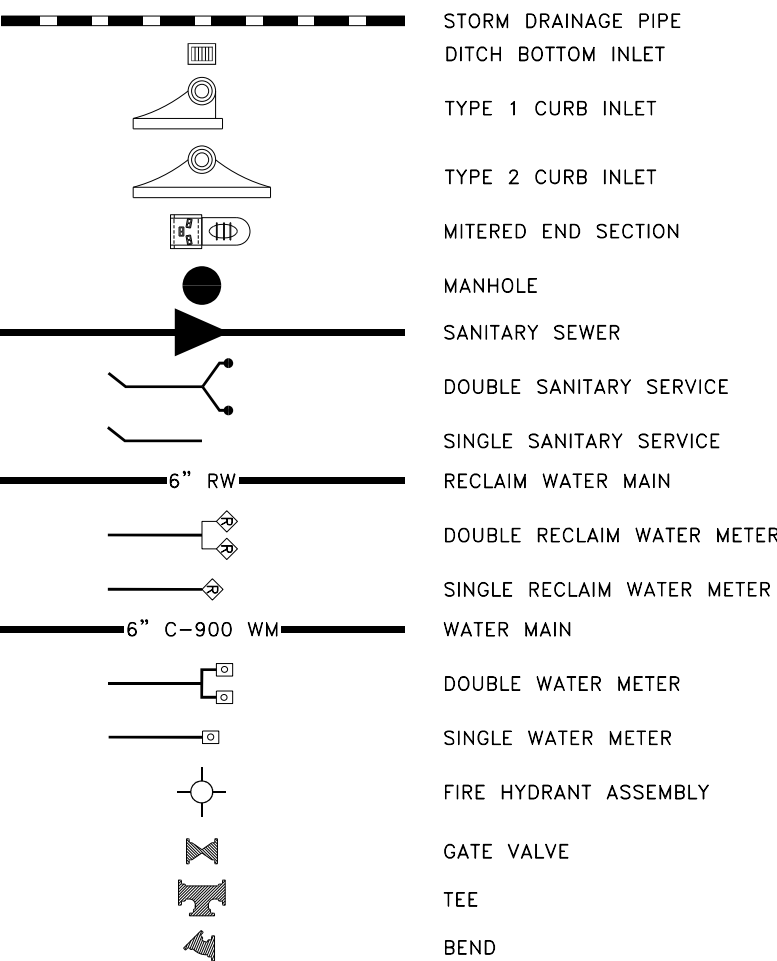
CONTRACTOR "AS-BUILTS" \_\_\_\_\_  
 hereby state that these "As-Builts" were furnished  
 to me by the contractor listed below. I, or an  
 employee under my direct supervision have reviewed  
 these "As-Builts" and believe them to be in  
 compliance with my knowledge of what was actually  
 constructed. This statement is based upon site  
 observations of the construction.  
 Contractor's Name \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Not valid without the signature and the original seal

Michael Scott Stearns  
Florida Reg. Number  
57602

DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	1" = 100'
PROJECT NO.	PL017/FinalPhase 3 R
FILE NAME	PL017-Utility Plan-0
SHEET	13 OF 26

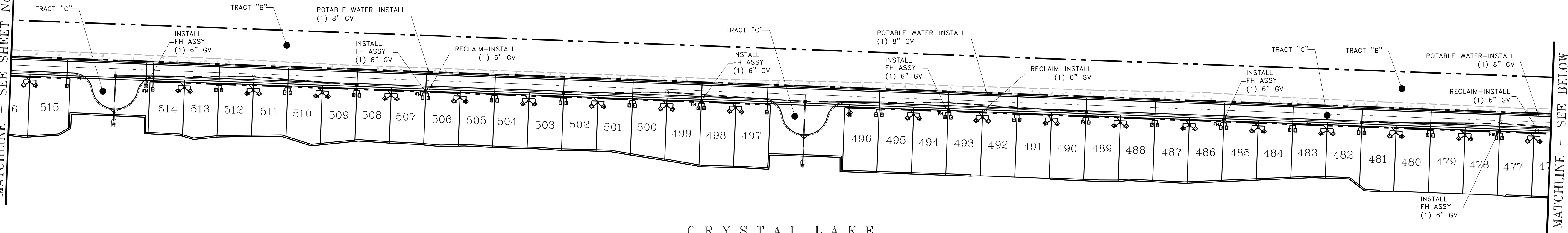
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### UTILITY LEGEND



### KEY MAP

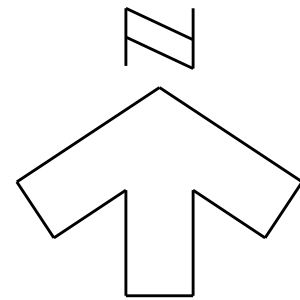
MATCHLINE - SEE SHEET No. 13



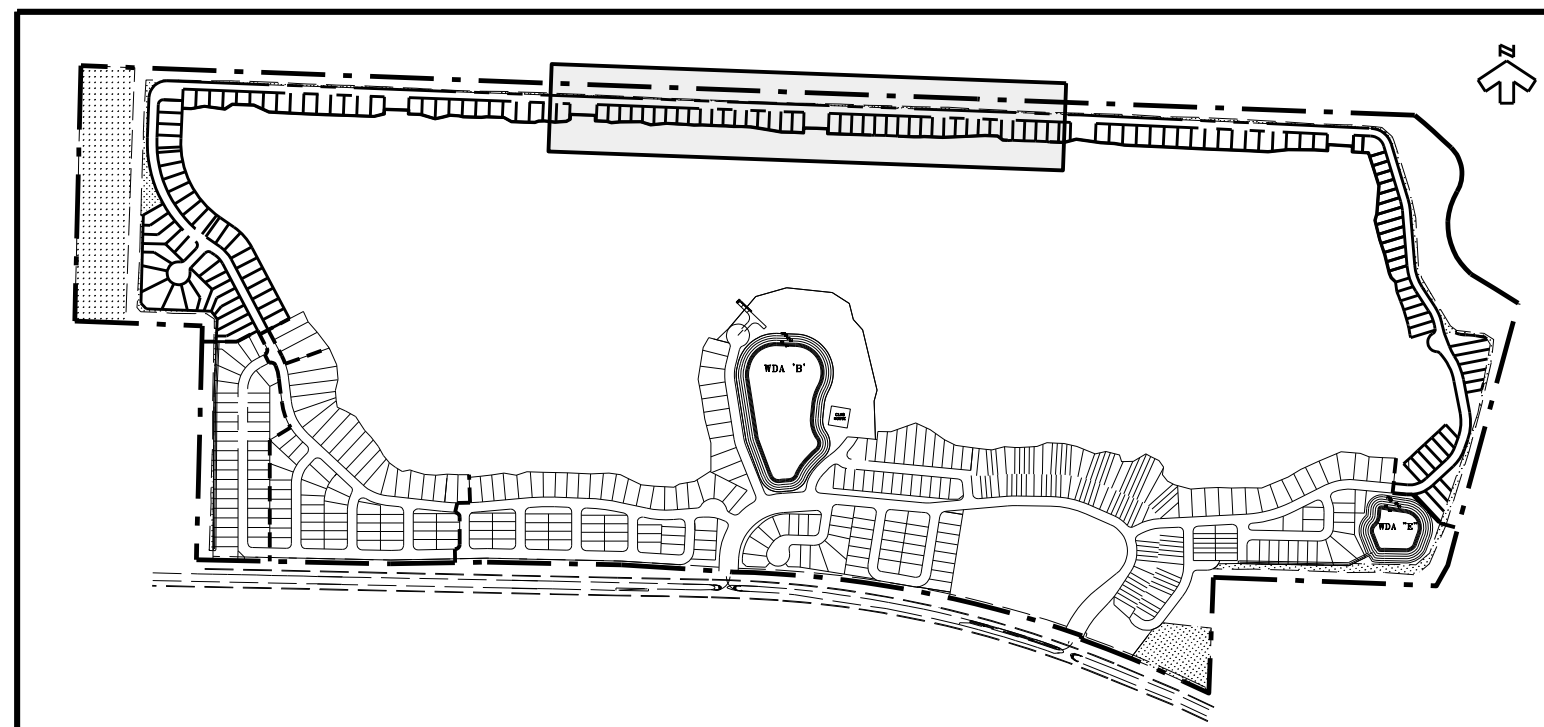
CRYSTAL LAKE  
TRACT "D"  
EDGE OF WATER OF LAKE = 90.14' ON  
03/06/2014

UTILITY LEGEND

	STORM DRAINAGE PIPE		RECLAIM WATER MAIN
	DITCH BOTTOM INLET		DOUBLE RECLAIM WATER METER
	TYPE 1 CURB INLET		SINGLE RECLAIM WATER METER
	TYPE 2 CURB INLET		WATER MAIN
	MITERED END SECTION		DOUBLE WATER METER
	MANHOLE		SINGLE WATER METER
	SANITARY SEWER		FIRE HYDRANT ASSEMBLY
	DOUBLE SANITARY SERVICE		GATE VALVE
	SINGLE SANITARY SERVICE		TEE
			BEND

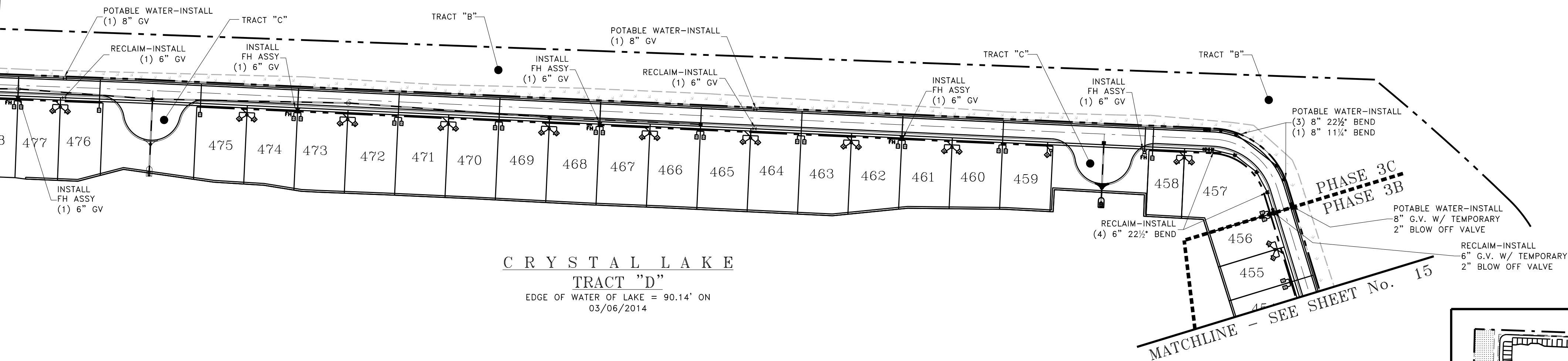


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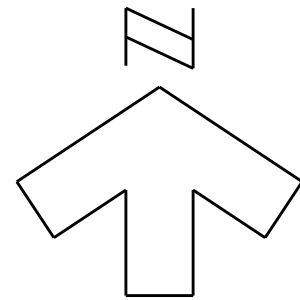


KEY MAP

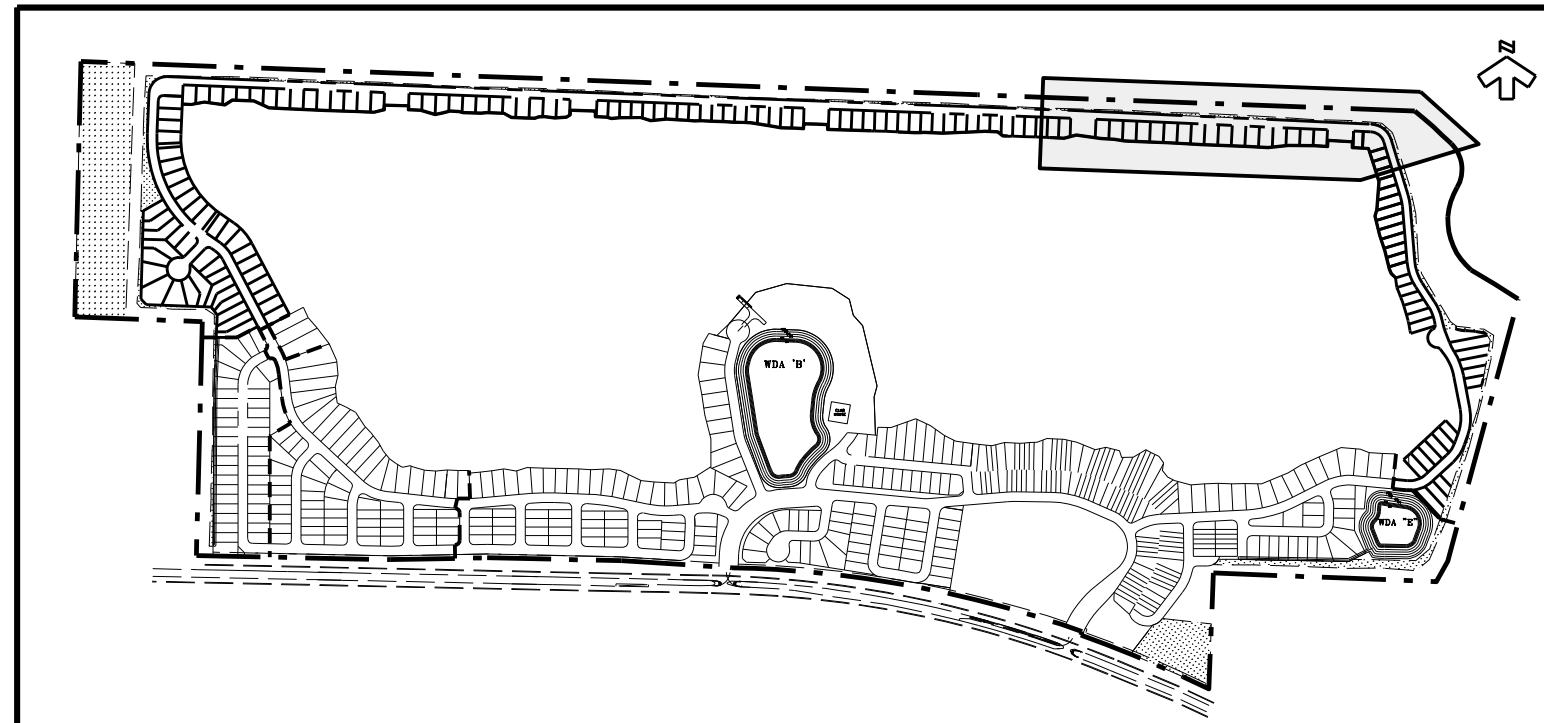
MATCHLINE - SEE ABOVE



CRYSTAL LAKE  
TRACT "D"  
EDGE OF WATER OF LAKE = 90.14' ON  
03/06/2014



0 100' 200'



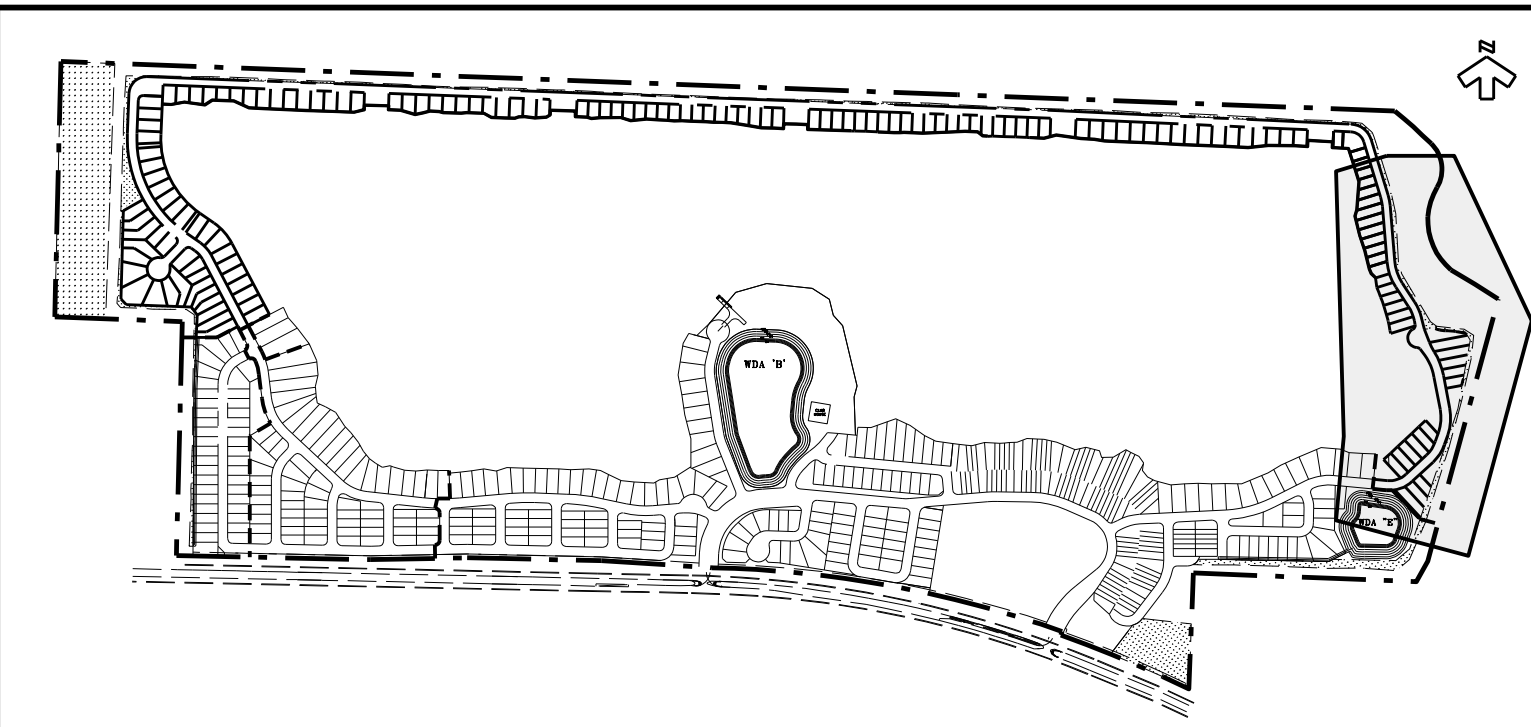
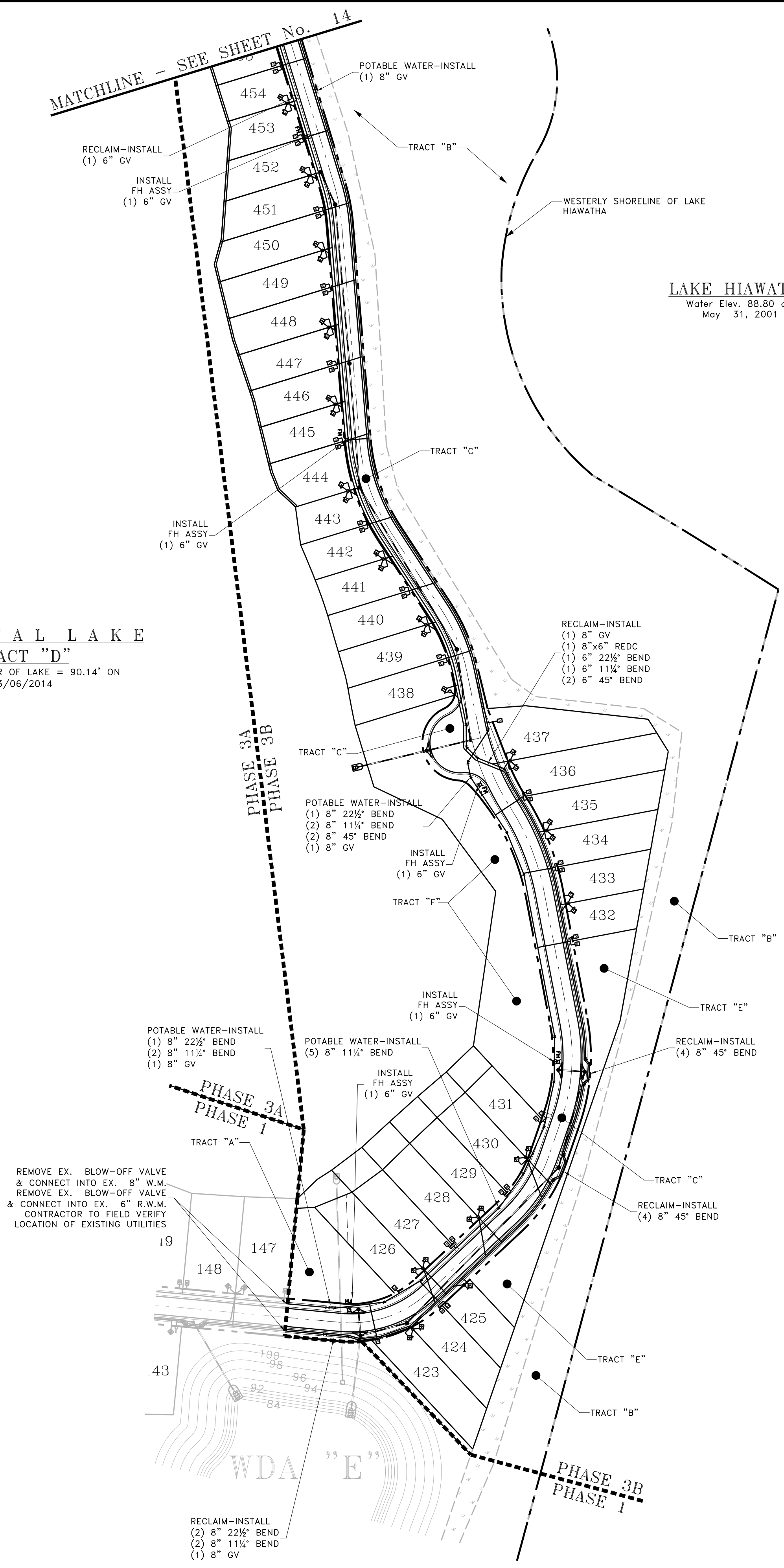
KEY MAP



UTILITY LEGEND

	STORM DRAINAGE PIPE
	DITCH BOTTOM INLET
	TYPE 1 CURB INLET
	TYPE 2 CURB INLET
	MITERED END SECTION
	MANHOLE
	SANITARY SEWER
	DOUBLE SANITARY SERVICE
	SINGLE SANITARY SERVICE
	RECLAIM WATER MAIN
	DOUBLE RECLAIM WATER METER
	SINGLE RECLAIM WATER METER
	WATER MAIN
	DOUBLE WATER METER
	SINGLE WATER METER
	FIRE HYDRANT ASSEMBLY
	GATE VALVE
	TEE
	BEND

CRYSTAL LAKE  
TRACT "D"  
EDGE OF WATER OF LAKE = 90.14' ON  
03/06/2014



FLORIDA

CITY OF GROVELAND

POTABLE WATER/RECLAIM PLAN

REVISED CONSTRUCTION DOCUMENTS - PHASE 3

CORPORATE OFFICE - 320 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801

407-843-5120 - ENGINEERING BUSINESS - 8794

REVISIONS	
DATE	DESCRIPTION

CONTRACTOR "AS-BUILT" STATEMENT: The "As-Built" state, that the "As-Built" state was furnished to me by the contractor listed below, I, or an employee under my direct supervision have reviewed these "As-Built" and believe them to be in accordance with the actual construction. This statement is based upon site observations of the construction.

Contractor's Name: \_\_\_\_\_

Engineer: \_\_\_\_\_

Not valid without the signature and the original seal of a Florida Registered Engineer.

Michael Scott Stearns  
Florida Reg. Number  
57602

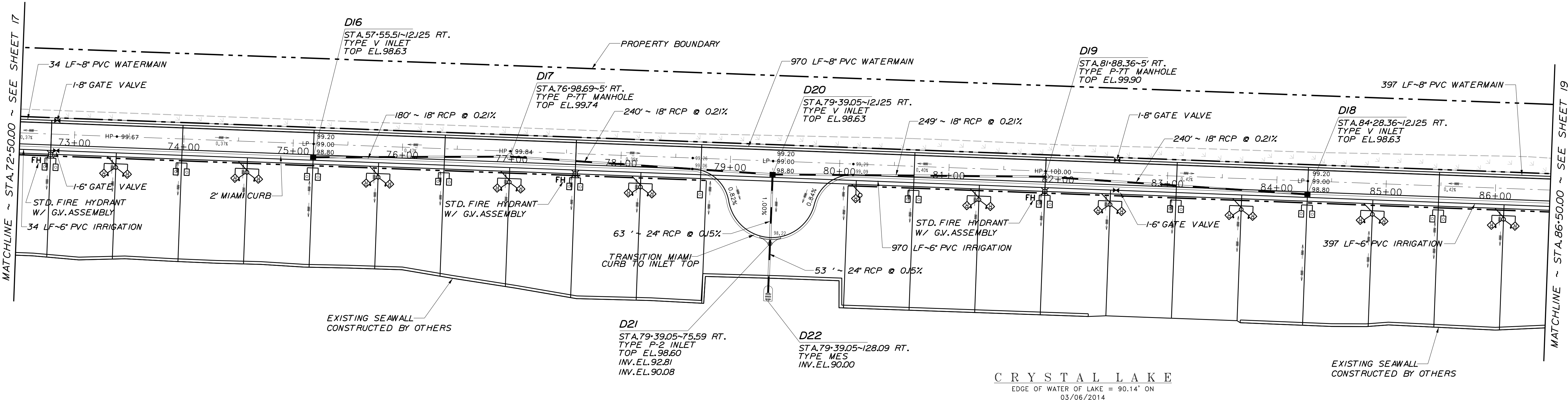
DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	1" = 100'
PROJECT NO.	PL017/FinalPhase 3 Rev
FILE NAME	PL017-Utility Plan-03
SHEET	15 OF 26

15.03.17 AM  
PL017-Utility Plan-03.dgn

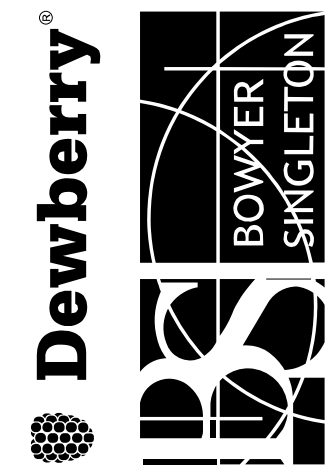








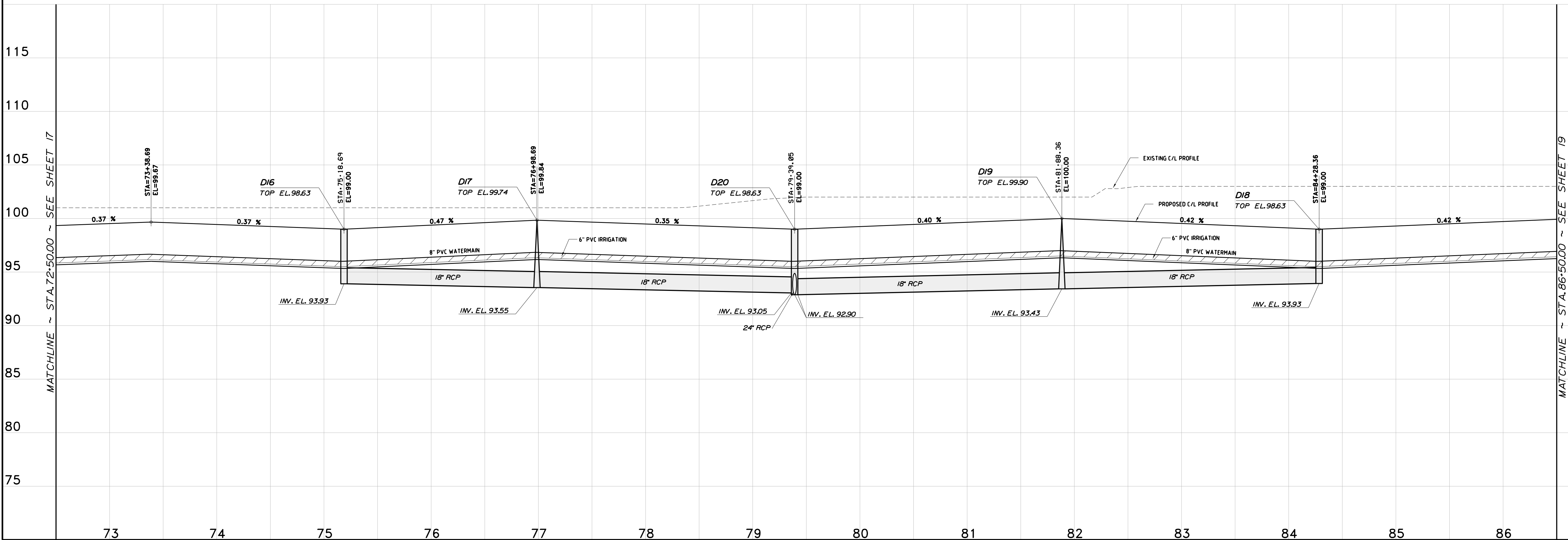
DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER SYSTEM		
STORM SEWER SYSTEM		
WATER SYSTEM		
FIRE HYDRANT		



FLORIDA  
CITY OF GROVELAND  
PLAN & PROFILE  
Sta.72+50.00 ~ Sta.86+50.00  
REVISED CONSTRUCTION DOCUMENTS - PHASE 3  
CORPORATE OFFICE - 320 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801  
407-843-5120 - ENGINEERING BUSINESS - 8794

MAIN LOOP

USE RECORD PLAT FOR ALL CONSTRUCTION LAYOUT WORK.



REVISIONS	DESCRIPTION
1	ISSUED FOR PERMIT
2	REVISED PER CITY OF GROVELAND COMMENTS
3	REVISED PER CITY OF GROVELAND COMMENTS
4	REVISED PER CITY OF GROVELAND COMMENTS
5	REVISED PER CITY OF GROVELAND COMMENTS
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8	REVISED PER CITY OF GROVELAND COMMENTS
9	REVISED PER CITY OF GROVELAND COMMENTS
10	REVISED PER CITY OF GROVELAND COMMENTS

CONTRACTOR "AS-BUILT" RECORD PLAT  
I hereby certify that the "As-Built" record plat was furnished to me by the contractor listed below, I, or an employee under my direct supervision have reviewed these "As-Built" records and believe them to be a true and accurate representation of the actual construction. This statement is based upon site observations of the construction.  
Contractor's Name \_\_\_\_\_  
Engineer \_\_\_\_\_  
Not valid without the signature and the original seal of a Florida Registered Engineer.

DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	1" = 50' HORIZONTAL 1" = 5' VERTICAL
PROJECT NO.	PL017/FinalPhase 3 Rev
FILE NAME	PL017-Plan Profile-03
SHEET	18 OF 26

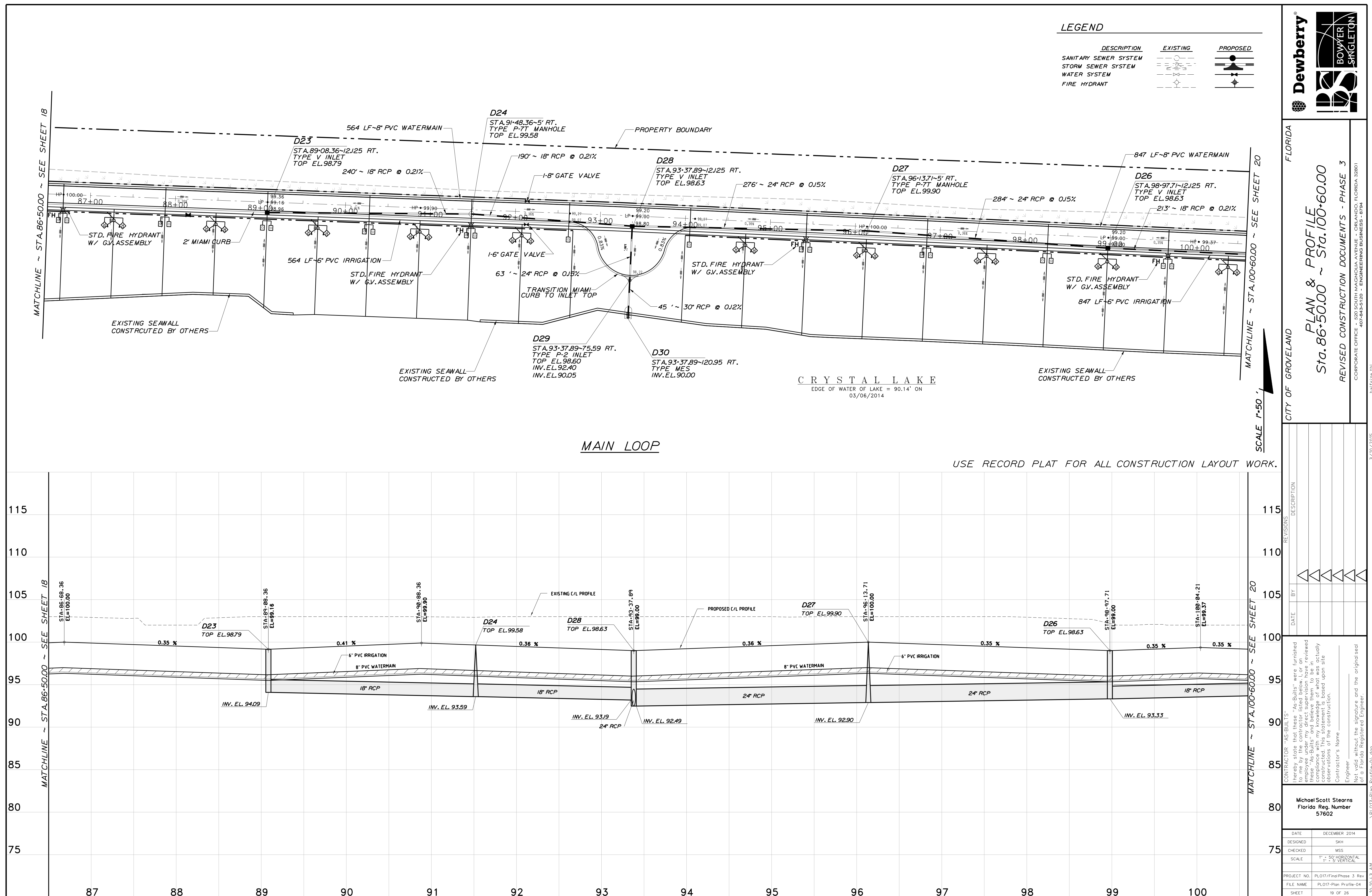
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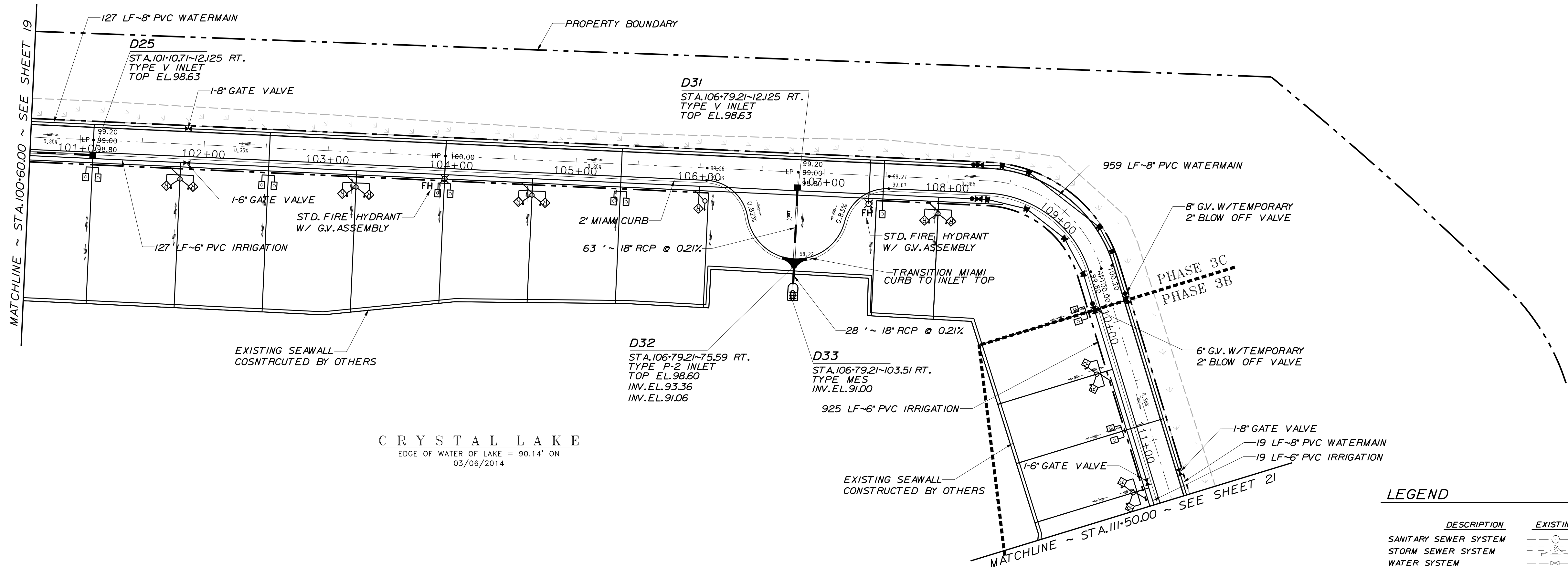
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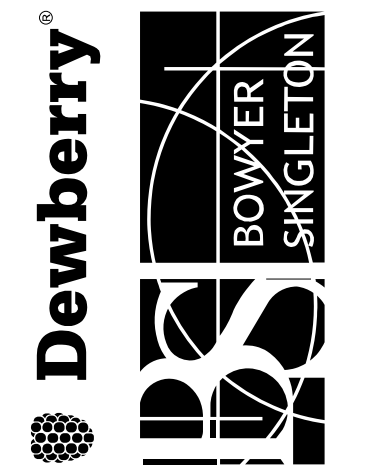
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SCALE 1"=50'

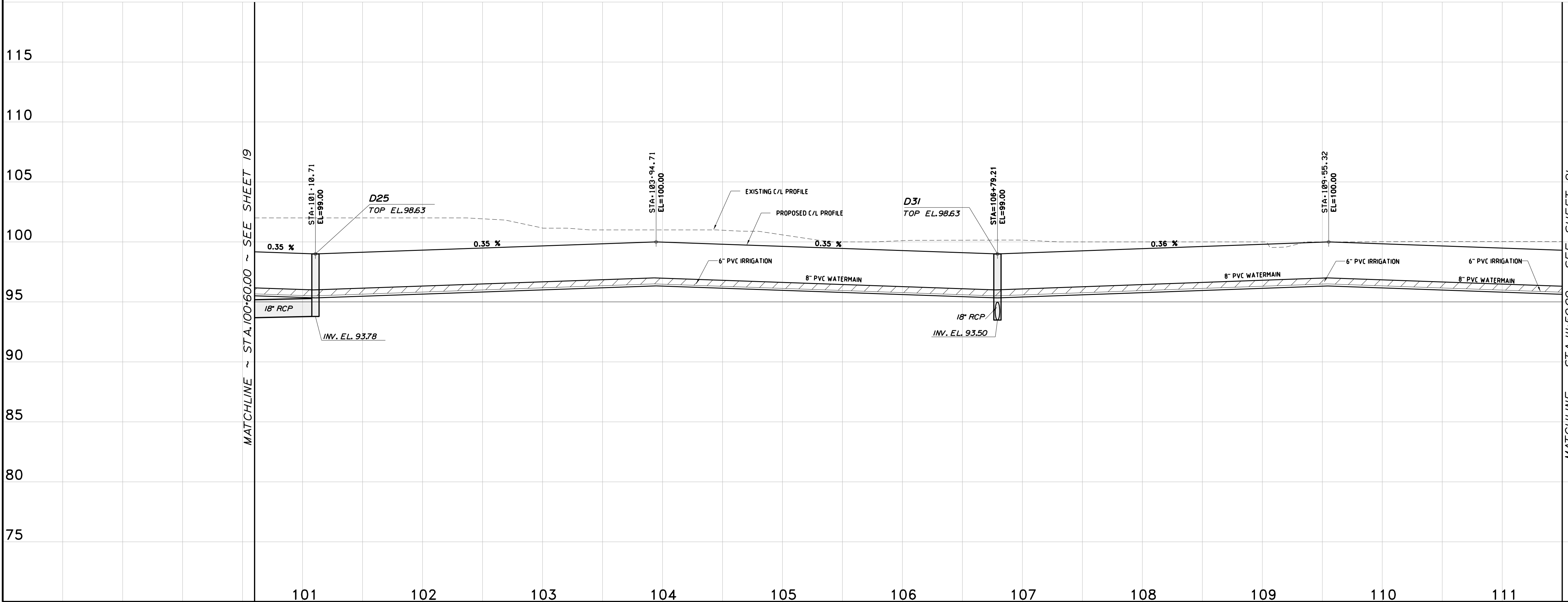


FLORIDA  
CITY OF GROVELAND  
PLAN & PROFILE  
Sta. 100+60.00 ~ Sta. 111+50.00  
REVISED CONSTRUCTION DOCUMENTS - PHASE 3  
CORPORATE OFFICE - 320 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801  
407-843-5120 - ENGINEERING BUSINESS - 8794

DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER SYSTEM		
STORM SEWER SYSTEM		
WATER SYSTEM		
FIRE HYDRANT		

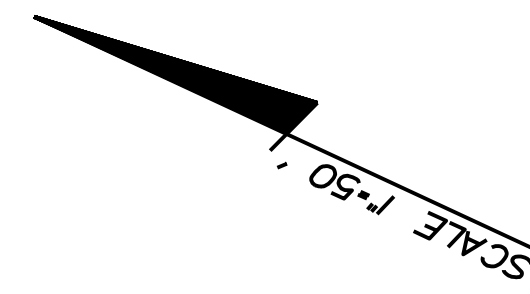
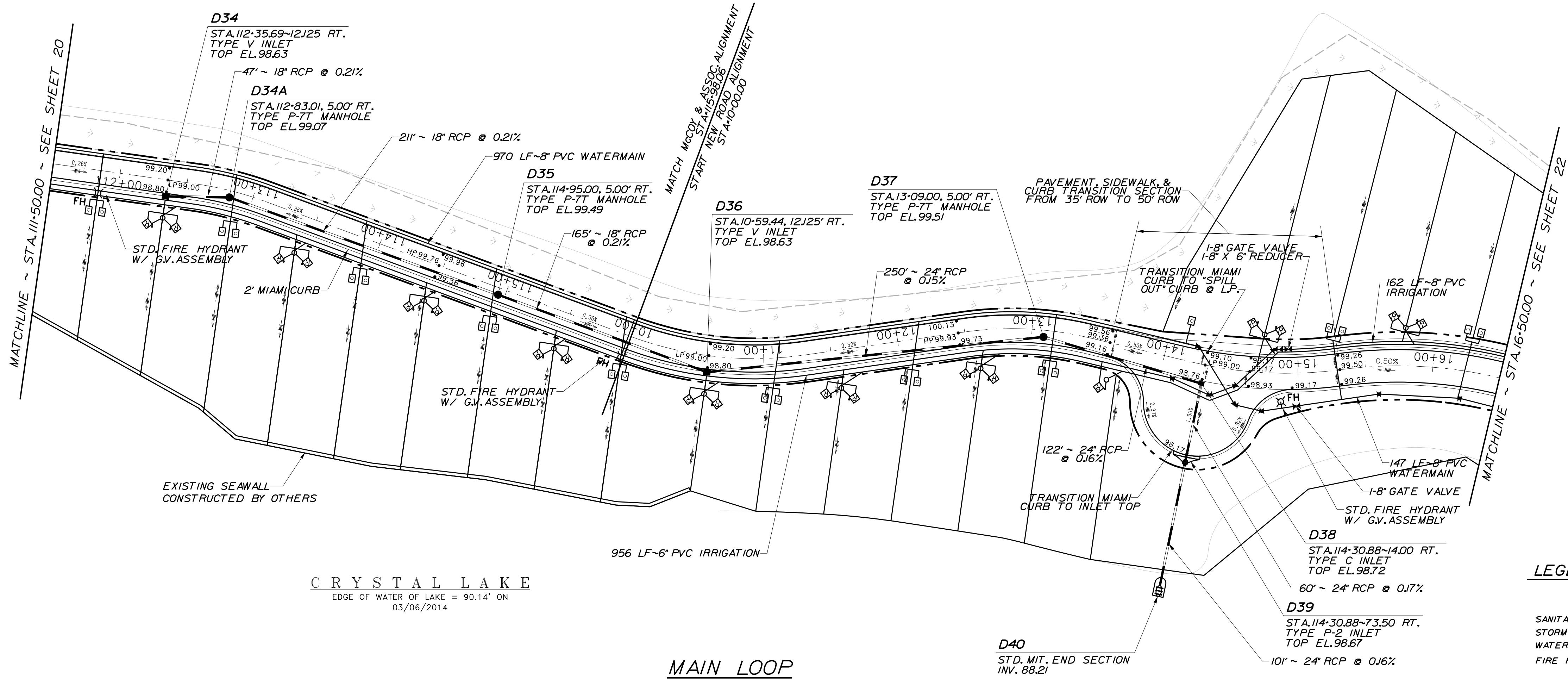
MAIN LOOP

USE RECORD PLAT FOR ALL CONSTRUCTION LAYOUT WORK.



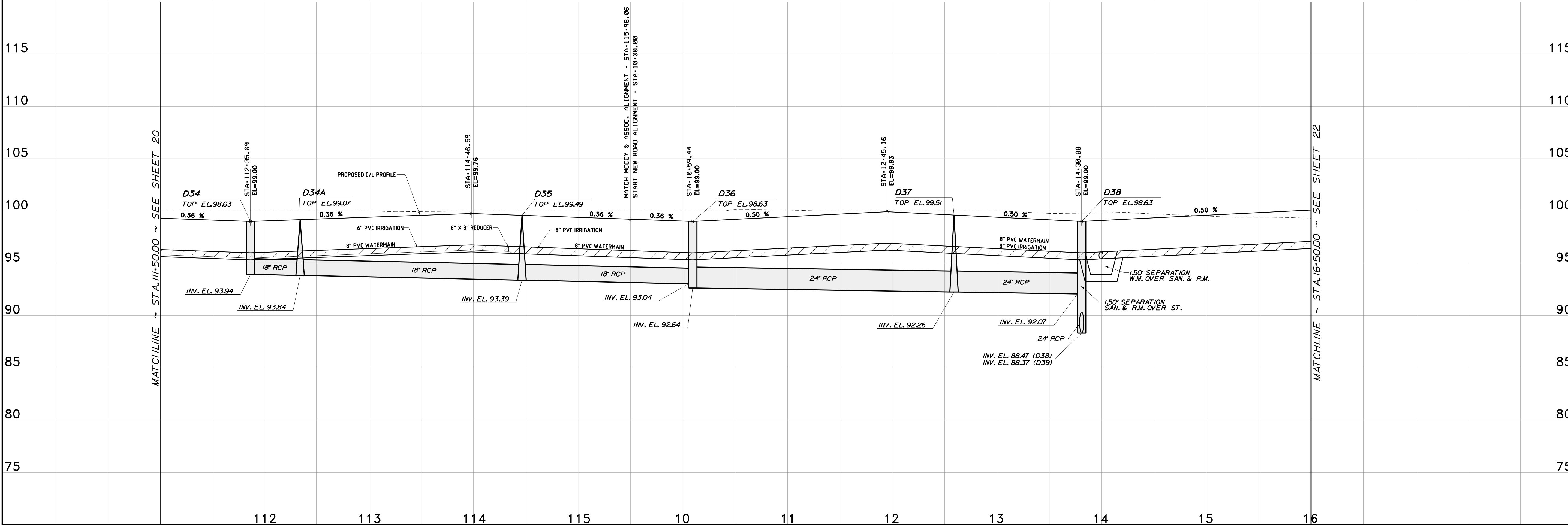
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LEGEND

DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER SYSTEM		
STORM SEWER SYSTEM		
WATER SYSTEM		
FIRE HYDRANT		



FLORIDA  
CITY OF GROVELAND  
**PLAN & PROFILE**  
*Sta. 11+50.00 ~ Sta. 16+50.00*  
REVISED CONSTRUCTION DOCUMENTS - PHASE 3  
CORPORATE OFFICE - 320 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801  
407-843-5120 - ENGINEERING BUSINESS - 8794  
half size: tbt  
3/10/2015

REVISIONS		DESCRIPTION
DATE	BY	

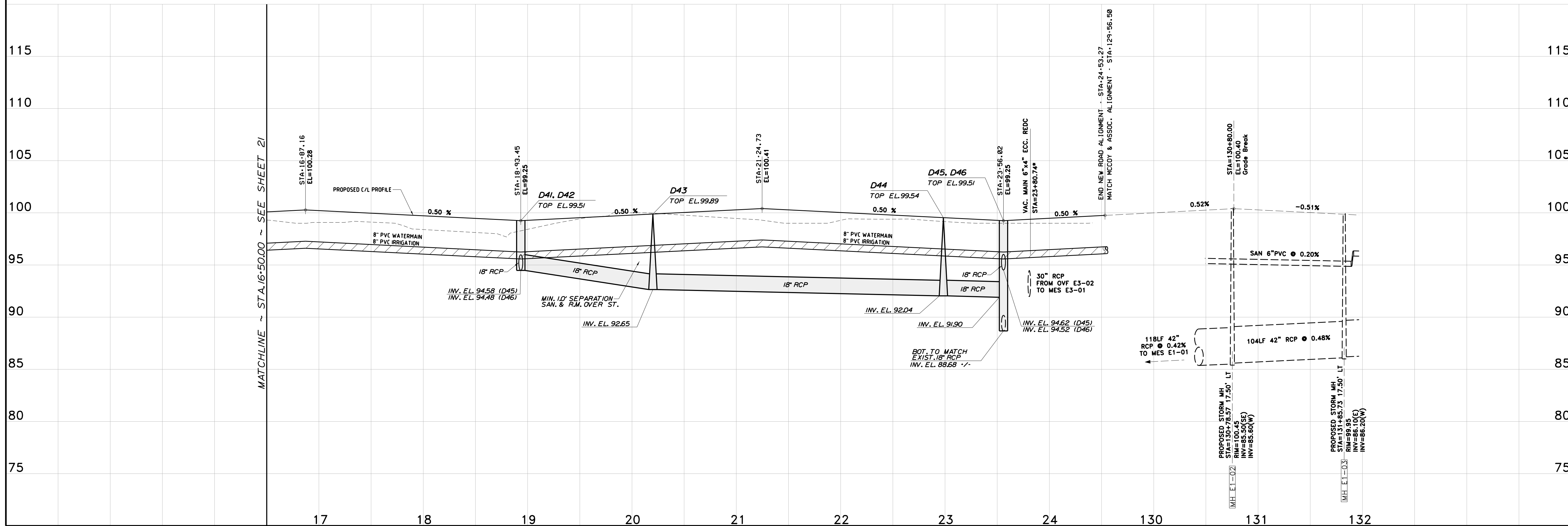
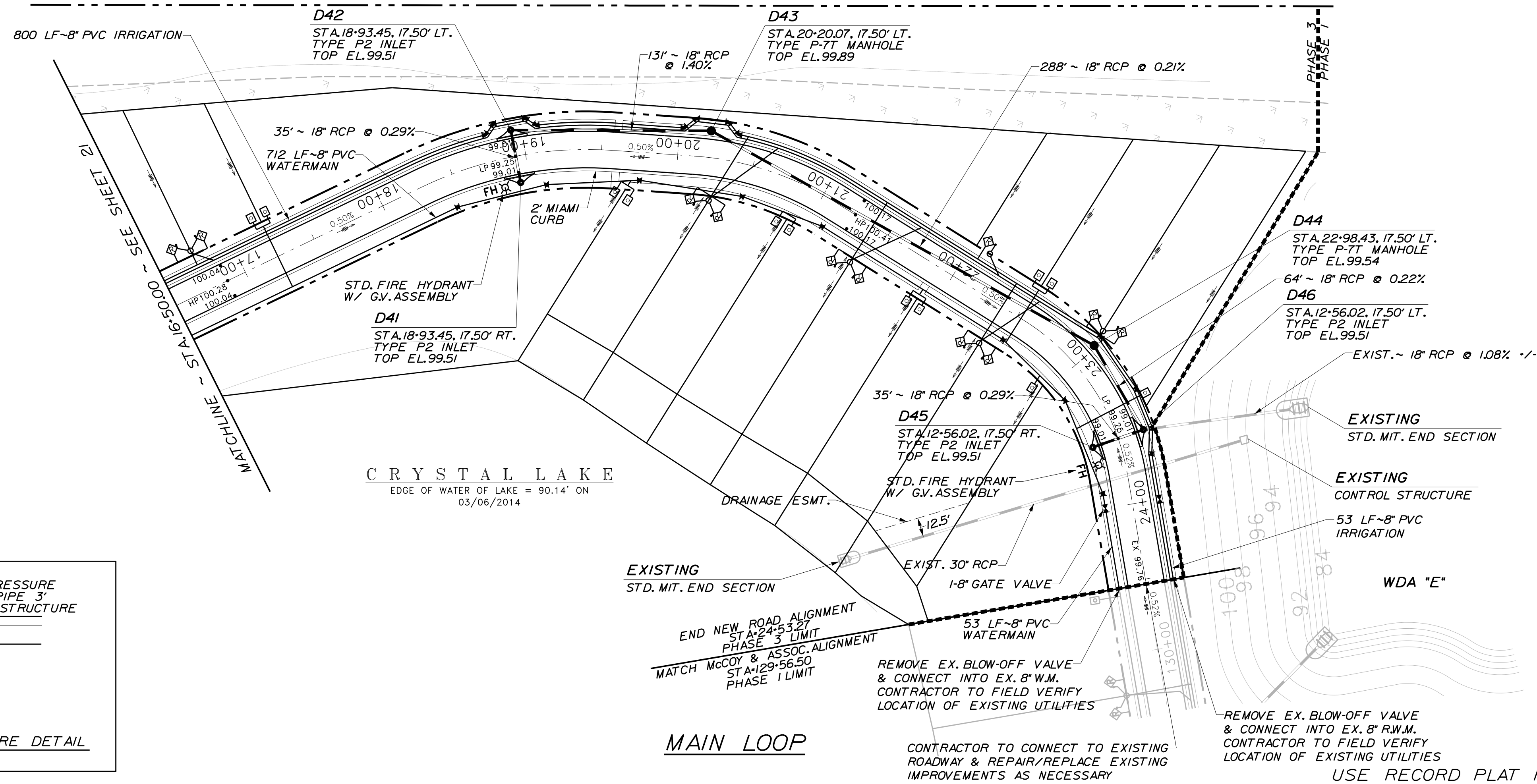
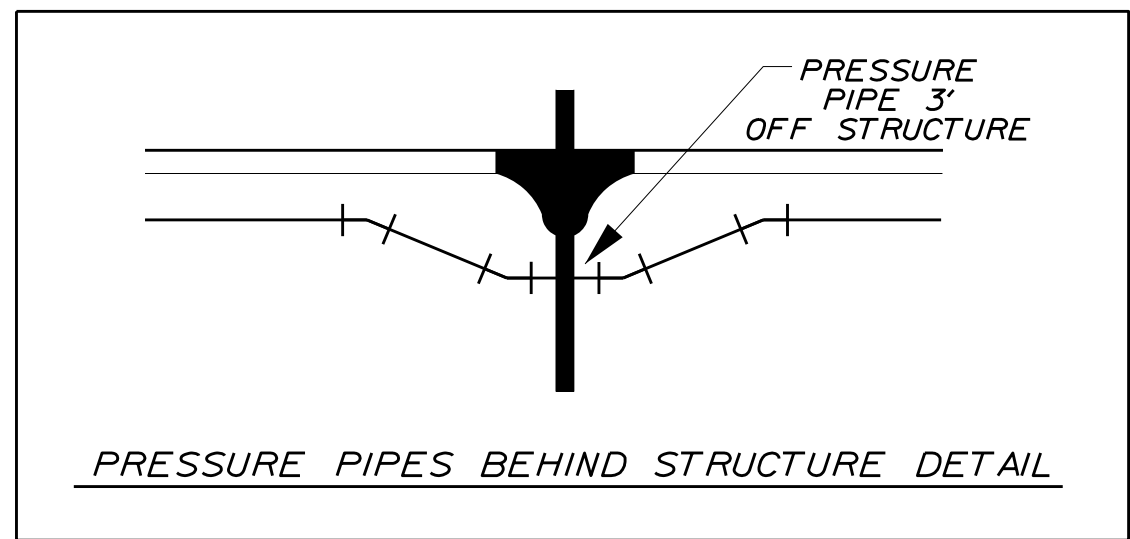
CONTRACTOR "AS-BUILT" RECORD: The "As-Built" record was furnished to me by the contractor listed below. I, or an employee under my direct supervision have reviewed these "As-Built" records and believe them to be in accordance with the actual construction. This statement is based upon site observations of the construction.

Contractor's Name: \_\_\_\_\_  
Engineer: \_\_\_\_\_  
Not valid without the signature and the original seal of a Florida Registered Engineer.

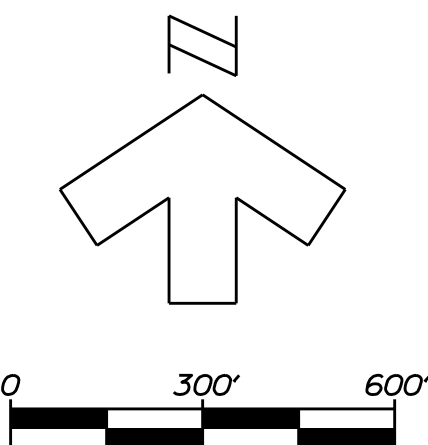
**Michael Scott Stearns**  
Florida Reg. Number  
**57602**

DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	1" = 50' HORIZONTAL 1" = 5' VERTICAL
PROJECT NO.	PL017/FinalPhase 3 Rev
FILE NAME	PL017-Plan Profile-06
SHEET	21 OF 26

10:10:46 AM  
\\PL017-Plan Profile-06.dgn







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**BOWYER  
SINGLETON**

FLORIDA

CITY OF GROVELAND

## SIGNAGE AND LIGHTING PLAN

REVISED CONSTRUCTION DOCUMENTS - PHASE 3

CORPORATE OFFICE - 520 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801

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REVISIONS		DESCRIPTION
DATE	BY	△
		△
		△
		△
		△

3/10/2015

CONTRACTOR "AS-BUILT'S": \_\_\_\_\_  
I hereby state that these "As-Built's" were furnished to me by the contractor listed below. I or any employee under my direct supervision have reviewed these "As-Built's" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.

Contractor's Name \_\_\_\_\_  
Engineer \_\_\_\_\_  
Not valid without the signature and the original seal

Michael Scott Stearns  
Florida Reg. Number  
57602

DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	1" = 100'
PROJECT NO.	PLO17/FinalPhase 3 R
FILE NAME	PLO17-Signage Plan
SHEET	23 OF 26

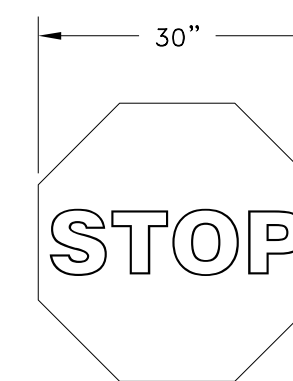
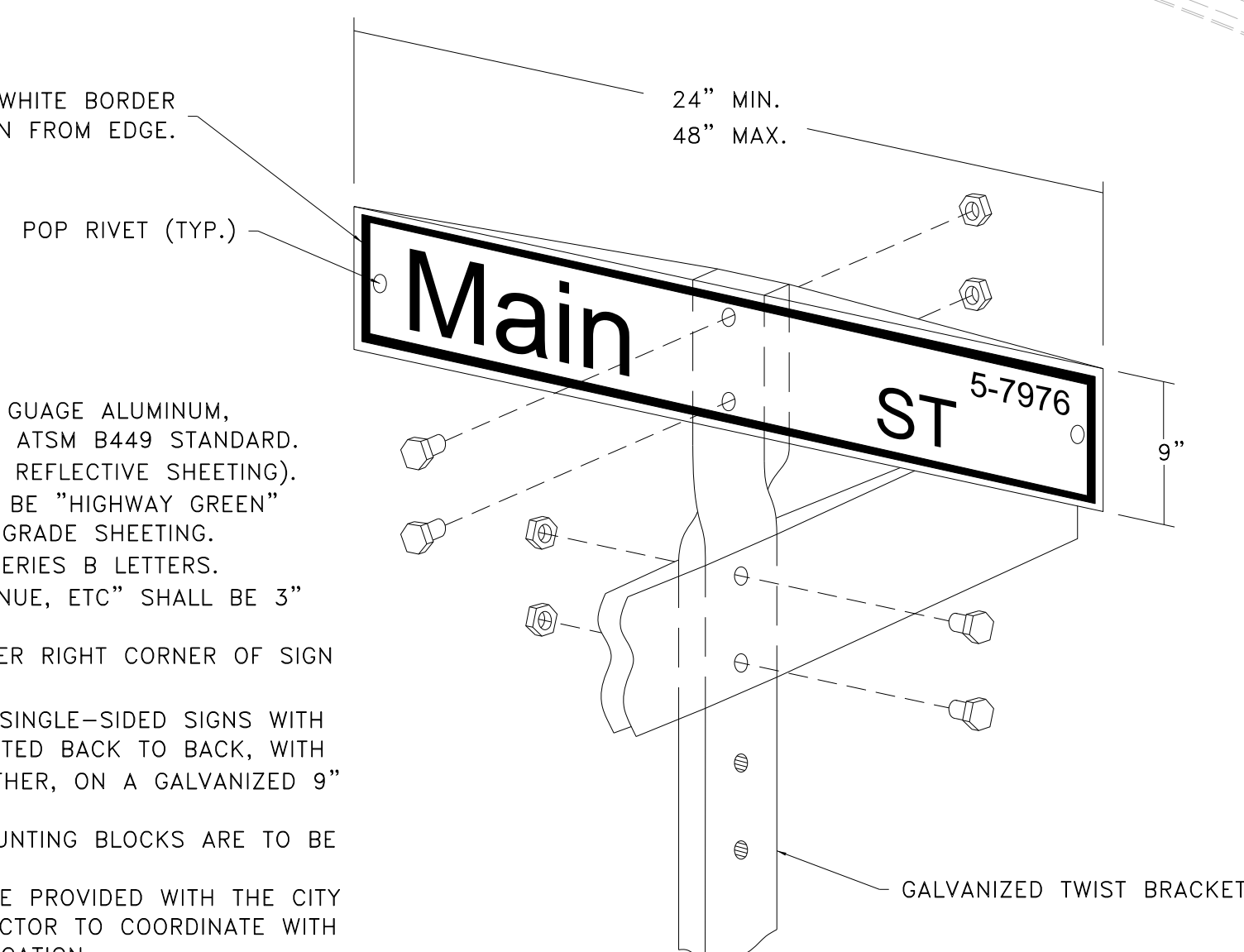
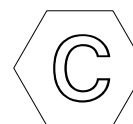
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NOTES:

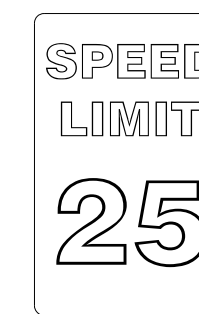
1. SIGN BLANKS SHALL BE 0.063 GUAGE ALUMINUM, CHEMICALLY TREATED TO MEET ASTM B449 STANDARD. (PRETREATMENT FOR PAINT OR REFLECTIVE SHEETING).
2. COLOR OF SIGN FACING SHALL BE "HIGHWAY GREEN" IN NOT LESS THAN ENGINEER GRADE SHEETING.
3. STREET NAMES SHALL BE 5" SERIES B LETTERS. THE ABBREVIATED "ROAD, AVENUE, ETC" SHALL BE 3" SERIES B LETTERS.  
THE DISTRICT NUMBER IN UPPER RIGHT CORNER OF SIGN SHALL BE 1-1/2" SERIES B.
4. MOUNTING SHALL BE TWO (2) SINGLE-SIDED SIGNS WITH THE ATTRIBUTES ABOVE, MOUNTED BACK TO BACK, WITH THE ENDS POP RIVETED TOGETHER, ON A GALVANIZED 9" TWIST BRACKET.
5. NO EDGE-CLAMPING STYLE MOUNTING BLOCKS ARE TO BE USED.
6. STREET NAME SIGNS ARE TO BE PROVIDED WITH THE CITY OF GROVELAND LOGO. CONTRACTOR TO COORDINATE WITH THE CITY FOR DESIGN AND LOCATION.

## STREET NAME SIGNS (D3)

NTS



FDOT # R1-1



FDOT # R2-1

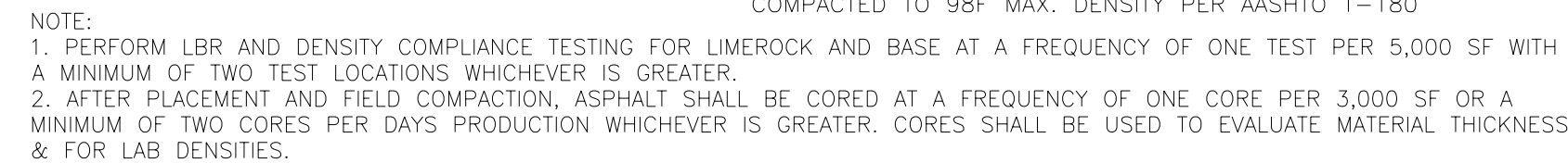


## SIGN DETAILS

N.T.S.

NOTES:

1. ALL INTERSECTIONS TO BE PROVIDED WITH STREET/STOP SIGNS AND 24" THERMOPLASTIC STOP BARS.
2. ALL STRIPING TO BE THERMOPLASTIC.
3. ALL TRAFFIC CONTROL SIGNS SHALL MEET THE MINIMUM REQUIREMENTS OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL (MUTCD), THE CITY OF GROVELAND AND THE FDOT.



## NTS

NOTE:

WHERE USED IN DITCHES, THE SPACING FOR TYPE III SILT FENCE SHALL BE IN ACCORDANCE WITH FOOT DESIGN STANDARDS, 2002, INDEX NO. 102, SHEET 1 OF 3, CHART NO. 1.



## NTS



## NTS

NTS



ALL MITERED END SECTIONS SHALL  
BE FITTED WITH BARS WHEN  
INSTALLED IN CITY RIGHT OF WAY.



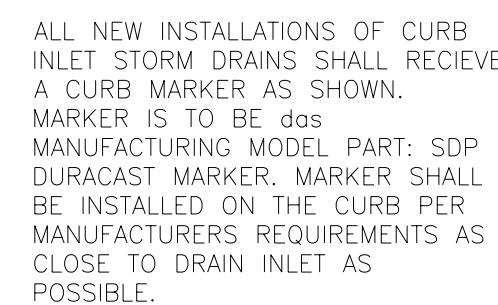
GENERAL NOTES:

- GENERAL NOTES:
1. THE REINFORCED CONCRETE SLAB SHALL BE CONSTRUCTED FOR ALL SIZES OF CROSS DRAIN AND PIPE AND CAST IN PLACE WITH CLASS 1 CONCRETE. SLABS SHALL BE 5-1/2" THICK UNLESS 3" THICKNESS CALLED FOR IN PLANS.
  2. SADDLE SLOPE:  
4:1 MITER: TO C PIPE FOR PIPES 18" AND SMALLER.  
2:1 FOR PIPES 24" AND LARGER.  
2:1 MITER: TO C PIPE FOR PIPES 18" AND SMALLER.  
1:1 FOR PIPES 24" AND LARGER.
  3. MITERED END SECTIONS PER D.O.T. STANDARDS.

B	E	
6.42'	Δ 6.25'	DIMENSIONS PERMITTED TO ALLOW USE OF 8' STANDARD PIPE LENGTHS
10.40'	◊ 10.10'	DIMENSIONS PERMITTED TO ALLOW USE OF 12' STANDARD PIPE LENGTHS



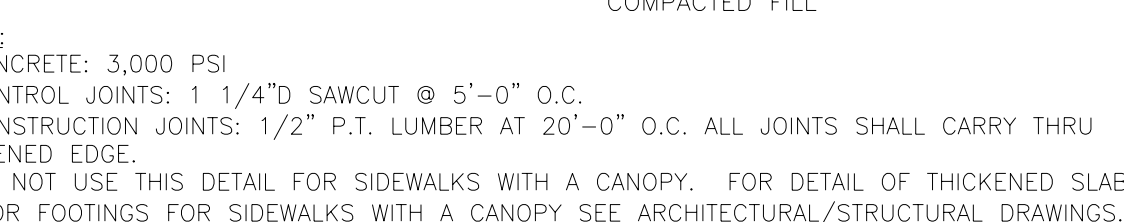
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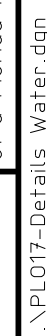
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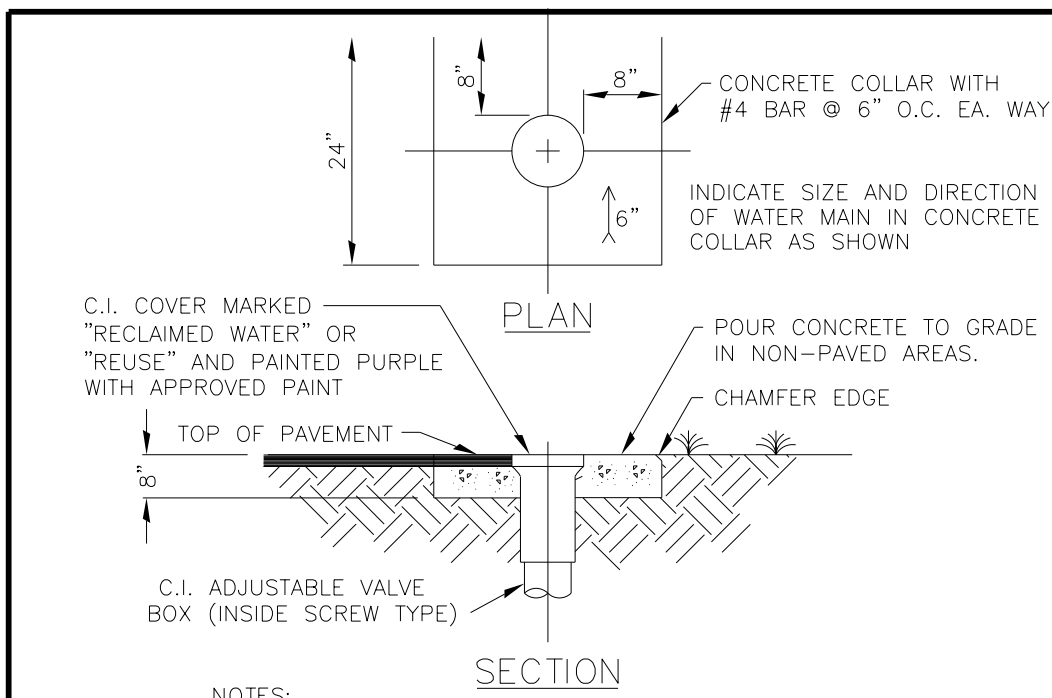
CITY OF GROVELAND  
Standard Utility System Details  
Street & Drainage Details  
Lake County, Florida

JOB NO.  
9901-07-1  
SHEET NO.

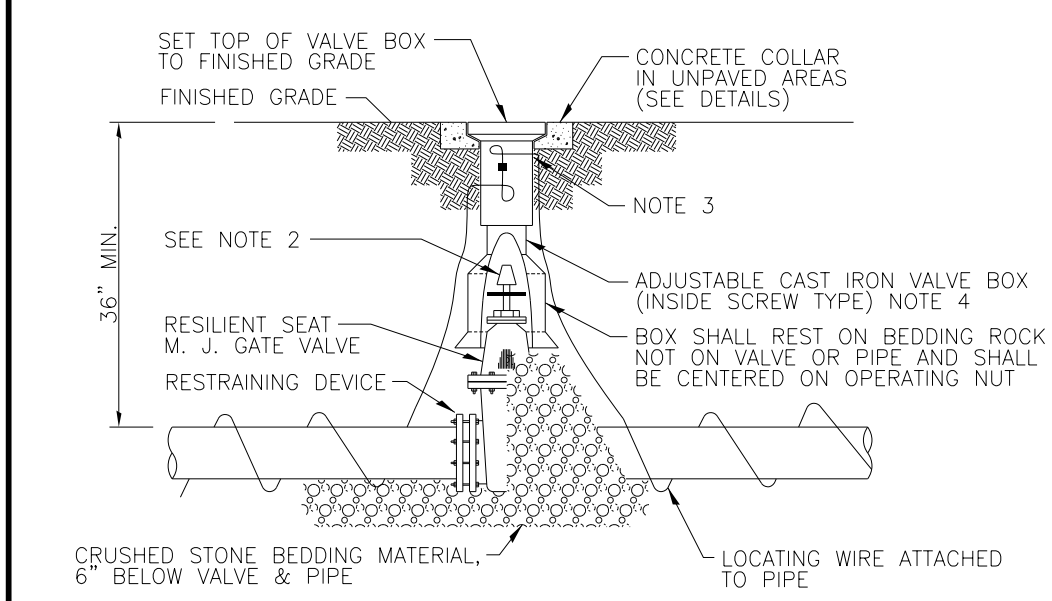
DATE	DECEMBER 2014
DESIGNED	SKH
CHECKED	MSS
SCALE	1" = 100'
PROJECT NO.	PL017/FinalPhase 3 R
FILE NAME	PL017-Details Paving
SHEET	24 OF 26





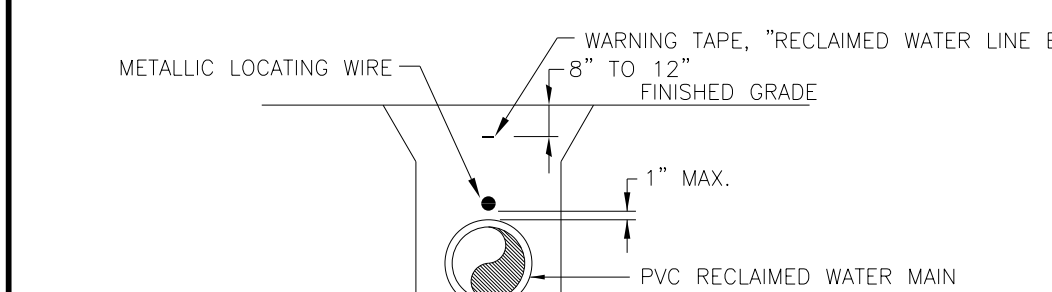


VALVE COLLAR DETAIL - 2" THRU 12" NTS



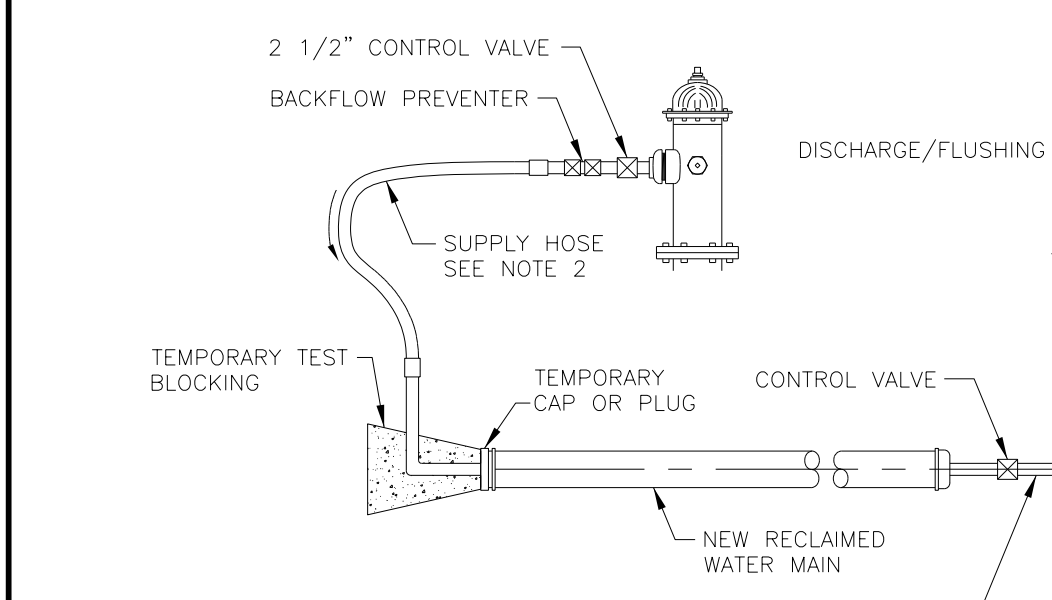
1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO A MAXIMUM OF 30 INCHES BELOW FINISHED GRADE.
3. LOCATING WIRE TO ENTER VALVE BOX THRU 3/4 INCH HOLE. PROVIDE 12 INCH PITTAILS AND CONNECT WITH WIRE NUT.
4. ADJUST TO MID-RANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.

GATE VALVE AND BOX DETAIL NTS



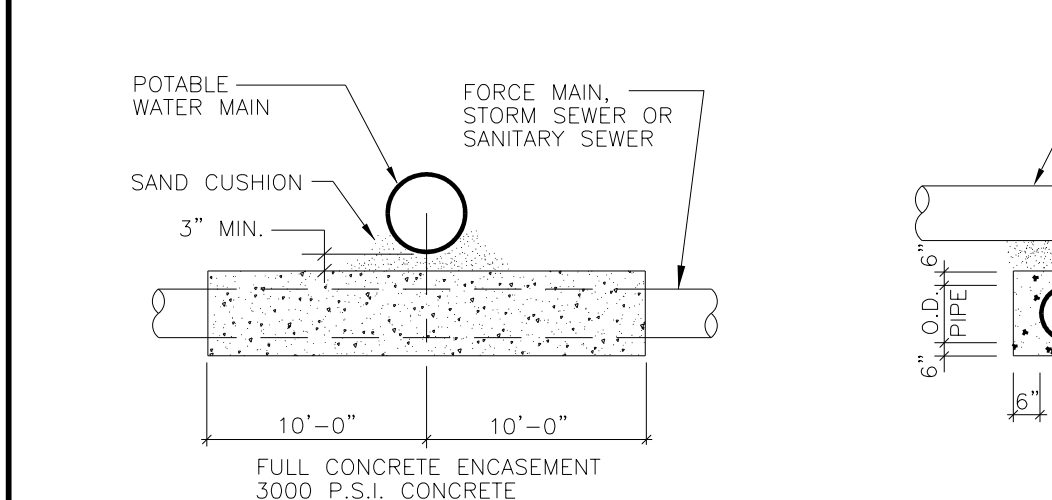
1. ALL PVC PIPE SHALL REQUIRE INSULATED METALLIC LOCATING WIRE (12 GAUGE COPPER/UF INSULATION) CAPABLE OF DETECTION BY A CABLE LOCATOR
2. WIRE SHALL BE ATTACHED TO THE TOP OF PIPE WITH DUCT TAPE, AT LEAST FIVE TIMES PER JOINT
3. LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX
3. SPLICE WIRE WITH MECHANICAL FASTENERS WRAPPED IN PROTECTIVE COATING

PVC PIPE LOCATING WIRE DETAIL NTS

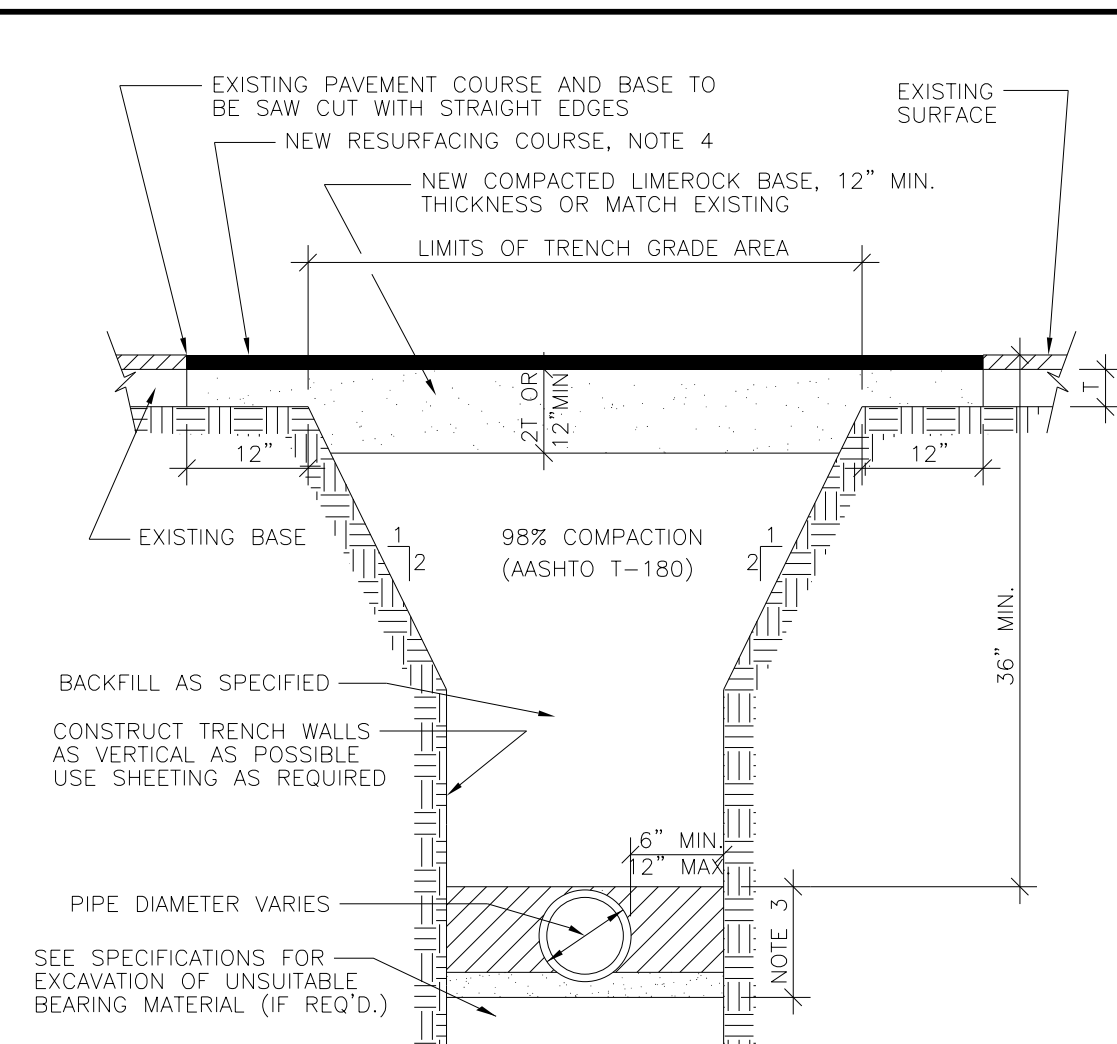


1. REFERENCE, AWWA C651.FIG.1
2. SIZE AND NUMBER OF TAPS AND HYDRANT OUTLETS PER TABLE 3 OF AWWA C651. THIS HOSE MUST BE REMOVED DURING THE HYDROSTATIC PRESSURE TEST.
3. THIS DETAIL APPLIES TO PIPES WITH DIAMETERS 4" (100 MM) THROUGH 12" (300 MM). ALL LARGER SIZES MUST BE HANDLED ON A CASE BY CASE BASIS.

TEMPORARY FLUSHING/TESTING DETAIL NTS

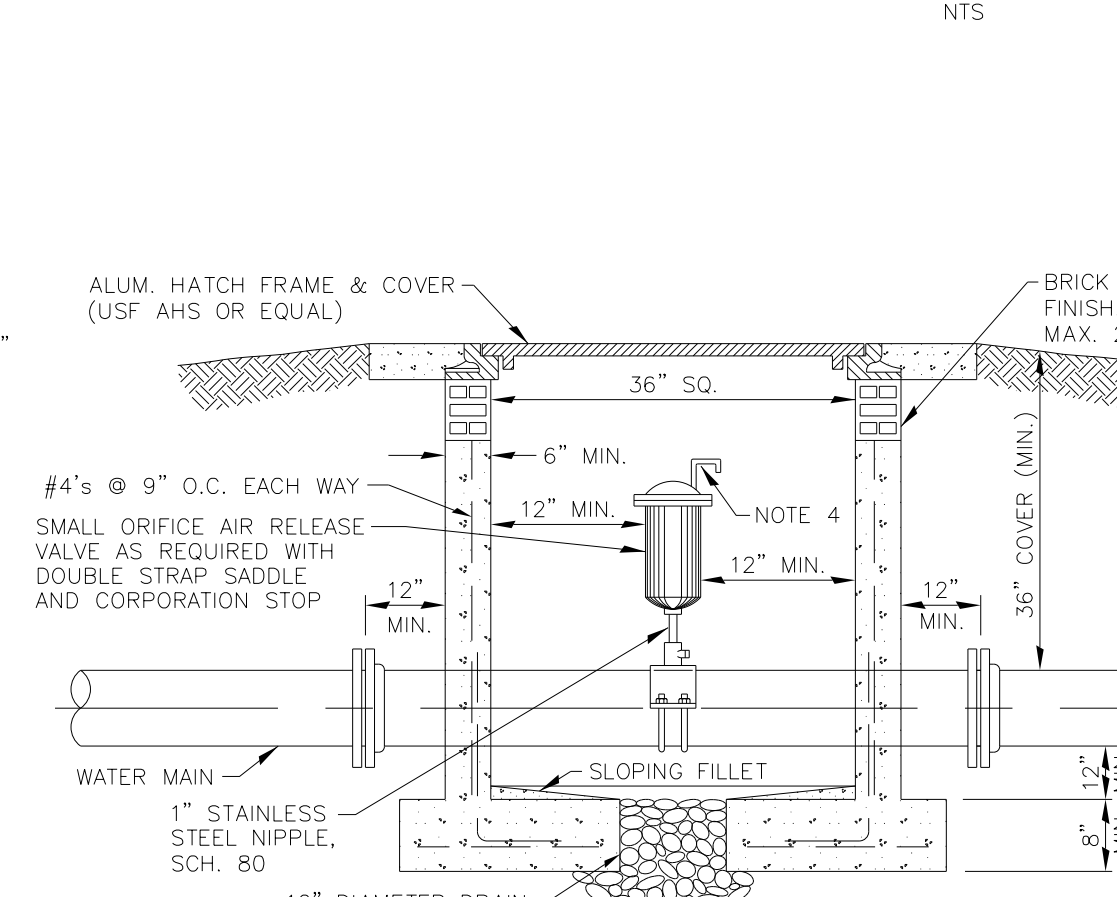


TYPICAL CONCRETE ENCASEMENT NTS



1. DENATERING SHALL CONTINUE UNTIL BACKFILL IS COMPACTED AT LEAST 2 FEET ABOVE WATER TABLE.
2. SURFACE TREATED PAVEMENT JOINTS SHALL BE LAPPED AND FEATHERED.
3. EMBEDMENT TYPE 3 PER AWWA C600/C605. PIPE BEDDED IN SAND TO DEPTH OF 1/8 PIPE DIAMETER, 4 INCHES MINIMUM. BACKFILL COMPACTED TO TOP OF PIPE.
4. IN PAVEMENT CUT, PROVIDE 2 INCHES OF TYPE III ASPHALT; THEN, 1 INCH OF TYPE SI OVERLAY 50 FEET LONG CENTERED ON CUT

TRENCH DETAIL AND PAVEMENT REPLACEMENT NTS



1. 4000 P.S.I., CONCRETE.
2. VAULT SHALL BE PRECAST OR POURED IN PLACE CONCRETE ALL WITH STEEL REINFORCING.
3. ALL OPENINGS SHALL BE SEALED WITH WATERPROOF NON-SHRINKING GROUT.
4. 1/2" STAINLESS STEEL NIPPLES AND ELLS

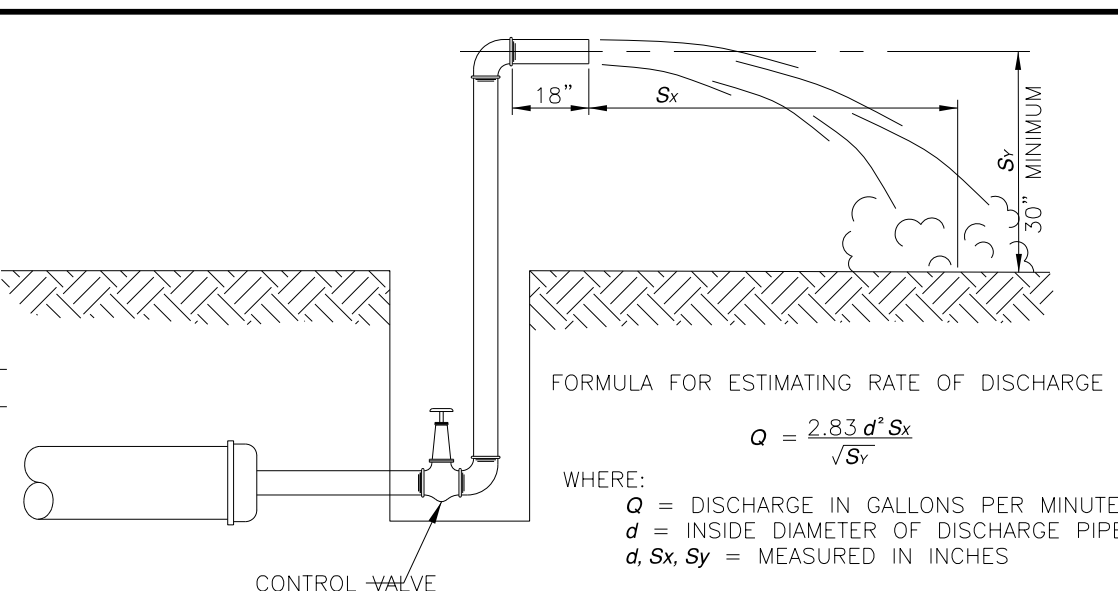
AIR RELEASE VALVE NTS



PIPE RESTRAINT SCHEDULE

PIPE TYPE	PIPE SIZE	90° BEND	45° BEND	≤22.5° BEND	TEE OR CROSS	VERTICAL OFFSET °		REDUCER <sup>b</sup>	VALVE	DEAD END
						LOW	HIGH			
PVC	≤4	18	18	18	18	18	22	36	18	52
	6	24	18	18	18	18	30	38	36	73
	8	31	18	18	18	18	40	69	36	96
P	10	37	18	18	18	18	48	93	54	115
I	12	43	18	18	18	18	56	99	54	136
P	14	49	20	18	18	18	64	101	72	155
E	16	55	23	18	18	18	72	103	72	174
	18	60	25	18	36	20	80	104	72	192
	20	65	27	18	36	21	87	105	72	211
	24	75	31	18	36	25	102	134	90	246
	30	88	37	18	36	29	122	185	90	295

PIPE TYPE	PIPE SIZE	90° BEND	45° BEND	≤22.5° BEND	TEE OR CROSS	VERTICAL OFFSET °		REDUCER <sup>b</sup>	VALVE	DEAD END
						LOW	HIGH			
D	≤4	18	18	18	18	18	18	18	18	33
U	6	20	18	18	18	18	19	35	36	47
C	8	26	18	18	18	18	25	44	36	61
T	10	31	18	18	18	18	30	60	54	73
I	12	37	18	18	18	18	36	63	54	86
P	14	41	18	18	18	18	41	64	72	98
E	16	46	19	18	36	18	46	66	72	111
	18	51	21	18	36	18	51	66	72	122
	20	56	23	18	36	18	56	67	72	134
	24	64	27	18	36	21	65	85	90	156
	30	75	31	18	36	25	78	118	90	188



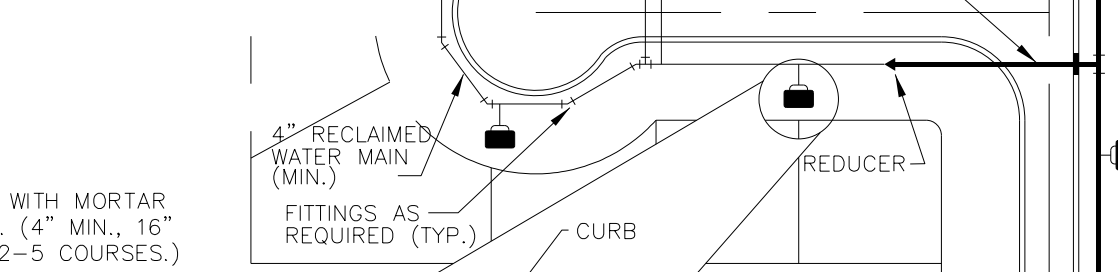
1. REFERENCE, AWWA C651.FIG.2
2. THIS DETAIL APPLIES TO PIPES UP TO AND INCLUDING 8" (200 MM) DIAMETER. LARGER SIZES SHALL BE HANDLED ON A CASE BY CASE BASIS.

TEMPORARY COMBINATION BLOWOFF AND SAMPLING TAP DETAIL NTS

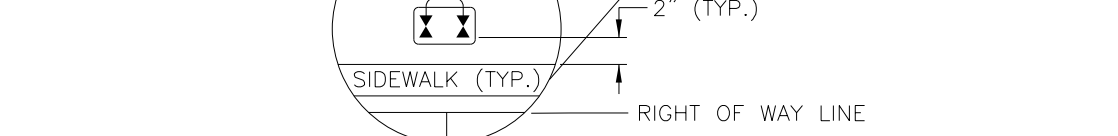


1. METER BOX TO BE PROVIDED BY CONTRACTOR.
2. ALL SERVICES SHALL BE LOCATED AT LOT LINES.
3. MAXIMUM OBTAINABLE SEPARATION BETWEEN RECLAIMED WATER MAINS AND POTABLE WATER MAINS SHALL BE USED. A MINIMUM HORIZONTAL SEPARATION OF THREE FEET (MEASURED OUTSIDE TO OUTSIDE) SHALL BE MAINTAINED. HORIZONTAL SEPARATION MAY BE REDUCED IF:
  - a) THE TOP OF THE RECLAIMED WATER MAIN IS AT LEAST 18-INCHES BELOW THE BOTTOM OF THE POTABLE WATER MAIN OR,
  - b) THE RECLAIMED WATER MAIN IS ENCASED IN CONCRETE.

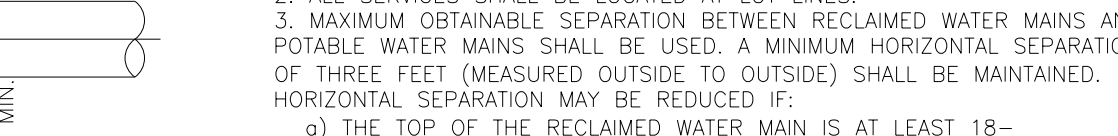
TYPICAL WATER SERVICE LOCATION DETAIL NTS



WATER SERVICE CONNECTION DETAIL NTS



CROSSING WITH EXISTING UTILITIES NTS



GENERAL WATER DISTRIBUTION SYSTEM NOTES



FORMULA FOR ESTIMATING RATE OF DISCHARGE

1. IF EXISTING UTILITY PIPE IS A POTABLE WATER MAIN, A MINIMUM OF 12-INCHES OF SEPARATION IS REQUIRED. IT IS PREFERABLE THAT THE RECLAIMED WATER MAIN PASSES UNDER THE POTABLE WATER MAIN.
2. IF EXISTING UTILITY PIPE IS PRESSURE-TYPE SANITARY SEWER, OR GRAVITY SEWER, A MINIMUM OF 18-INCHES OF SEPARATION IS REQUIRED. IT IS PREFERABLE THAT THE WATER MAIN PASSES OVER THE EXISTING UTILITY.

NOTES

WHERE: Q = DISCHARGE IN GALLONS PER MINUTE d = INSIDE DIAMETER OF DISCHARGE PIPE d, Sx, Sy = MEASURED IN INCHES

Q = 2.83 d<sup>2</sup> Sx / Sy

Q = DISCHARGE IN GALLONS PER MINUTE d = INSIDE DIAMETER OF DISCHARGE PIPE d, Sx, Sy = MEASURED IN INCHES

Q = 2.83 d<sup>2</sup> Sx / Sy

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Q = 2.83 d<sup>2</sup> Sx / Sy

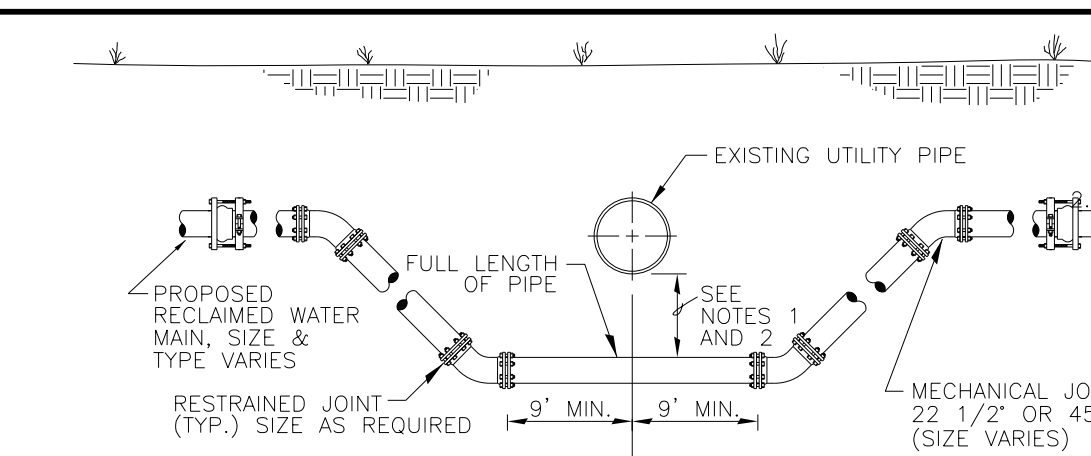
Q = DISCHARGE IN GALLONS PER MINUTE d = INSIDE DIAMETER OF DISCHARGE PIPE d, Sx, Sy = MEASURED IN INCHES

Q = 2.83 d<sup>2</sup> Sx / Sy

Q = DISCHARGE IN GALLONS PER MINUTE d = INSIDE DIAMETER OF DISCHARGE PIPE d, Sx, Sy = MEASURED IN INCHES

Q = 2.83 d<sup>2</sup> Sx / Sy

Q = DISCHARGE IN GALLONS PER MINUTE d = INSIDE DIAMETER OF DISCHARGE PIPE d, Sx, Sy = MEASURED IN INCHES



STANDARD SPECIFICATIONS ACCEPTABLE MATERIAL LIST

MANUFACTURER

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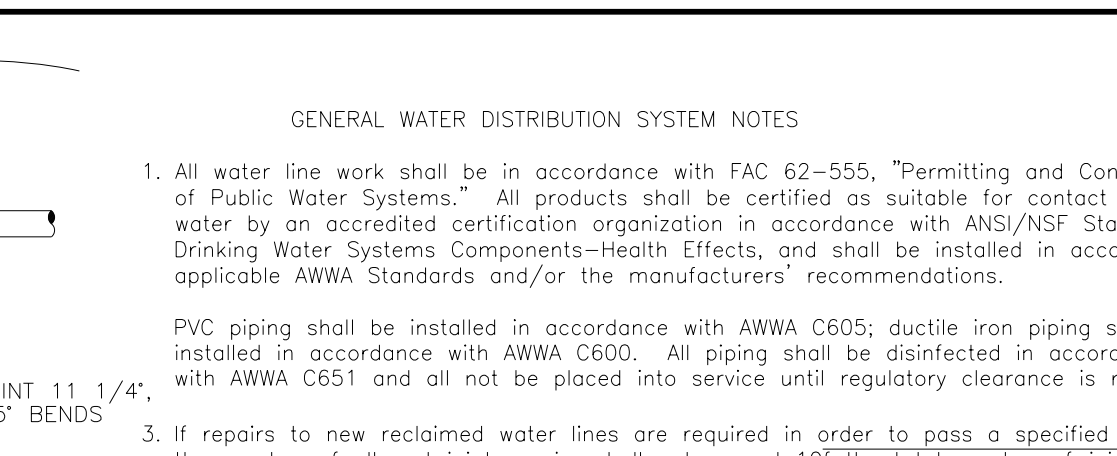
MANUFACTURER

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BASIS OF SCHEDULES

1. Test Pressure 150 psig

2. Minimum Pipe Depth 3 feet

3. Type 3 Laying Condition

4. Factor of Safety = 2.0

1. Test Pressure 150 psig

2. Minimum Pipe Depth 3 feet

3. Type 3 Laying Condition

4. Factor of Safety = 2.0

1. Test Pressure 150 psig

2. Minimum Pipe Depth 3 feet

3. Type 3 Laying Condition

4. Factor of Safety = 2.0

1. Test Pressure 150 psig

2. Minimum Pipe Depth 3 feet

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1. Test Pressure 150 psig

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1. Test Pressure 150 psig

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2. Minimum Pipe Depth 3 feet

3. Type 3 Laying Condition

4. Factor of Safety = 2.0

1. Test Pressure 150 psig

2. Minimum Pipe Depth 3 feet

3. Type 3 Laying Condition

4. Factor of Safety = 2.0

1. Test Pressure 150 psig

2. Minimum Pipe Depth 3 feet

3. Type 3 Laying Condition

4. Factor of Safety = 2.0

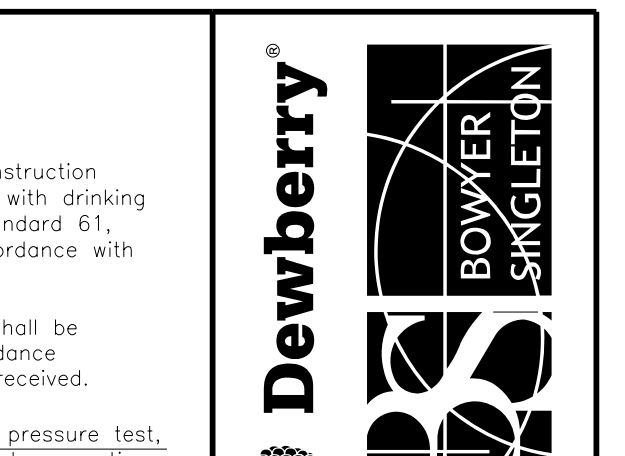
1. Test Pressure 150 psig

2. Minimum Pipe Depth 3 feet

3. Type 3 Laying Condition

4. Factor of Safety = 2.0

1. Test Pressure 150 psig



FLORIDA

CITY OF GROVELAND RECLAIM DETAILS

REVISED CONSTRUCTION DOCUMENTS - PHASE 3

CORPORATE OFFICE - 320 SOUTH MAGNOLIA AVENUE - ORLANDO, FLORIDA 32801

407-843-5120 - ENGINEERING BUSINESS - 8794

half size btl

3/10/2015

REVISIONS

DESCRIPTION

DATE

BY

DATE

BY

DATE

BY

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