

# SITE DEVELOPMENT PLANS

FOR

# MURANO AT THREE OAKS

PART OF SECTION 10, TOWNSHIP 46 SOUTH, RANGE 25 EAST  
FORT MYERS, LEE COUNTY, FLORIDA

## PROJECT DATA

<b>SITE ADDRESS</b> THREE OAKS PARKWAY FORT MYERS, FL 33967	<b>PROJECT DATUM</b> STATE PLANE FLORIDA WEST ZONE (NAD1983 (NSRS 2007)) NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 CONVERSION: NGVD 1929 MINUS 1.15' = NAVD 1988
<b>ZONING</b> CURRENT: CPD	<b>RECORD PLAT</b> PENDING
<b>FLOOD ZONE</b> ACCORDING TO F.I.R.M. NO. 12071C0581F, MAP REVISED: AUGUST 28, 2008, THE PROPERTY IS LOCATED IN FLOOD ZONE "X"	<b>STRAP NUMBERS</b> 10-46-25-00-00001.1000

## PERMIT REQUIREMENTS

AGENCY	STATUS	NOTES
S. FLORIDA WATER MANAGEMENT DISTRICT	PENDING	36-02476-S-03
LEE COUNTY DEVELOPMENT ORDER	PENDING	-
FLORIDA DEPARTMENT OF HEALTH	PENDING	-
FLORIDA DEPT. OF ENVIRONMENTAL PROTECTION	PENDING	-
F.D.O.T. CONNECTION PERMIT	NA	-
F.D.O.T. DRAINAGE CONNECTION PERMIT	PENDING	-
F.D.O.T. UTILITY PERMIT	NA	-
ARMY CORPS OF ENGINEERS	NA	-
F.D.E.P. NOTICE OF INTENT	PENDING	-

NOTE: CONTRACTOR MUST OBTAIN AND KEEP ON FILE A COPY OF ALL PERMITS  
REQUIRED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY

## DESIGN TEAM

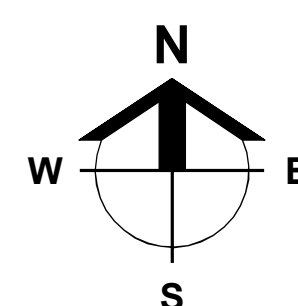
<b>PROJECT ENGINEER</b> CARL A. BARRACO JR., P.E.	<b>PROJECT MANAGEMENT</b> STEVE COLEMAN
<b>DESIGN ENGINEER</b> JEFF WASKO, E.I.	<b>PROJECT SURVEYOR</b> SCOTT A. WHEELER, PSM
<b>LEAD DESIGN TECHNICIAN</b> JAN BILDZUKEWICZ	<b>SITE PLANNING</b> JENNIFER SAPEN, AICP
<b>DESIGN STAFF</b> WILLIAM SCOTT ENGLISH	<b>LAND PLANNING</b> JENNIFER SAPEN, AICP
<b>QUALITY CONTROL</b>	<b>RECORD DRAWINGS</b> PENDING

THESE PLANS MAY HAVE BEEN MODIFIED IN SIZE BY REPRODUCTION.  
THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

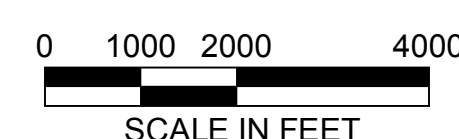
ALL DIMENSIONS ARE IN FEET.



PROJECT  
LOCATION



LOCATION MAP



SCALE IN FEET



## INDEX OF DRAWINGS

SHEET	DESCRIPTION	XREF	DRAWING NAME
C1.0	COVER SHEET AND LOCATION MAP	-	23647A01.DWG
C2.0	STANDARD NOTES, LEGEND, AND ABBREVIATIONS	-	23647A02.DWG
C3.0	AERIAL PHOTOGRAPH AND EXISTING CONDITIONS PLAN	C	23647A06.DWG
C4.0	OVERALL MASTER SITE PLAN	A,C	23647A10.DWG
C4.1	MASTER SITE LAYOUT, SIGNING, AND PHASING PLAN	A,C	23647A10A.DWG
C5.0	MASTER DRAINAGE PLAN	A,C	23647A11.DWG
C6.0	MASTER UTILITY PLAN	A,C	23647A12.DWG
C7.0-C7.3	DETAILED PAVING, GRADING, AND DRAINAGE PLANS	A,C	23647A15.DWG
C8.0-C8.3	TYPICAL SECTIONS AND DETAILS	-	23647A18.DWG
C9.0	PLAN AND PROFILE KEY SHEET	A,C	23647A29.DWG
C10.0	PLAN AND PROFILE	A,B,C	23647A30A.DWG
C11.0	PLAN AND PROFILE	A,B,C	23647A30B.DWG
C12.0	PLAN AND PROFILE	A,B,C	23647A30C.DWG
C13.0	PLAN AND PROFILE	A,B,C	23647A30D.DWG
C14.0	PLAN AND PROFILE	A,B,C	23647A30E.DWG
C15.0-C15.1	PLAN AND PROFILE - THREE OAKS PARKWAY	A,B,C	23647A30F.DWG
C16.0	DRAINAGE DETAILS	-	23647A44.DWG
C17.0	EROSION CONTROL DETAILS	-	23647A50.DWG
C18.0	STORMWATER POLLUTION PREVENTION PLAN	A,C	23647A52.DWG
C19.0-C19.3	UTILITY DETAILS	-	23647A70.DWG
C19.4-C19.5	LIFT STATION 7895 DETAILS	-	23647A70.DWG

## CROSS-REFERENCED DRAWINGS:

XREF	DESCRIPTION	DRAWING NAME
A	BASE LINEWORK PLAN	23647A00.DWG
B	PROFILE BASE PLAN	23647A00P.DWG
C	SURVEY LINEWORK PLAN	23329S00.DWG

PLAN STATUS

**BID PLANS**  
2019-01-17  
**NOT FOR CONSTRUCTION**

**Barraco**  
and Associates, Inc.

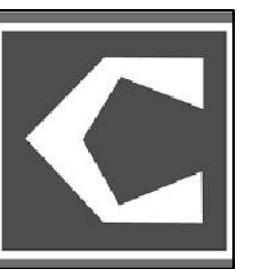
CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING

www.barraco.net

2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

WWW.COURTELIS.COM

PROJECT DESCRIPTION

**MURANO**  
**AT THREE OAKS**

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME 23647A01.DWG

LOCATION J:\23647\DWG\DOI

PLOT DATE THU, 1-17-2019 - 4:03 PM

PLOT BY JAN BILDZUKEWICZ

CROSS REFERENCED DRAWINGS

MASTER = BAI-COVER-1.DWG

PLAN REVISIONS

PLAN STATUS

BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**COVER SHEET**  
**AND**  
**LOCATION MAP**

PROJECT / FILE NO.

**23647**

SHEET NUMBER

**C1.0**





# Barraco and Associates, Inc.

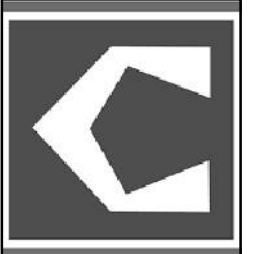
CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING

[www.barraco.net](http://www.barraco.net)

2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

## MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARLJR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A06.DWG

LOCATION = J:\23647\DWG\DOI

PLOT DATE = THU, 1-17-2019 - 4:04 PM

PLOT BY = JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

BASEPLAN = 23647A00.DWG

PLAN REVISIONS

NO.	DATE	DESCRIPTION

PLAN STATUS

BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

### AERIAL PHOTOGRAPH AND EXISTING CONDITIONS PLAN

PROJECT / FILE NO. SHEET NUMBER

**23647 C3.0**

**CPD REQUIRED OPEN SPACE & INDIGENOUS**

USE	AREA	RATE	REQUIRED OPEN SPACE	REQUIRED INDIGENOUS
COMMERCIAL	34.7 AC	30%	10.4 AC	5.2 AC
MULTIFAMILY	17.7 AC	40%	7.1 AC	3.5 AC
TOTAL:			17.5 AC	8.7 AC

**CPD PROVIDED OPEN SPACE**

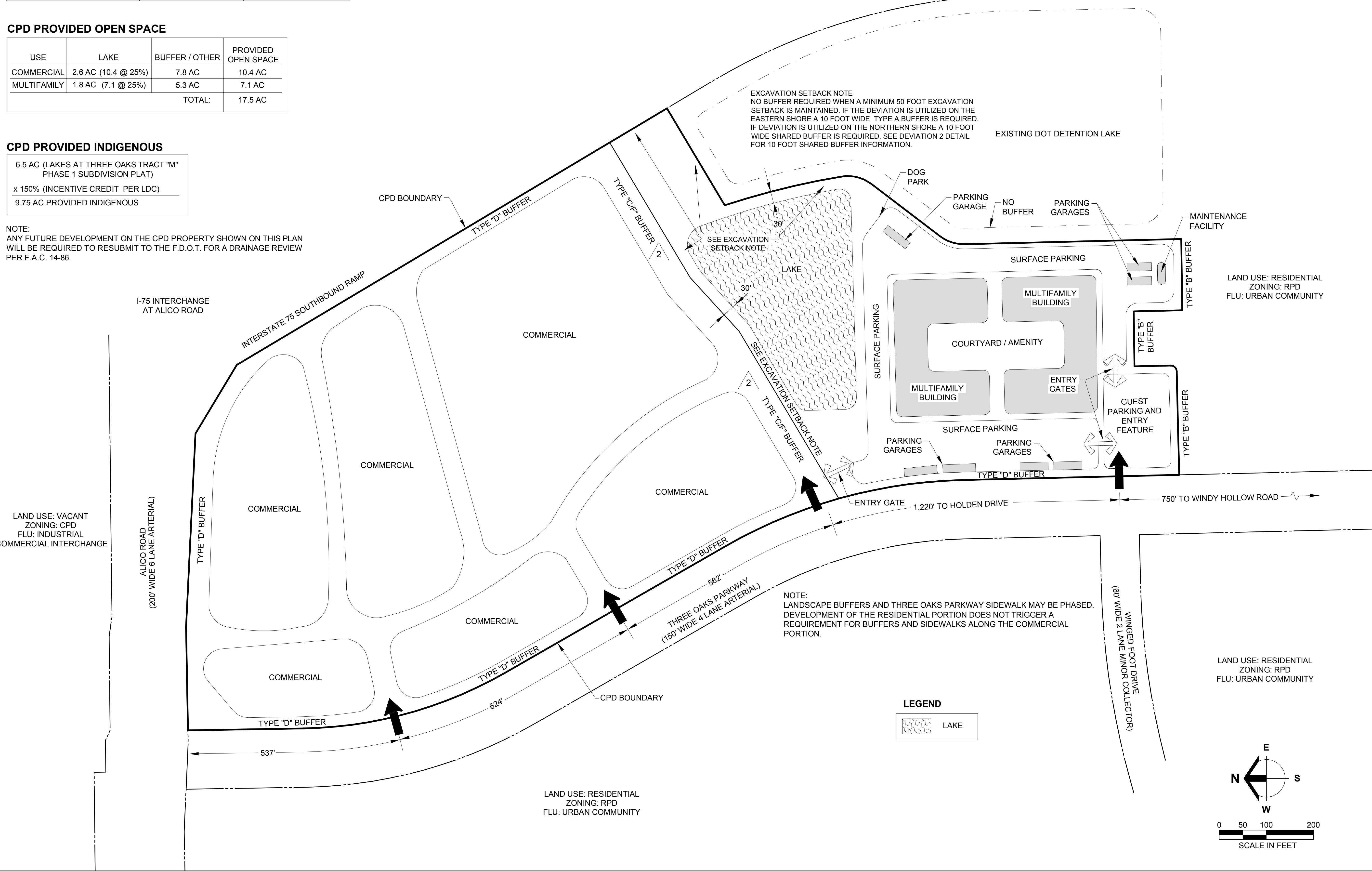
USE	LAKE	BUFFER / OTHER	PROVIDED OPEN SPACE
COMMERCIAL	2.6 AC (10.4 @ 25%)	7.8 AC	10.4 AC
MULTIFAMILY	1.8 AC (7.1 @ 25%)	5.3 AC	7.1 AC
TOTAL:			17.5 AC

**CPD PROVIDED INDIGENOUS**

6.5 AC (LAKES AT THREE OAKS TRACT "M" PHASE 1 SUBDIVISION PLAT)  
 x 150% (INCENTIVE CREDIT PER LDC)  
 9.75 AC PROVIDED INDIGENOUS

NOTE:  
 ANY FUTURE DEVELOPMENT ON THE CPD PROPERTY SHOWN ON THIS PLAN WILL BE REQUIRED TO RESUBMIT TO THE F.D.O.T. FOR A DRAINAGE REVIEW PER F.A.C. 14-86.

LAND USE: COMMERCIAL  
 (GULF COAST TOWN CENTER)  
 ZONING: CPD  
 FLU: UNIVERSITY  
 VILLAGE INTERCHANGE



**Barraco and Associates, Inc.**  
 CIVIL ENGINEERING - LAND SURVEYING  
 LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
 2271 MCGREGOR BLVD., SUITE 100  
 POST OFFICE DRAWER 2800  
 FORT MYERS, FLORIDA 33902-2800  
 PHONE (239) 461-3170  
 FAX (239) 461-3169  
 FLORIDA CERTIFICATES OF AUTHORIZATION  
 ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR  
  
 COURTELIS COMPANY  
 703 WATERFORD WAY  
 SUITE 800  
 MIAMI, FLORIDA 33126-4677  
 PHONE (305) 261-4330  
 FAX (305) 261-4338  
 WWW.COURTELIS.COM

PROJECT DESCRIPTION  
**MURANO AT THREE OAKS**  
 LAND USE: RESIDENTIAL  
 ZONING: RPD  
 FLU: URBAN COMMUNITY  
 LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
 CARL A. BARRACO, JR., P.E., FOR THE FIRM  
 FLORIDA P.E. NO. 81259 - CARLJR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
 © COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
 REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED.

FILE NAME	J:\23647\DWG\DO
LOCATION	J:\23647\DWG\DO
PLOT DATE	THU, 1-17-2019 - 4:04 PM
PLOT BY	JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS  
 BASEPLAN = 23647-200.DWG

PLAN REVISIONS

PLAN STATUS  
 BID PLANS  
 2019-01-17  
 NOT FOR CONSTRUCTION

**OVERALL MASTER SITE PLAN**

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C4.0</b>



# MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A10A.DWG

LOCATION = J:\23647\DWG\DO

PLOT DATE = THU, 1-17-2019 - 4:05 PM

PLOT BY = JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

BASEPLAN = 23647A00.DWG

SURVEY = 23329500.DWG

PLAN REVISIONS

PLAN STATUS

BID PLANS

2019-01-17

NOT FOR CONSTRUCTION

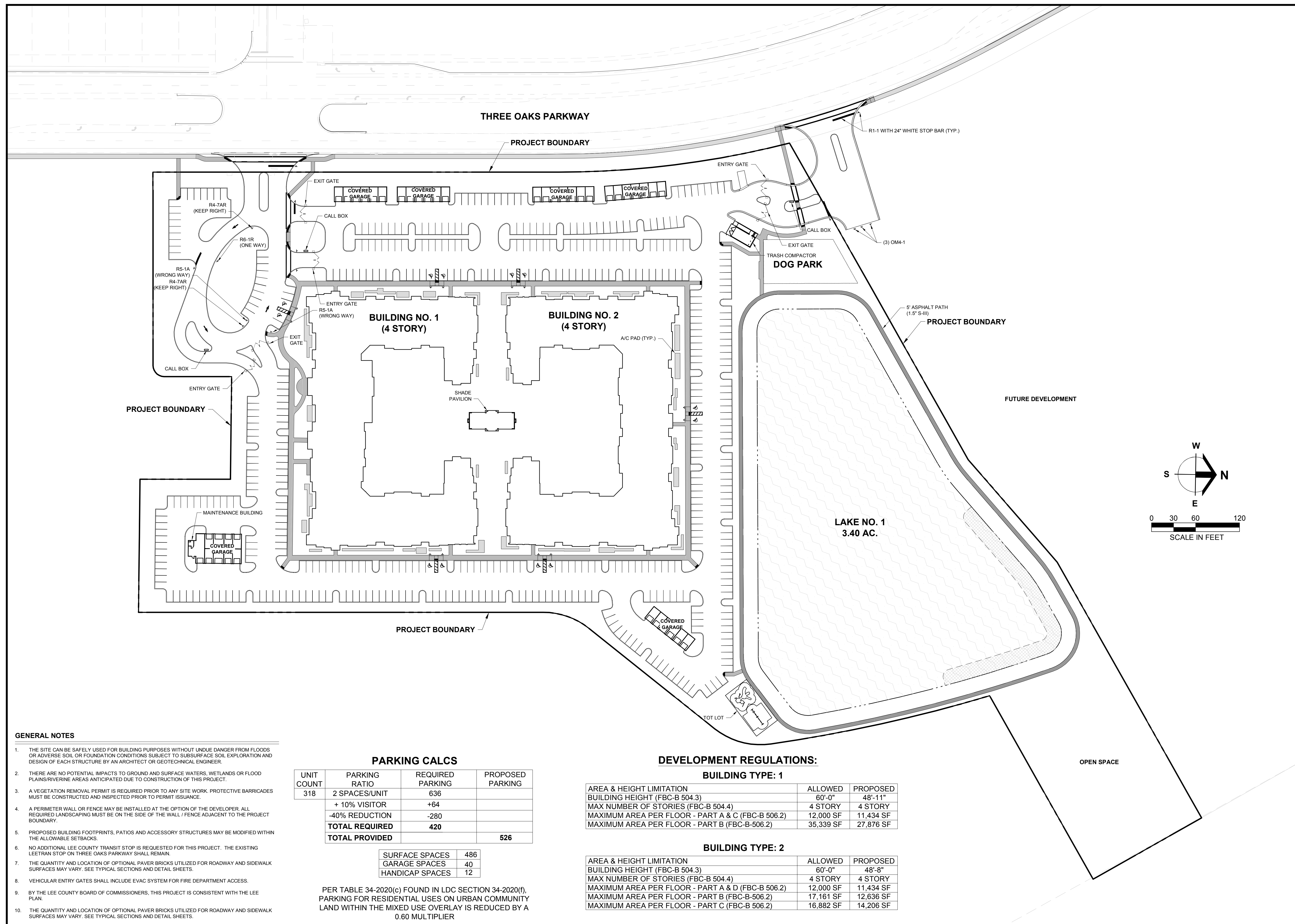
## MASTER SITE LAYOUT, SIGNING, AND PHASING PLAN

PROJECT / FILE NO.

SHEET NUMBER

23647

C4.1



**GENERAL NOTES**

- THE SITE CAN BE SAFELY USED FOR BUILDING PURPOSES WITHOUT UNDUE DANGER FROM FLOODS OR ADVERSE SOIL OR FOUNDATION CONDITIONS SUBJECT TO SUBSURFACE SOIL EXPLORATION AND DESIGN OF EACH STRUCTURE BY AN ARCHITECT OR GEOTECHNICAL ENGINEER.
- THERE ARE NO POTENTIAL IMPACTS TO GROUND AND SURFACE WATERS, WETLANDS OR FLOOD PLAINS/RIVERINE AREAS ANTICIPATED DUE TO CONSTRUCTION OF THIS PROJECT.
- A VEGETATION REMOVAL PERMIT IS REQUIRED PRIOR TO ANY SITE WORK. PROTECTIVE BARRICADES MUST BE CONSTRUCTED AND INSPECTED PRIOR TO PERMIT ISSUANCE.
- A PERIMETER WALL OR FENCE MAY BE INSTALLED AT THE OPTION OF THE DEVELOPER. ALL REQUIRED LANDSCAPING MUST BE ON THE SIDE OF THE WALL / FENCE ADJACENT TO THE PROJECT BOUNDARY.
- PROPOSED BUILDING FOOTPRINTS, PATIOS AND ACCESSORY STRUCTURES MAY BE MODIFIED WITHIN THE ALLOWABLE SETBACKS.
- NO ADDITIONAL LEE COUNTY TRANSIT STOP IS REQUESTED FOR THIS PROJECT. THE EXISTING LEETRAN STOP ON THREE OAKS PARKWAY SHALL REMAIN.
- THE QUANTITY AND LOCATION OF OPTIONAL PAVER BRICKS UTILIZED FOR ROADWAY AND SIDEWALK SURFACES MAY VARY. SEE TYPICAL SECTIONS AND DETAIL SHEETS.
- VEHICULAR ENTRY GATES SHALL INCLUDE EVAC SYSTEM FOR FIRE DEPARTMENT ACCESS.
- BY THE LEE COUNTY BOARD OF COMMISSIONERS, THIS PROJECT IS CONSISTENT WITH THE LEE PLAN.
- THE QUANTITY AND LOCATION OF OPTIONAL PAVER BRICKS UTILIZED FOR ROADWAY AND SIDEWALK SURFACES MAY VARY. SEE TYPICAL SECTIONS AND DETAIL SHEETS.

**PARKING CALCS**

UNIT COUNT	PARKING RATIO	REQUIRED PARKING	PROPOSED PARKING
318	2 SPACES/UNIT	636	
	+ 10% VISITOR	+64	
	-40% REDUCTION	-280	
	<b>TOTAL REQUIRED</b>	<b>420</b>	
	<b>TOTAL PROVIDED</b>		<b>526</b>

SURFACE SPACES	486
GARAGE SPACES	40
HANDICAP SPACES	12

PER TABLE 34-2020(c) FOUND IN LDC SECTION 34-2020(f), PARKING FOR RESIDENTIAL USES ON URBAN COMMUNITY LAND WITHIN THE MIXED USE OVERLAY IS REDUCED BY A 0.60 MULTIPLIER

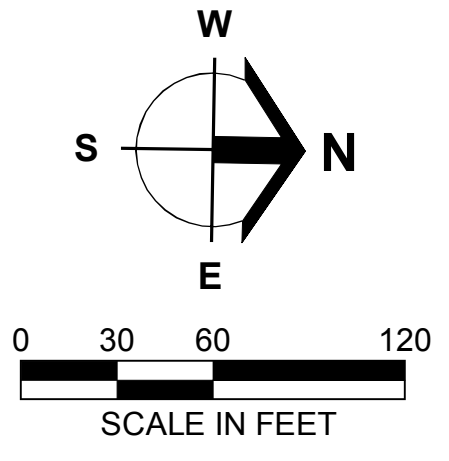
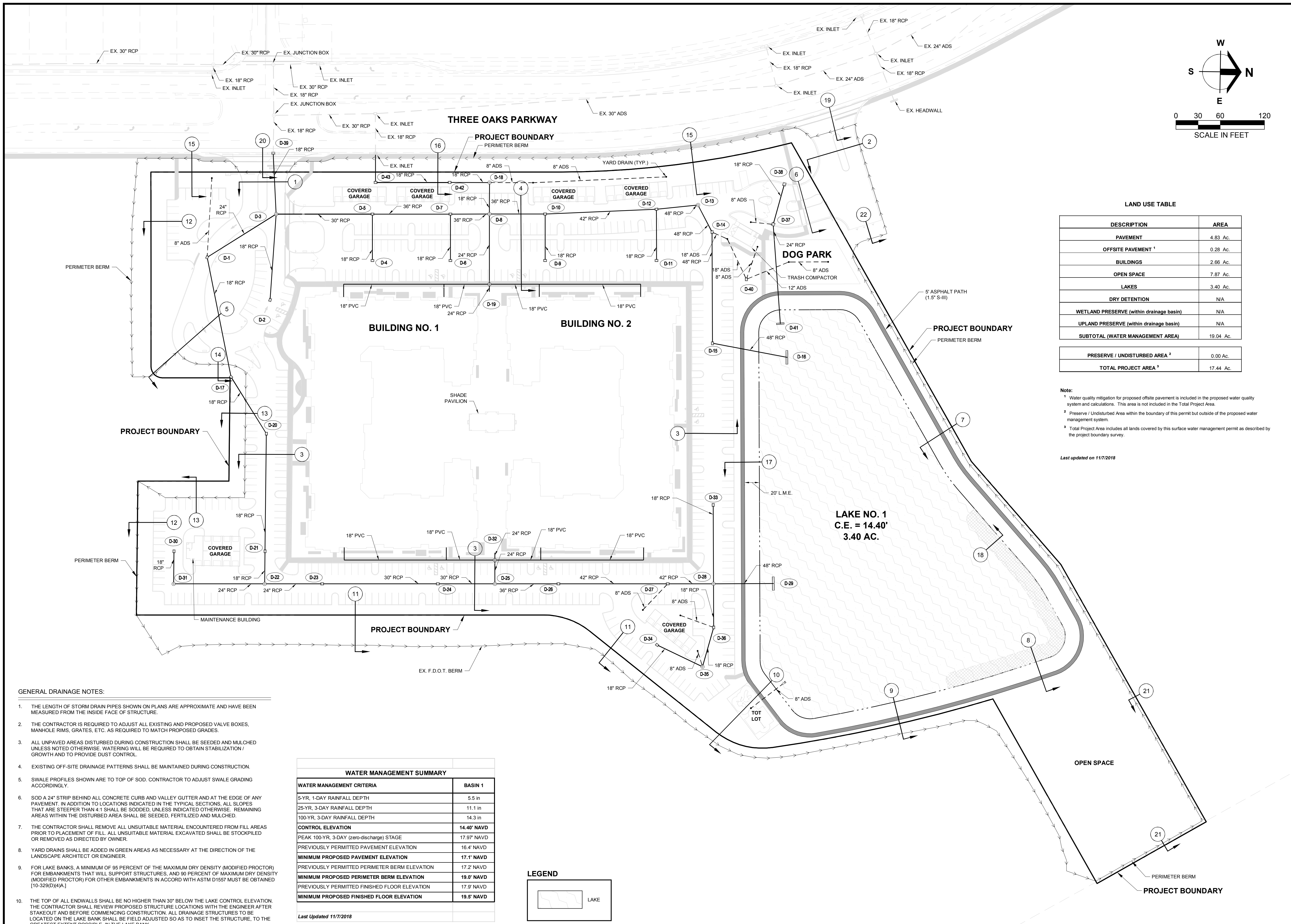
**DEVELOPMENT REGULATIONS:**

**BUILDING TYPE: 1**

AREA & HEIGHT LIMITATION	ALLOWED	PROPOSED
BUILDING HEIGHT (FBC-B 504.3)	60'-0"	48'-11"
MAX NUMBER OF STORIES (FBC-B 504.4)	4 STORY	4 STORY
MAXIMUM AREA PER FLOOR - PART A & C (FBC-B 506.2)	12,000 SF	11,434 SF
MAXIMUM AREA PER FLOOR - PART B (FBC-B-506.2)	35,339 SF	27,876 SF

**BUILDING TYPE: 2**

AREA & HEIGHT LIMITATION	ALLOWED	PROPOSED
BUILDING HEIGHT (FBC-B 504.3)	60'-0"	48'-8"
MAX NUMBER OF STORIES (FBC-B 504.4)	4 STORY	4 STORY
MAXIMUM AREA PER FLOOR - PART A & D (FBC-B 506.2)	12,000 SF	11,434 SF
MAXIMUM AREA PER FLOOR - PART B (FBC-B-506.2)	17,161 SF	12,636 SF
MAXIMUM AREA PER FLOOR - PART C (FBC-B 506.2)	16,882 SF	14,206 SF



**LAND USE TABLE**

DESCRIPTION	AREA
PAVEMENT	4.83 Ac.
OFFSITE PAVEMENT <sup>1</sup>	0.28 Ac.
BUILDINGS	2.66 Ac.
OPEN SPACE	7.87 Ac.
LAKES	3.40 Ac.
DRY DETENTION	N/A
WETLAND PRESERVE (within drainage basin)	N/A
UPLAND PRESERVE (within drainage basin)	N/A
<b>SUBTOTAL (WATER MANAGEMENT AREA)</b>	<b>19.04 Ac.</b>
<b>PRESERVE / UNDISTURBED AREA <sup>2</sup></b>	<b>0.00 Ac.</b>
<b>TOTAL PROJECT AREA <sup>3</sup></b>	<b>17.44 Ac.</b>

**Note:**  
<sup>1</sup> Water quality mitigation for proposed offsite pavement is included in the proposed water quality system and calculations. This area is not included in the Total Project Area.  
<sup>2</sup> Preserve / Undisturbed Area within the boundary of this permit but outside of the proposed water management system.  
<sup>3</sup> Total Project Area includes all lands covered by this surface water management permit as described by the project boundary survey.

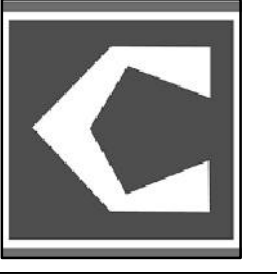
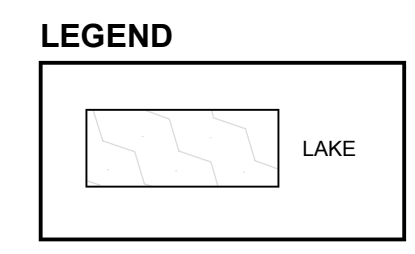
Last updated on 11/7/2018

- GENERAL DRAINAGE NOTES:**
- THE LENGTH OF STORM DRAIN PIPES SHOWN ON PLANS ARE APPROXIMATE AND HAVE BEEN MEASURED FROM THE INSIDE FACE OF STRUCTURE.
  - THE CONTRACTOR IS REQUIRED TO ADJUST ALL EXISTING AND PROPOSED VALVE BOXES, MANHOLE RIMS, GRATES, ETC. AS REQUIRED TO MATCH PROPOSED GRADES.
  - ALL UNPAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED AND MULCHED UNLESS NOTED OTHERWISE. WATERING WILL BE REQUIRED TO OBTAIN STABILIZATION / GROWTH AND TO PROVIDE DUST CONTROL.
  - EXISTING OFF-SITE DRAINAGE PATTERNS SHALL BE MAINTAINED DURING CONSTRUCTION.
  - SWALE PROFILES SHOWN ARE TO TOP OF SOD. CONTRACTOR TO ADJUST SWALE GRADING ACCORDINGLY.
  - SOD A 24" STRIP BEHIND ALL CONCRETE CURBS AND VALLEY GUTTER AND AT THE EDGE OF ANY PAVEMENT. IN ADDITION TO LOCATIONS INDICATED IN THE TYPICAL SECTIONS, ALL SLOPES THAT ARE STEEPER THAN 4:1 SHALL BE SODDED, UNLESS INDICATED OTHERWISE. REMAINING AREAS WITHIN THE DISTURBED AREA SHALL BE SEEDED, FERTILIZED AND MULCHED.
  - THE CONTRACTOR SHALL REMOVE ALL UNSUITABLE MATERIAL ENCOUNTERED FROM FILL AREAS PRIOR TO PLACEMENT OF FILL. ALL UNSUITABLE MATERIAL EXCAVATED SHALL BE STOCKPILED OR REMOVED AS DIRECTED BY OWNER.
  - YARD DRAINS SHALL BE ADDED IN GREEN AREAS AS NECESSARY AT THE DIRECTION OF THE LANDSCAPE ARCHITECT OR ENGINEER.
  - FOR LAKE BANKS, A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY (MODIFIED PROCTOR) FOR EMBANKMENTS THAT WILL SUPPORT STRUCTURES, AND 90 PERCENT OF MAXIMUM DRY DENSITY (MODIFIED PROCTOR) FOR OTHER EMBANKMENTS IN ACCORD WITH ASTM D1557 MUST BE OBTAINED [10-329D(4)A].
  - THE TOP OF ALL ENDWALLS SHALL BE NO HIGHER THAN 30" BELOW THE LAKE CONTROL ELEVATION. THE CONTRACTOR SHALL REVIEW PROPOSED STRUCTURE LOCATIONS WITH THE ENGINEER AFTER STAKEOUT AND BEFORE COMMENCING CONSTRUCTION. ALL DRAINAGE STRUCTURES TO BE LOCATED ON THE LAKE BANK SHALL BE FIELD ADJUSTED SO AS TO INSET THE STRUCTURE, TO THE GREATEST EXTENT POSSIBLE, IN THE LAKE BANK.

**WATER MANAGEMENT SUMMARY**

WATER MANAGEMENT CRITERIA	BASIN 1
5-YR, 1-DAY RAINFALL DEPTH	5.5 in
25-YR, 3-DAY RAINFALL DEPTH	11.1 in
100-YR, 3-DAY RAINFALL DEPTH	14.3 in
<b>CONTROL ELEVATION</b>	<b>14.40' NAVD</b>
PEAK 100-YR, 3-DAY (zero-discharge) STAGE	17.97' NAVD
PREVIOUSLY PERMITTED PAVEMENT ELEVATION	16.4' NAVD
<b>MINIMUM PROPOSED PAVEMENT ELEVATION</b>	<b>17.1' NAVD</b>
PREVIOUSLY PERMITTED PERIMETER BERM ELEVATION	17.2' NAVD
<b>MINIMUM PROPOSED PERIMETER BERM ELEVATION</b>	<b>19.0' NAVD</b>
PREVIOUSLY PERMITTED FINISHED FLOOR ELEVATION	17.0' NAVD
<b>MINIMUM PROPOSED FINISHED FLOOR ELEVATION</b>	<b>19.5' NAVD</b>

Last Updated 11/7/2018



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
WWW.COURTELIS.COM

**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A11.DWG  
LOCATION = J:\23647\DWG\DOI  
PLOT DATE = THU, 1-17-2019 - 4:06 PM  
PLOT BY = JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
SURVEY = 23329S00.DWG

PLAN REVISIONS

NO.	DESCRIPTION

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**MASTER DRAINAGE PLAN**

PROJECT / FILE NO. **23647** SHEET NUMBER **C5.0**



# MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A12.DWG

LOCATION = J:\23647\DWG\DOI

PLOT DATE = THU, 1-17-2019 - 4:06 PM

PLOT BY = JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

BASEPLAN = 23647A00.DWG

SURVEY = 23329500.DWG

PLAN REVISIONS

PLAN STATUS

BID PLANS

2019-01-17

NOT FOR CONSTRUCTION

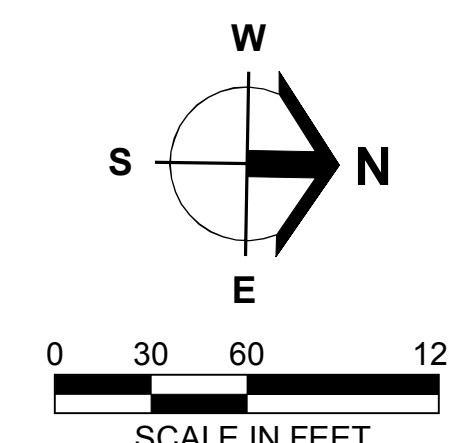
## MASTER UTILITY PLAN

PROJECT / FILE NO.

SHEET NUMBER

**23647**

**C6.0**

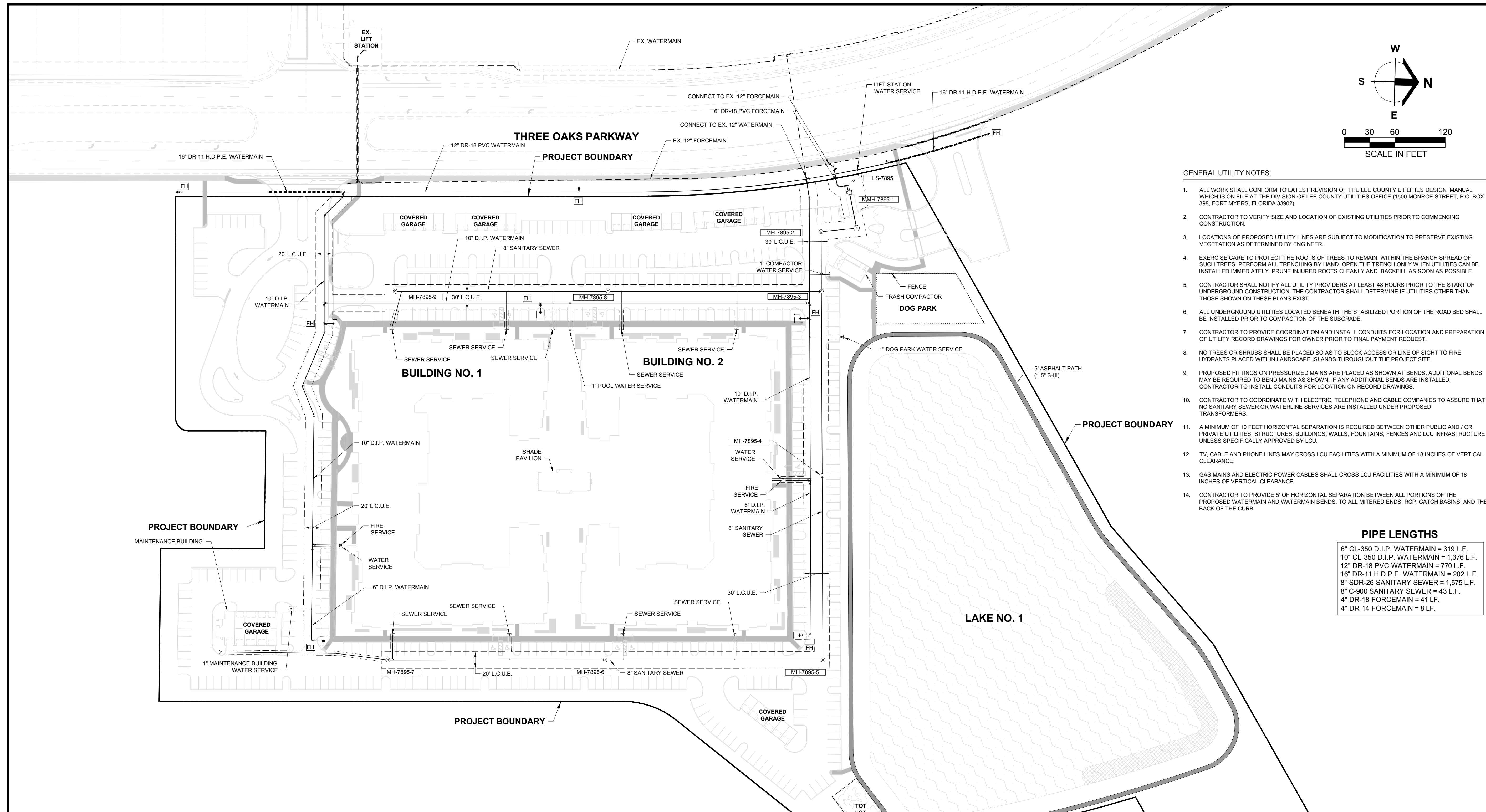


**GENERAL UTILITY NOTES:**

- ALL WORK SHALL CONFORM TO LATEST REVISION OF THE LEE COUNTY UTILITIES DESIGN MANUAL WHICH IS ON FILE AT THE DIVISION OF LEE COUNTY UTILITIES OFFICE (1500 MONROE STREET, P.O. BOX 398, FORT MYERS, FLORIDA 33902).
- CONTRACTOR TO VERIFY SIZE AND LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
- LOCATIONS OF PROPOSED UTILITY LINES ARE SUBJECT TO MODIFICATION TO PRESERVE EXISTING VEGETATION AS DETERMINED BY ENGINEER.
- EXERCISE CARE TO PROTECT THE ROOTS OF TREES TO REMAIN. WITHIN THE BRANCH SPREAD OF SUCH TREES, PERFORM ALL TRENCHING BY HAND. OPEN THE TRENCH ONLY WHEN UTILITIES CAN BE INSTALLED IMMEDIATELY. PRUNE INJURED ROOTS CLEANLY AND BACKFILL AS SOON AS POSSIBLE.
- CONTRACTOR SHALL NOTIFY ALL UTILITY PROVIDERS AT LEAST 48 HOURS PRIOR TO THE START OF UNDERGROUND CONSTRUCTION. THE CONTRACTOR SHALL DETERMINE IF UTILITIES OTHER THAN THOSE SHOWN ON THESE PLANS EXIST.
- ALL UNDERGROUND UTILITIES LOCATED BENEATH THE STABILIZED PORTION OF THE ROAD BED SHALL BE INSTALLED PRIOR TO COMPACTION OF THE SUBGRADE.
- CONTRACTOR TO PROVIDE COORDINATION AND INSTALL CONDUITS FOR LOCATION AND PREPARATION OF UTILITY RECORD DRAWINGS FOR OWNER PRIOR TO FINAL PAYMENT REQUEST.
- NO TREES OR SHRUBS SHALL BE PLACED SO AS TO BLOCK ACCESS OR LINE OF SIGHT TO FIRE HYDRANTS PLACED WITHIN LANDSCAPE ISLANDS THROUGHOUT THE PROJECT SITE.
- PROPOSED FITTINGS ON PRESSURIZED MAINS ARE PLACED AS SHOWN AT BENDS. ADDITIONAL BENDS MAY BE REQUIRED TO BEND MAINS AS SHOWN. IF ANY ADDITIONAL BENDS ARE INSTALLED, CONTRACTOR TO INSTALL CONDUITS FOR LOCATION ON RECORD DRAWINGS.
- CONTRACTOR TO COORDINATE WITH ELECTRIC, TELEPHONE AND CABLE COMPANIES TO ASSURE THAT NO SANITARY SEWER OR WATERLINE SERVICES ARE INSTALLED UNDER PROPOSED TRANSFORMERS.
- A MINIMUM OF 10 FEET HORIZONTAL SEPARATION IS REQUIRED BETWEEN OTHER PUBLIC AND / OR PRIVATE UTILITIES, STRUCTURES, BUILDINGS, WALLS, FOUNTAINS, FENCES AND LCU INFRASTRUCTURE UNLESS SPECIFICALLY APPROVED BY LCU.
- GAS MAINS AND ELECTRIC POWER CABLES SHALL CROSS LCU FACILITIES WITH A MINIMUM OF 18 INCHES OF VERTICAL CLEARANCE.
- CONTRACTOR TO PROVIDE 5' OF HORIZONTAL SEPARATION BETWEEN ALL PORTIONS OF THE PROPOSED WATERMAIN AND WATERMAIN BENDS, TO ALL MITERED ENDS, RCP, CATCH BASINS, AND THE BACK OF THE CURB.

**PIPE LENGTHS**

6" CL-350 D.I.P. WATERMAIN = 319 L.F.  
10" CL-350 D.I.P. WATERMAIN = 1,376 L.F.  
12" DR-18 PVC WATERMAIN = 770 L.F.  
16" DR-11 H.D.P.E. WATERMAIN = 202 L.F.  
8" SDR-26 SANITARY SEWER = 1,575 L.F.  
8" C-900 SANITARY SEWER = 43 L.F.  
4" DR-18 FORCEMAIN = 41 L.F.  
4" DR-14 FORCEMAIN = 8 L.F.



**SANITARY SEWER NOTES:**

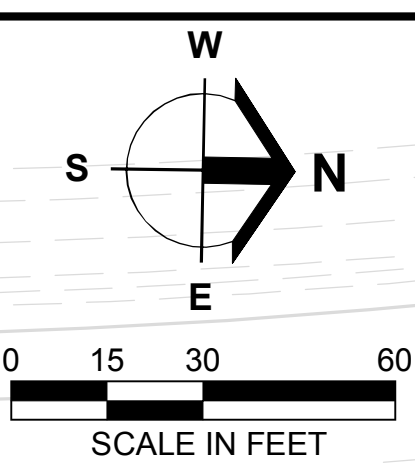
- CONTRACTOR TO VERIFY INVERT ELEVATION AND LOCATION OF EXISTING SANITARY SEWER MANHOLES OR FORCEMANS PRIOR TO COMMENCING CONSTRUCTION.
- ALL GRAVITY SEWER LINES SHALL BE PVC (SDR-26), GREEN IN COLOR, UNLESS NOTED OTHERWISE WITH A MINIMUM COVER OF 48".
- ALL SEWER PIPE LENGTHS ARE APPROXIMATE AND ARE MEASURED FROM THE CENTER OF STRUCTURE.
- MANHOLE TOP ELEVATIONS ARE APPROXIMATE AND SHOULD BE ADJUSTED TO FINAL GRADE OR PAVEMENT ELEVATION.
- ALL SANITARY SEWER SERVICE INVERTS TO BE PLACED A MINIMUM OF 30" BELOW BACK OF CURB (MIN. 1% SLOPE FROM MAIN) TYPICAL UNLESS IN CONFLICT WITH WATERLINE. MAINTAIN MINIMUM 6" CLEARANCE UNDER POTABLE WATERLINE.
- ALL SANITARY SEWER FORCE MAINS 4" TO 12" SHALL BE PVC C-900, DR-18 CLASS 150 MINIMUM UNLESS NOTED OTHERWISE, WITH A MINIMUM COVER OF 30". ALL SANITARY SEWER FORCE MAINS 4" TO 12", UNDER PAVEMENT, SHALL BE PVC DR-14 WITH A MINIMUM COVER OF 36".
- DEFLECTION TESTING IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS FOR GRAVITY SEWER MAY NOT BE UNDERTAKEN UNTIL 30 DAYS AFTER FINAL BACK FILLING OF THE TRENCH IS COMPLETE.
- NO GRAVITY SEWER DEFLECTION MAY EXCEED THE MAXIMUM PROVIDED IN THE TECHNICAL SPECIFICATIONS OR 5%, WHICHEVER IS LESS.
- ALL GRAVITY SEWER MAINS SHALL BE TESTED WITH A MANDREL, WITH A DIAMETER OF NOT LESS THAN 95% OF THE INSIDE PIPE DIAMETER. MANDREL TESTS MUST BE PERFORMED WITHOUT USE OF MECHANICAL DEVICES.
- ALL SEWER LATERALS SHALL CONNECT TO THE SEWER MAIN AT LEAST 5' FROM THE MANHOLE. NO SEWER LATERALS SHALL DIRECTLY CONNECT TO A MANHOLE.

**WATERLINE NOTES:**

- THE ENDS OF ALL CAPPED POTABLE WATERLINES SHALL BE MARKED WITH ELECTRONIC MARKERS AND 2x4' STAKES 5' IN LENGTH WITH 2" ABOVE GROUND.
- ALL WATERLINES SHALL HAVE A MINIMUM COVER OF 30" AND A MAXIMUM COVER OF 48"
- PROPOSED PIPE FITTINGS ARE SHOWN AT BENDS IN WATERLINE. ADDITIONAL FITTINGS MAY BE REQUIRED TO BEND WATERLINE AS SHOWN.
- THE CONTRACTOR SHALL PLACE PROPOSED VALVES AS SHOWN.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL BLUE REFLECTIVE PAVEMENT MARKERS AS REQUIRED NEAR PROPOSED FIRE HYDRANTS.

**UTILITIES PROVIDING SERVICE:**

POTABLE WATER LEE COUNTY UTILITIES 1500 MONROE STREET FORT MYERS, FLORIDA 33902 PHONE (239) 533-8181	FIRE CONTROL DISTRICT SAN CARLOS PARK FIRE DEPT. STATION 51 8013 SANIBEL BLVD. FT MYERS, FLORIDA 33967 PHONE (239) 267-7525 CABLE TELEVISION	TELEPHONE CENTURYLINK 5100 DANIELS PKWY #300 FORT MYERS, FLORIDA 33912 PHONE (239) 590-0440	GARBAGE COLLECTION WASTE PRO 13110 RICKENBACKER PKWY FORT MYERS, FLORIDA 33913 PHONE (239) 337-0300
SANITARY SEWER LEE COUNTY UTILITIES 1500 MONROE STREET FORT MYERS, FLORIDA 33902 PHONE (239) 533-8181	COMCAST 12641 CORPORATE LAKES DR. FORT MYERS, FLORIDA 33913 PHONE (239) 432-9277	ELECTRIC FLORIDA POWER AND LIGHT COMPANY 26430 OLD U.S. 41 ROAD BONITA SPRINGS, FLORIDA 34135 PHONE (239) 947-7361	IRRIGATION PRIVATE

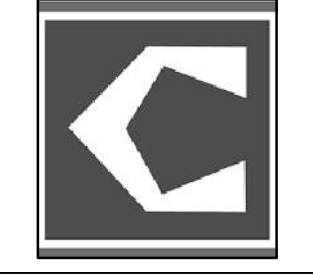


# Barraco and Associates, Inc.

CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

## MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: 23647A15.DWG  
LOCATION: J:\23647\DWG\DWG  
PLOT DATE: THU, 1-17-2019 - 4:07 PM  
PLOT BY: JAN BILDZUKIEWICZ

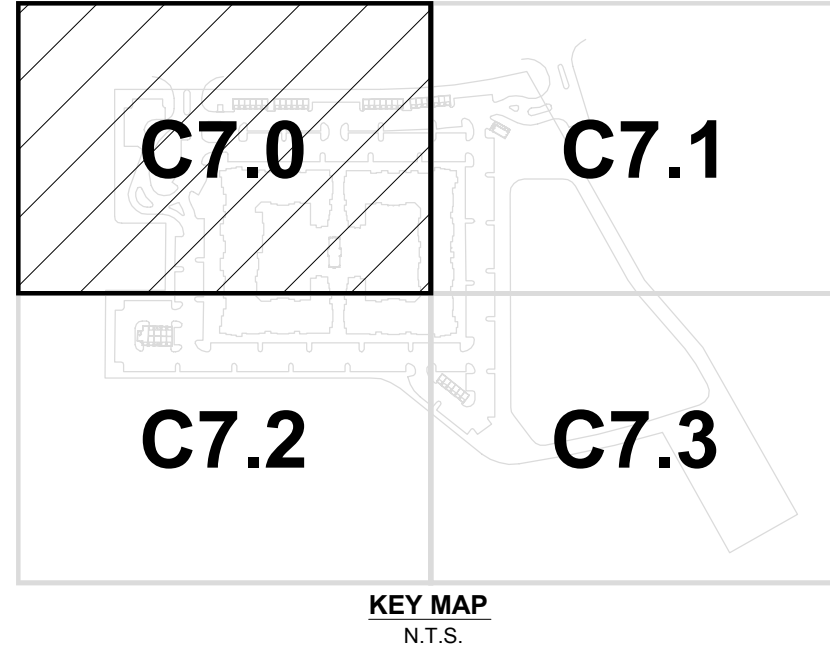
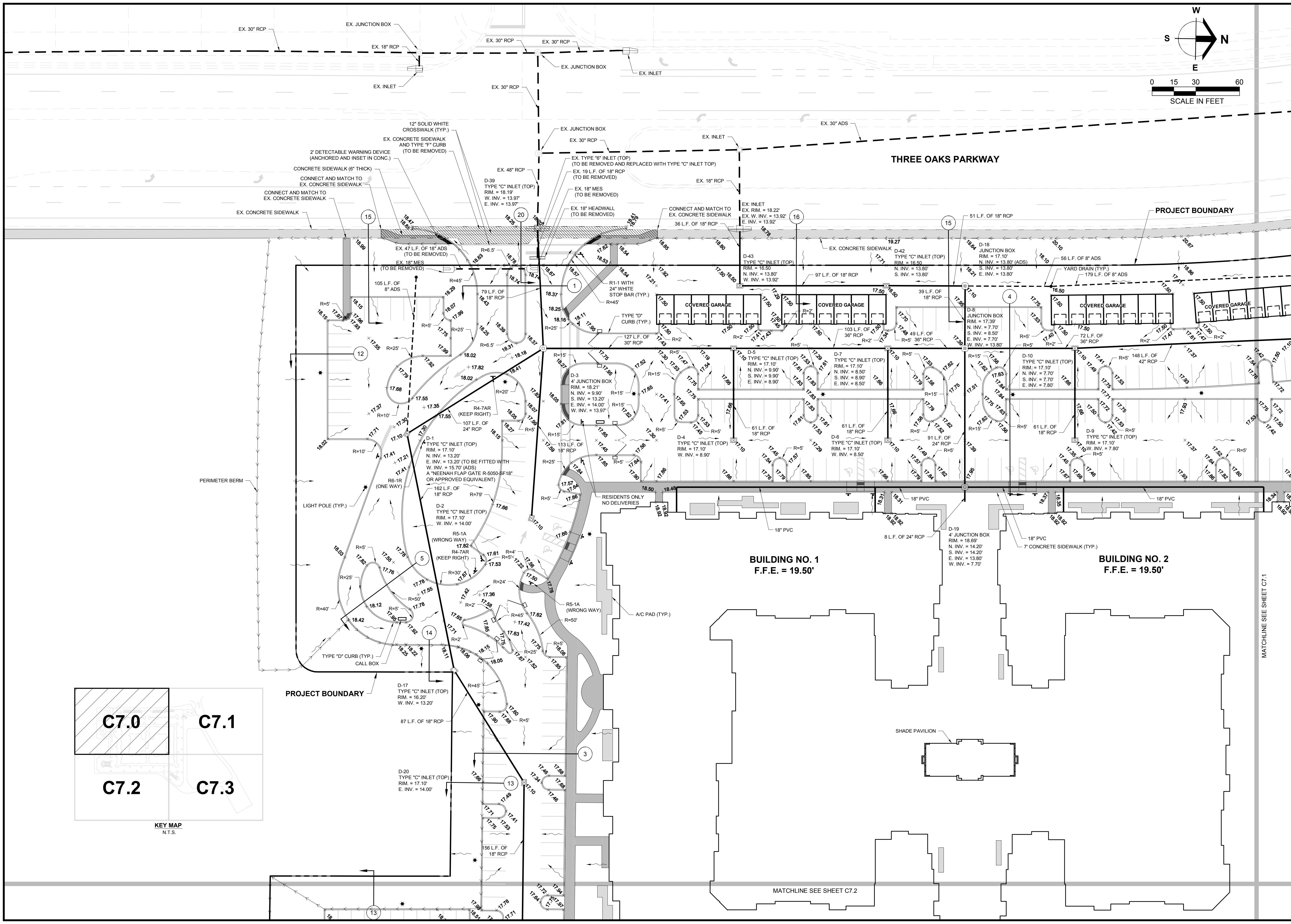
CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
SURVEY = 23329500.DWG

NO.	DATE	DESCRIPTION

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

### DETAILED PAVING, GRADING, AND DRAINAGE PLANS

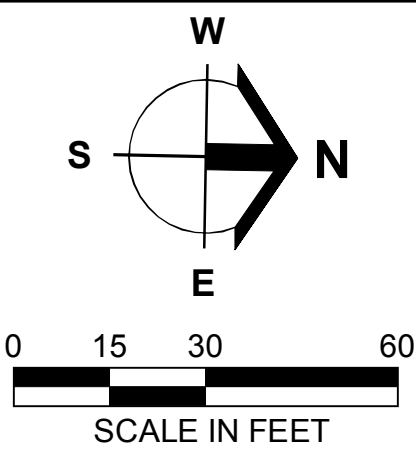
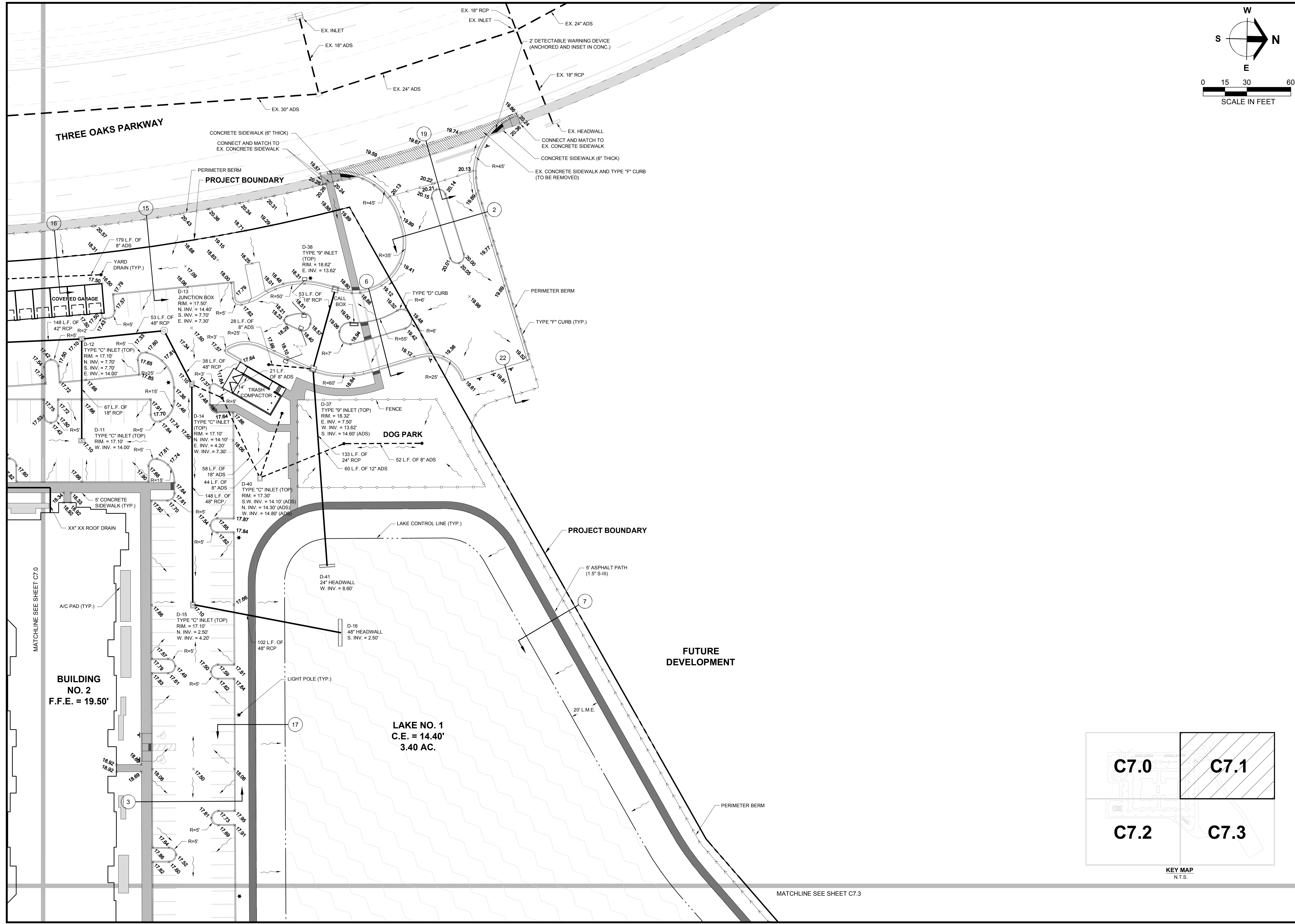
PROJECT / FILE NO. **23647** SHEET NUMBER **C7.0**



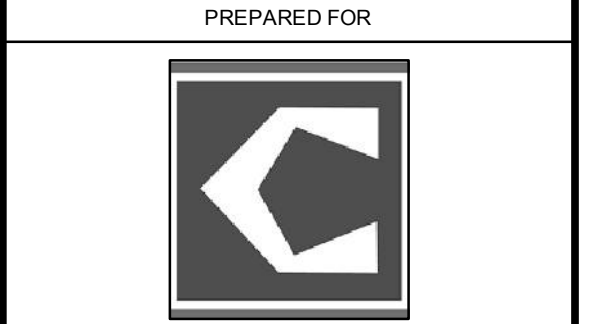
MATCHLINE SEE SHEET C7.1

MATCHLINE SEE SHEET C7.2





**Barraco**  
and Associates, Inc.  
CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169  
FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

**MURANO**  
**AT THREE OAKS**

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E. FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A15.DWG  
LOCATION = J:\23647\DWG\DO  
PLOT DATE = THU, 1-17-2019 - 4:07 PM  
PLOT BY = JAN BILDZUKEWICZ

CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
SURVEY = 23329S00.DWG

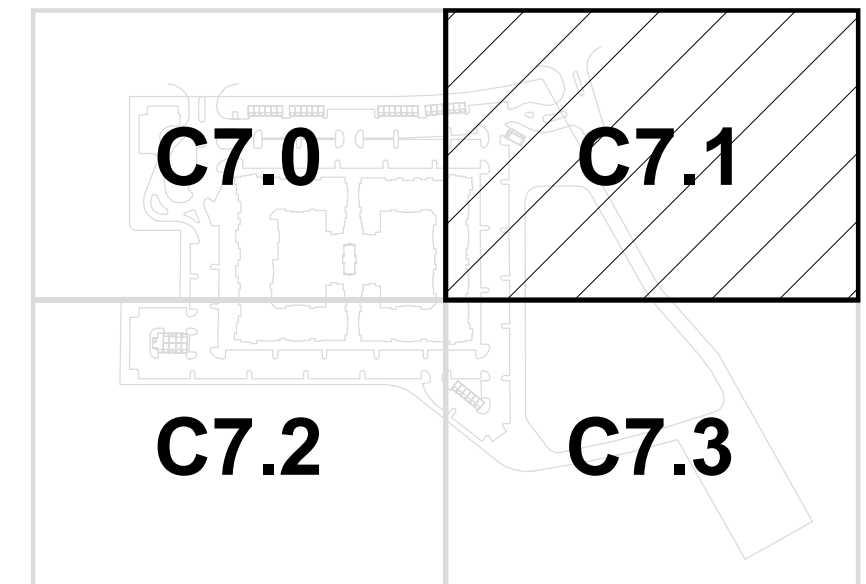
PLAN REVISIONS

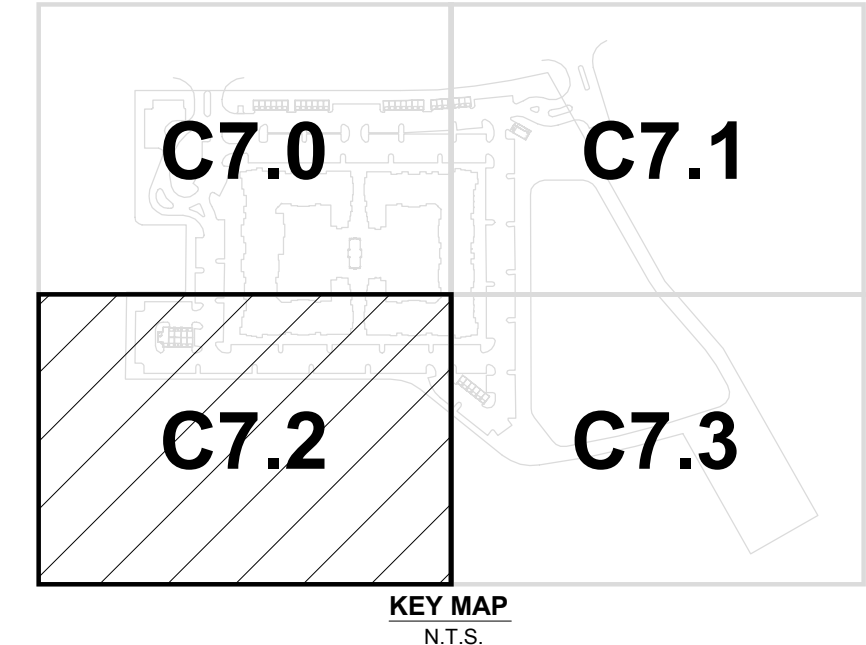
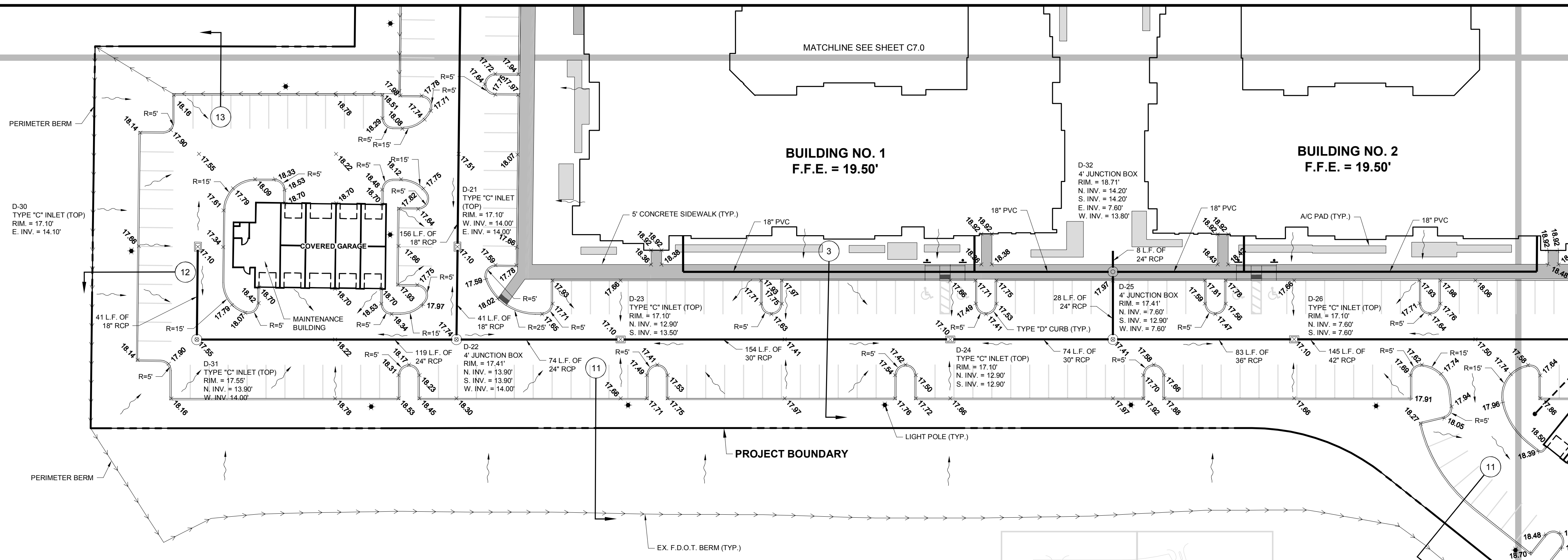
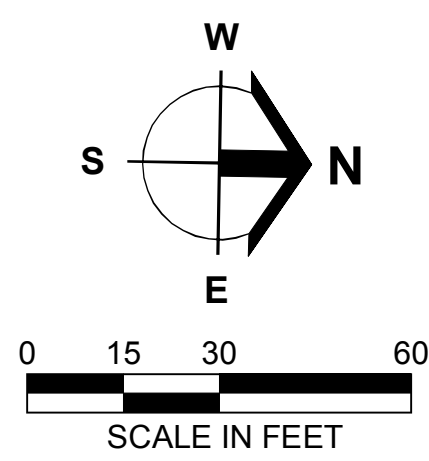
NO.	DESCRIPTION

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**DETAILED PAVING,  
GRADING, AND  
DRAINAGE PLANS**

PROJECT / FILE NO. <b>23647</b>	SHEET NUMBER <b>C7.1</b>
------------------------------------	-----------------------------



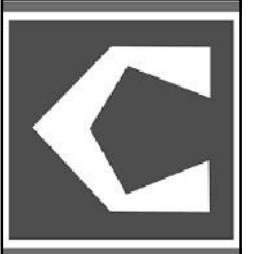


**Barraco**  
and Associates, Inc.

CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

# MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME	23647A15.DWG
LOCATION	J:\23647\DWG\DO
PLOT DATE	THU, 1-17-2019 - 4:08 PM
PLOT BY	JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS	
BASEPLAN =	23647A00.DWG
SURVEY =	23329500.DWG

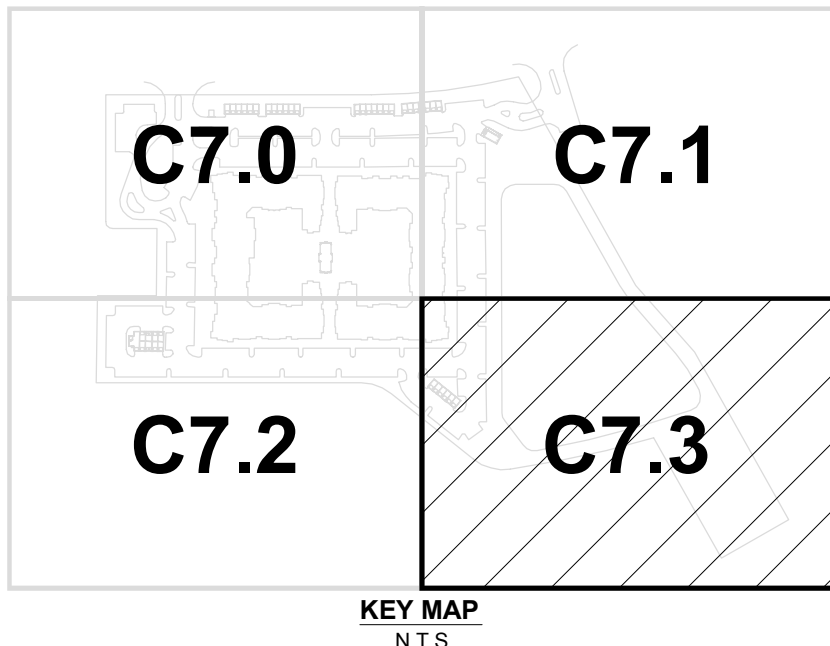
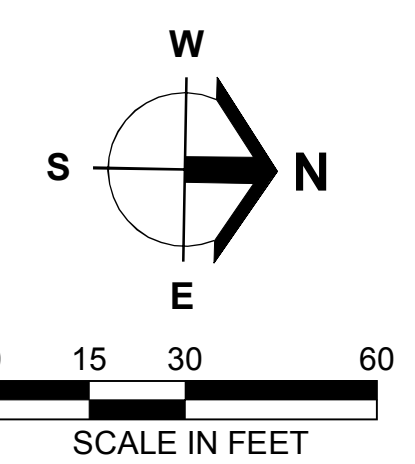
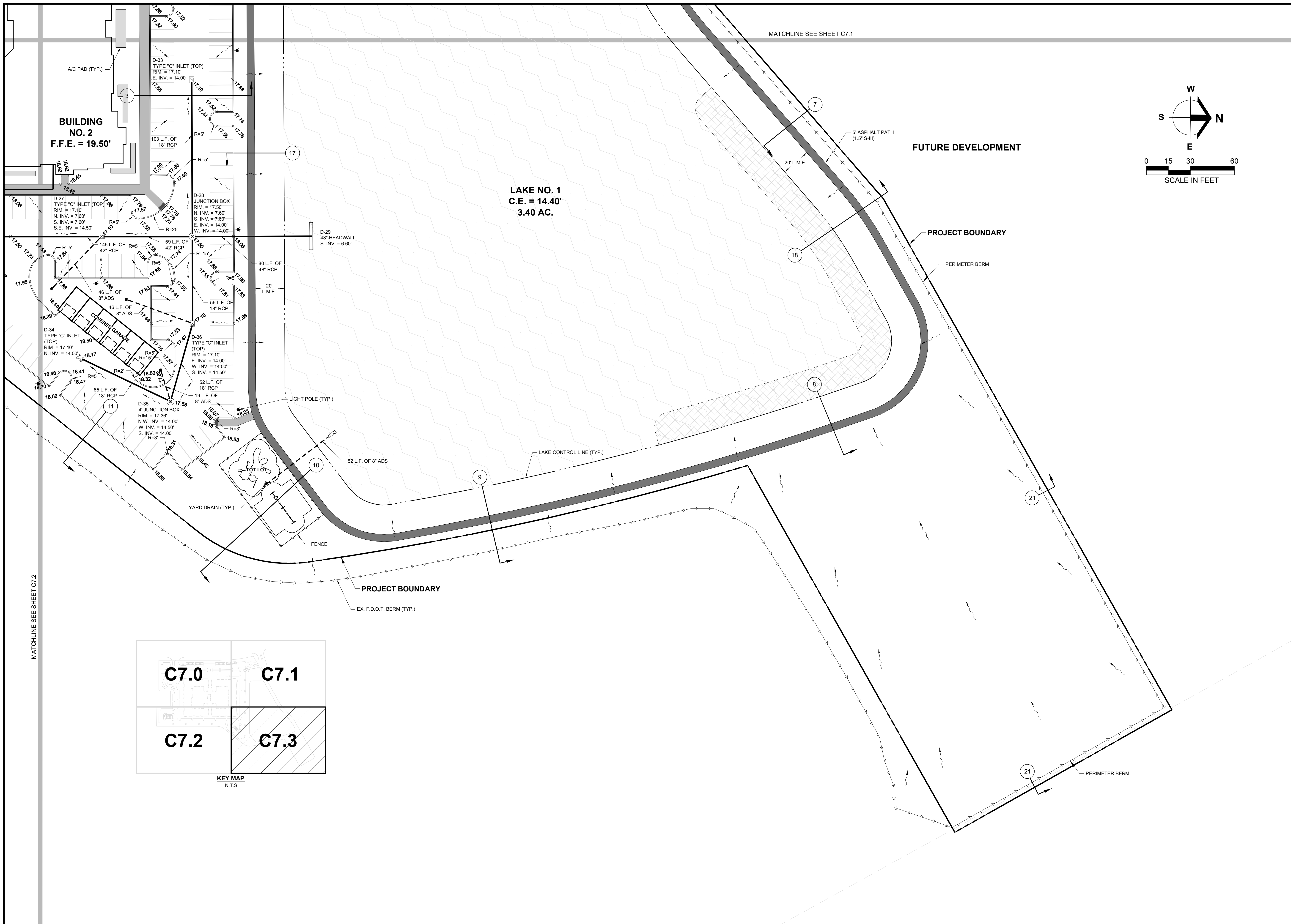
PLAN REVISIONS	

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

## DETAILED PAVING, GRADING, AND DRAINAGE PLANS

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C7.2</b>

MATCHLINE SEE SHEET C7.3

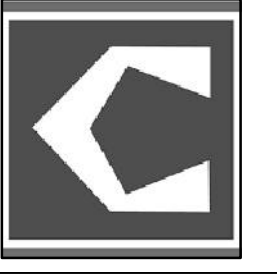


**Barraco**  
and Associates, Inc.

CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

**MURANO**  
**AT THREE OAKS**

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A15.DWG  
LOCATION = J:\23647\DWG\DOI  
PLOT DATE = THU, 1-17-2019 - 4:08 PM  
PLOT BY = JAN BILDZUKIEWICZ

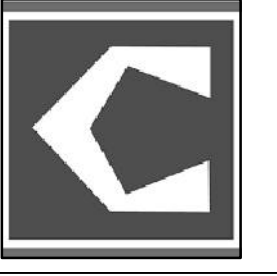
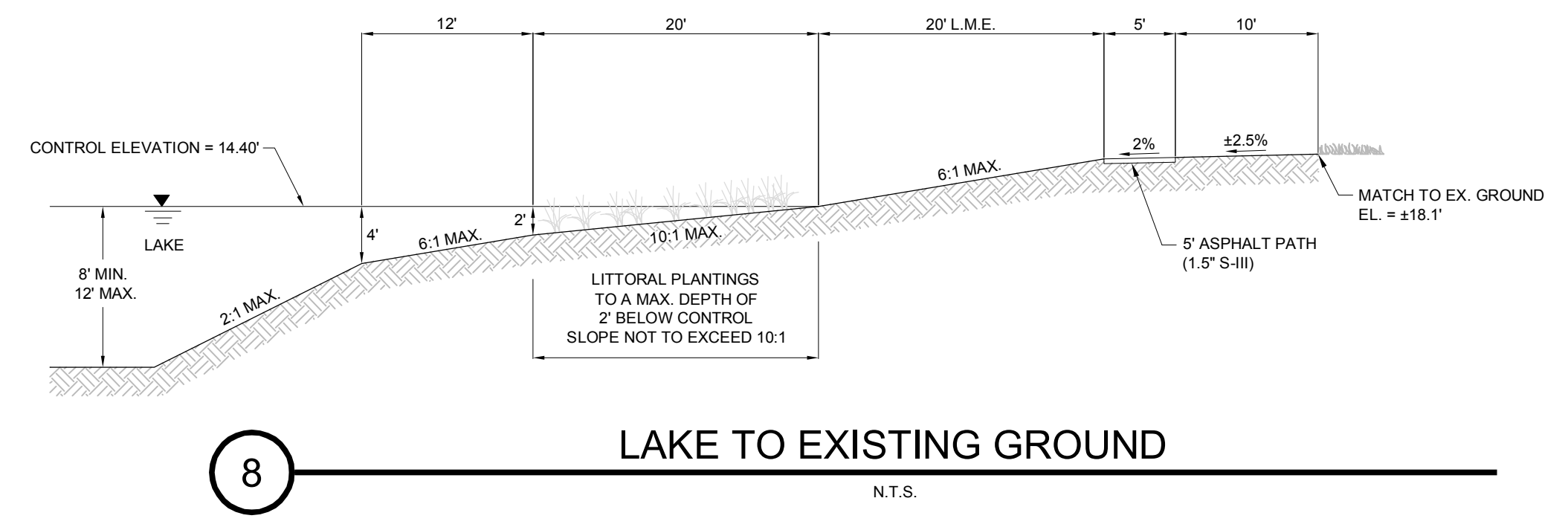
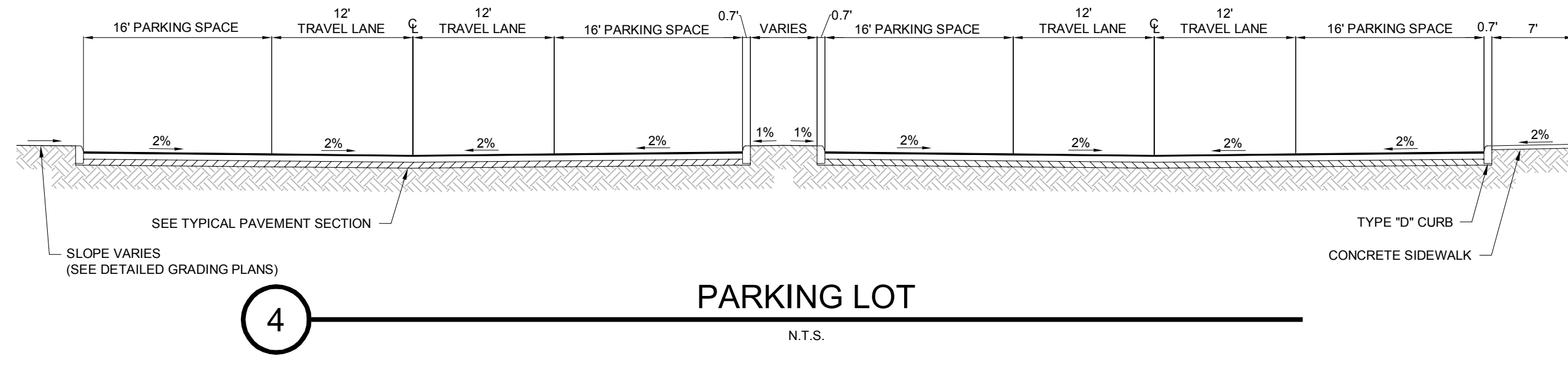
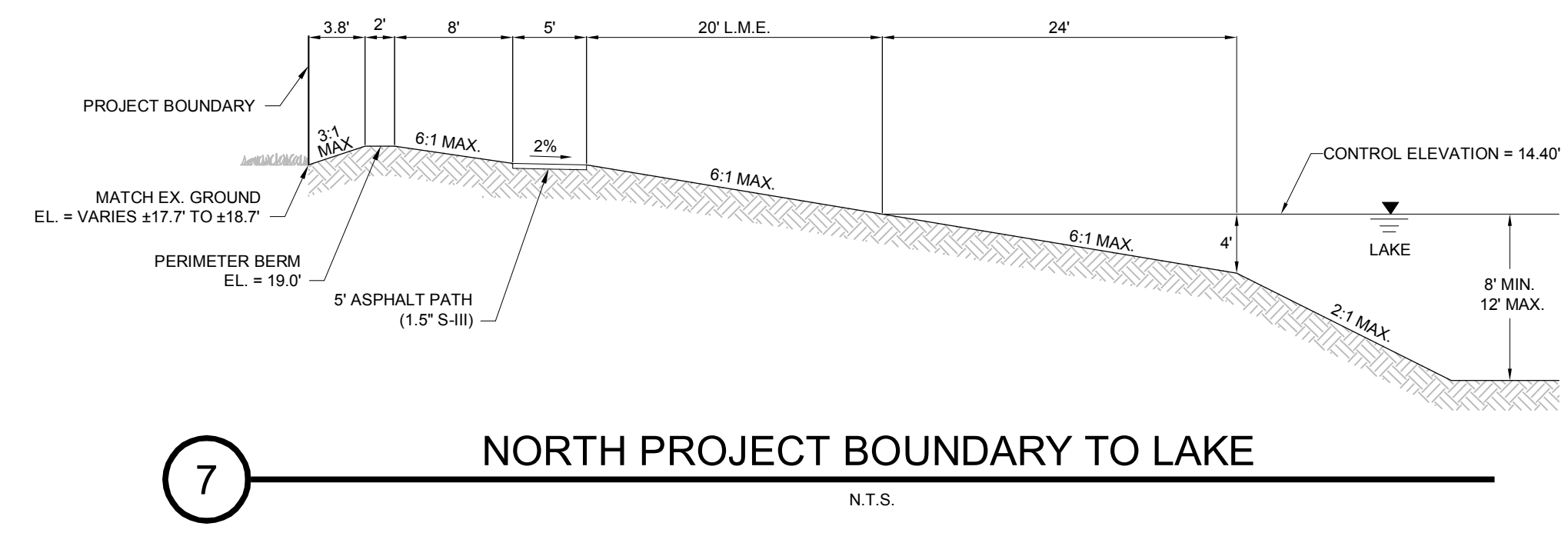
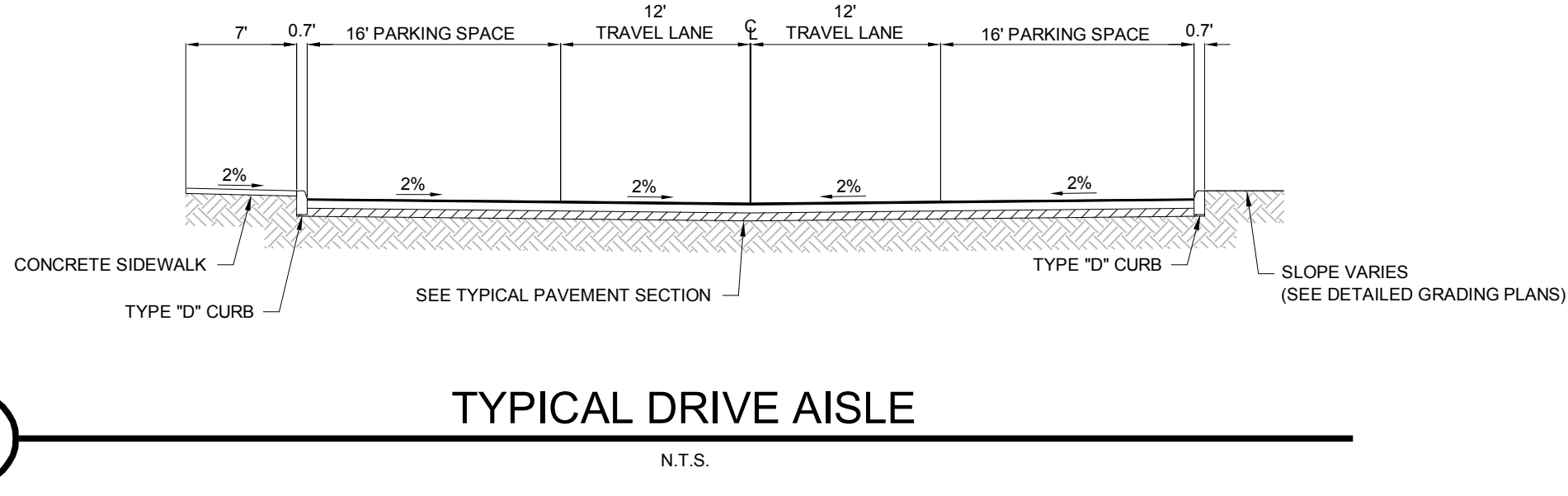
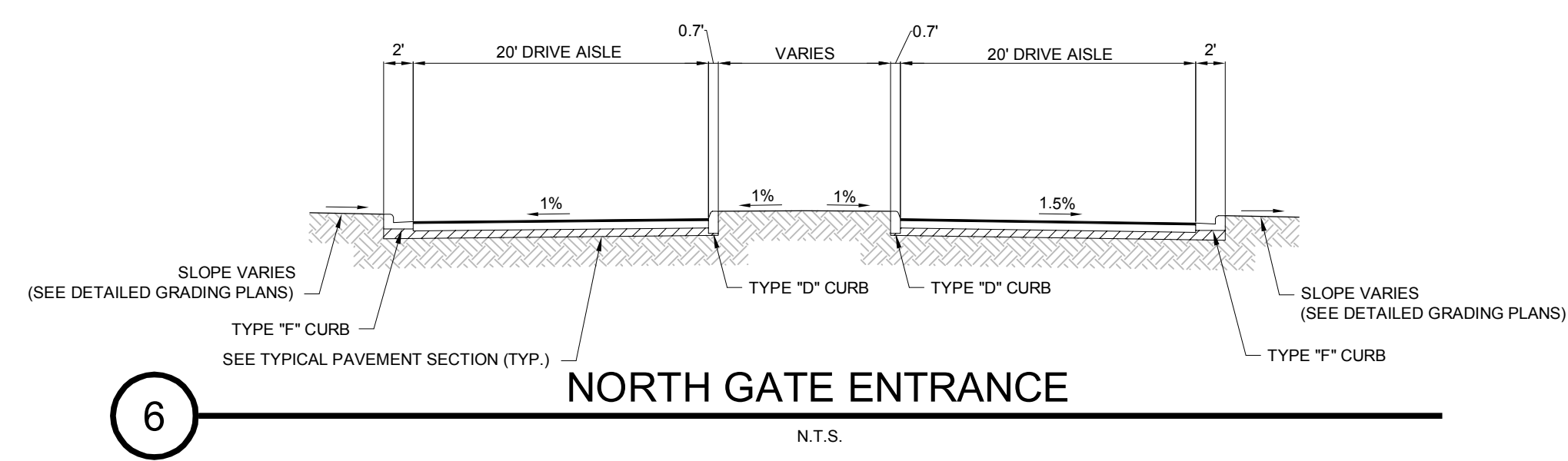
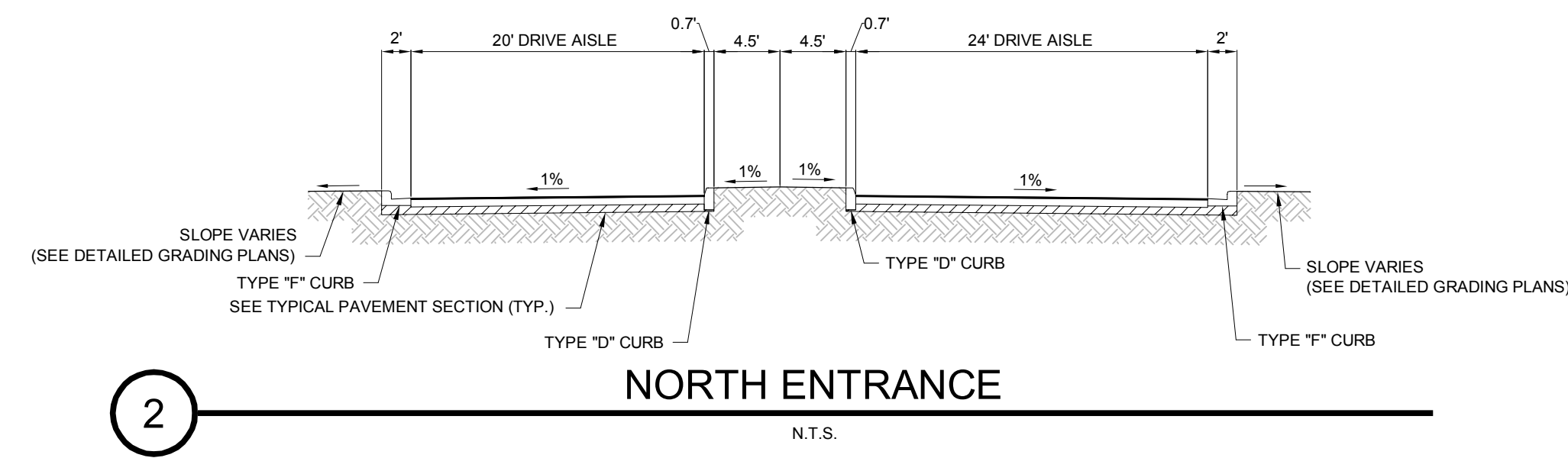
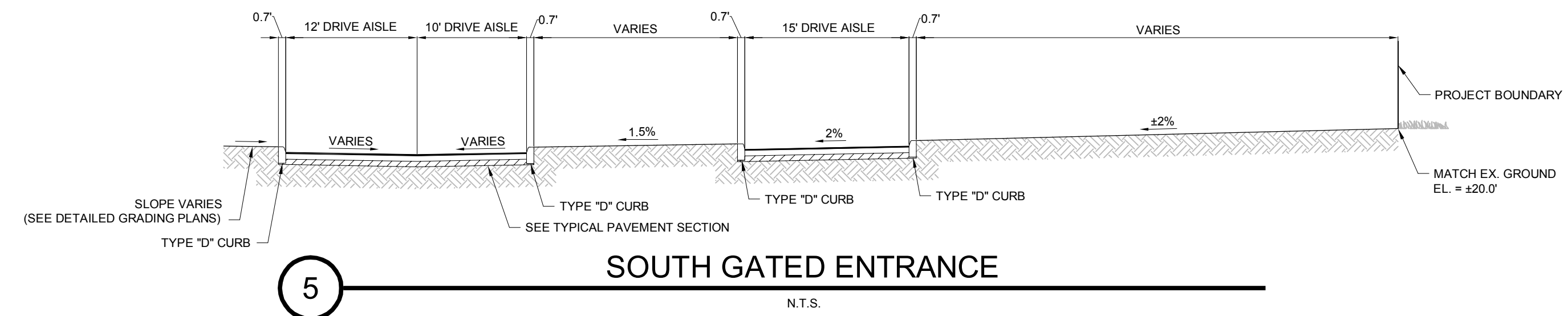
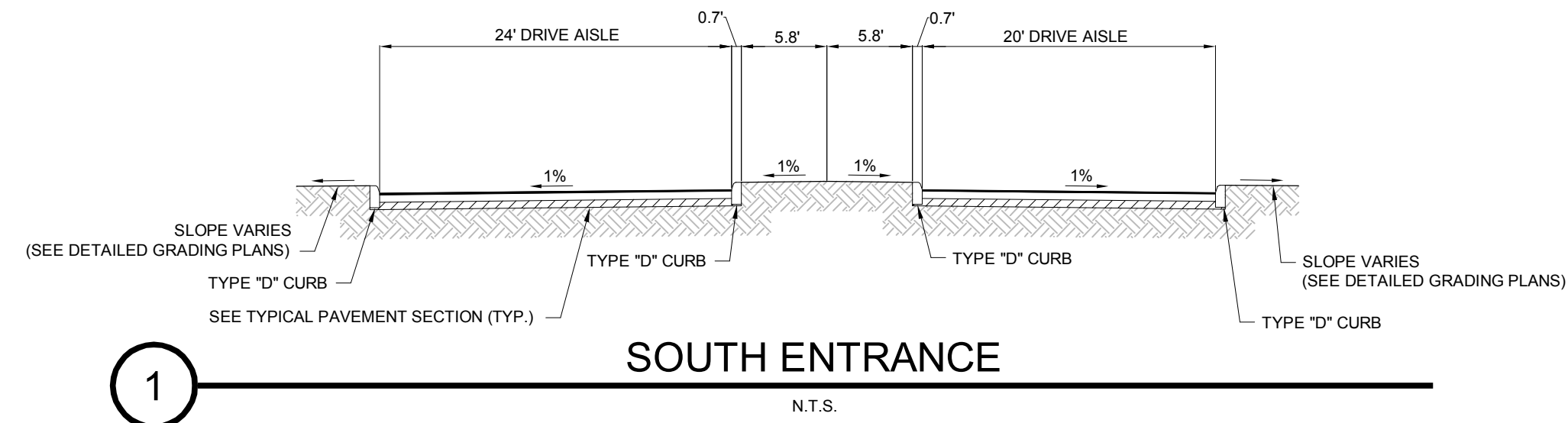
CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
SURVEY = 23329S00.DWG

PLAN REVISIONS	

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**DETAILED PAVING,  
GRADING, AND  
DRAINAGE PLANS**

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C7.3</b>



**MURANO  
AT THREE OAKS**

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: J23647A18.DWG

LOCATION: J:\23647\DWG\DOI

PLOT DATE: THU, 1-17-2019 - 4:08 PM

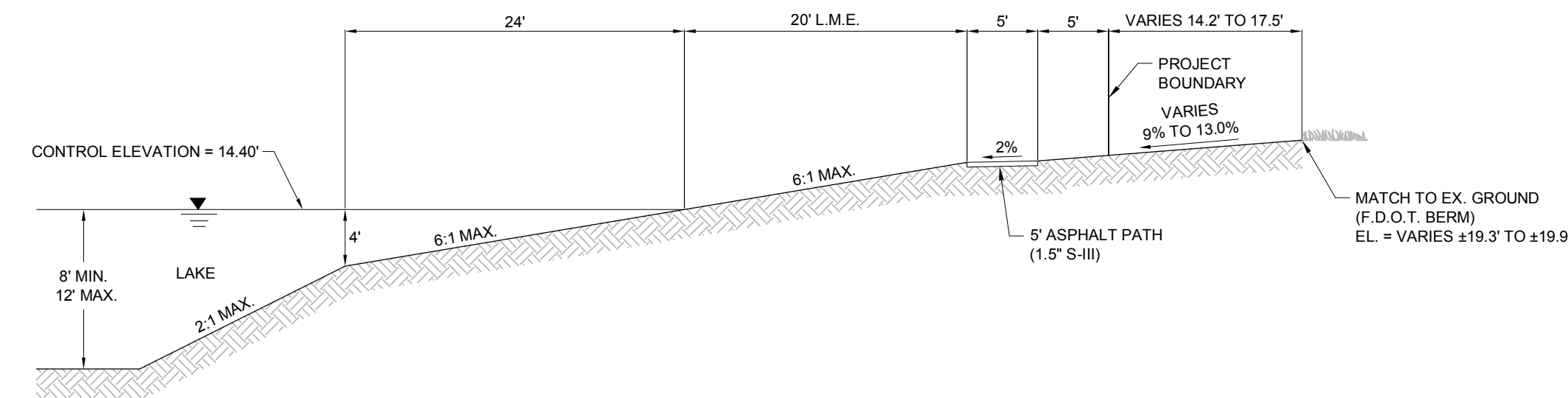
PLOT BY: JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

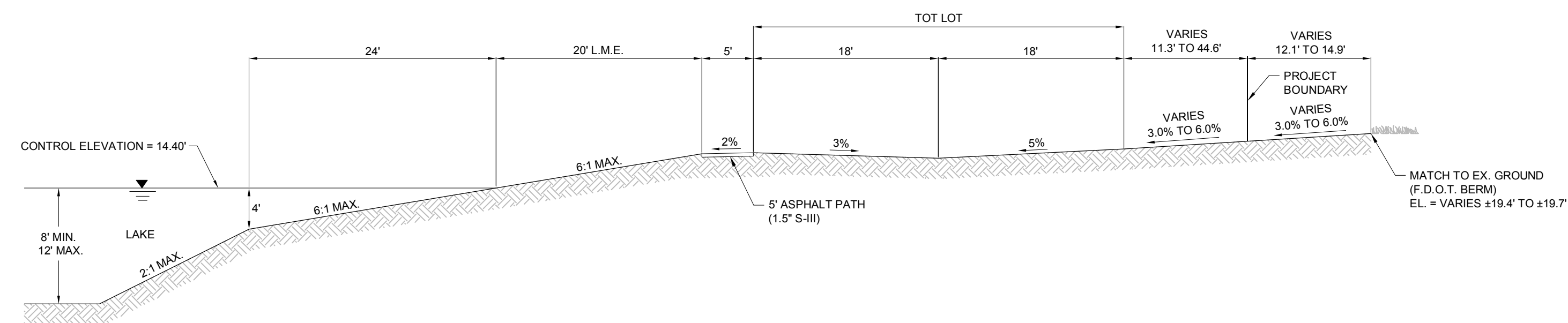
PLAN REVISIONS

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

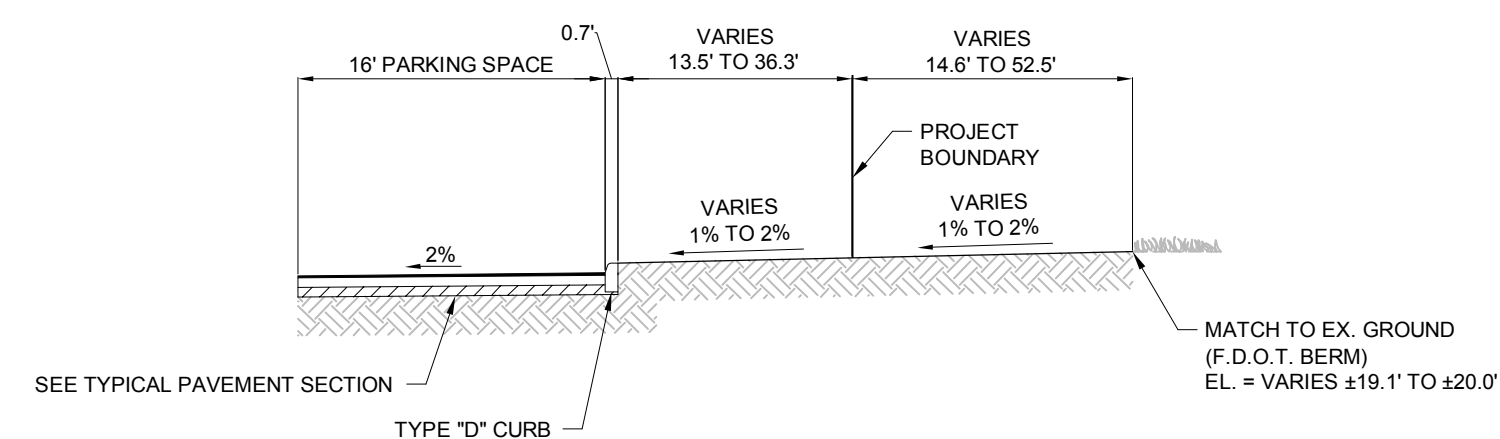
**TYPICAL  
SECTIONS  
AND DETAILS**



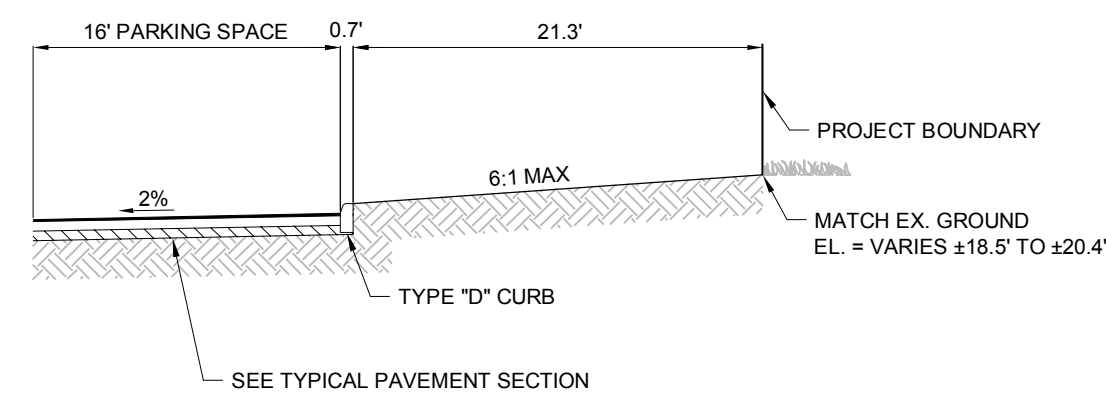
9 LAKE TO F.D.O.T. BERM  
N.T.S.



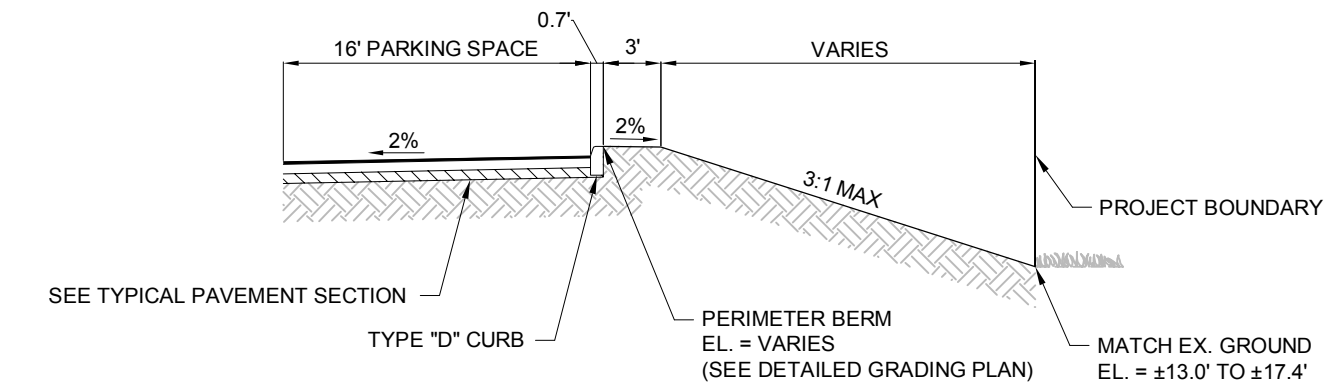
10 LAKE TO TOT LOT TO F.D.O.T. BERM  
N.T.S.



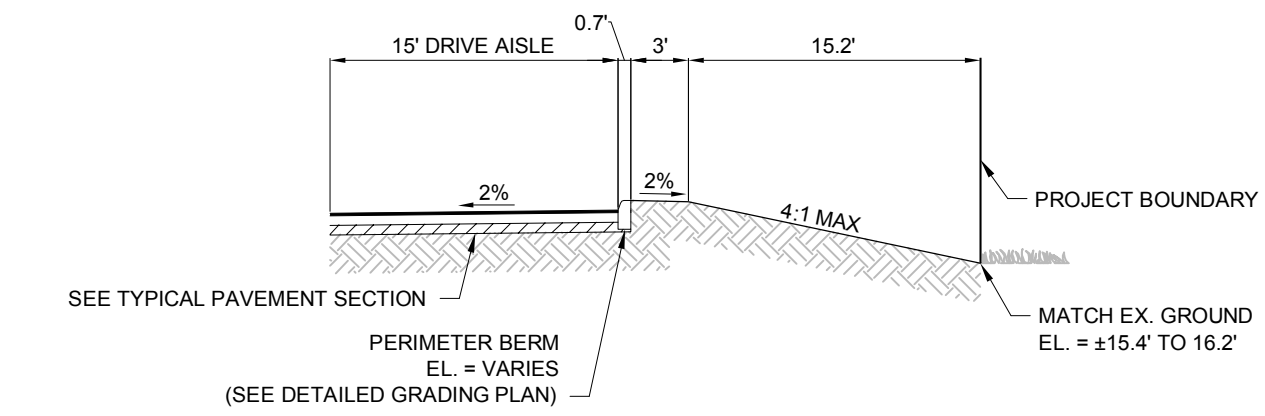
11 PARKING TO EAST PROJECT BOUNDARY TO F.D.O.T. BERM  
N.T.S.



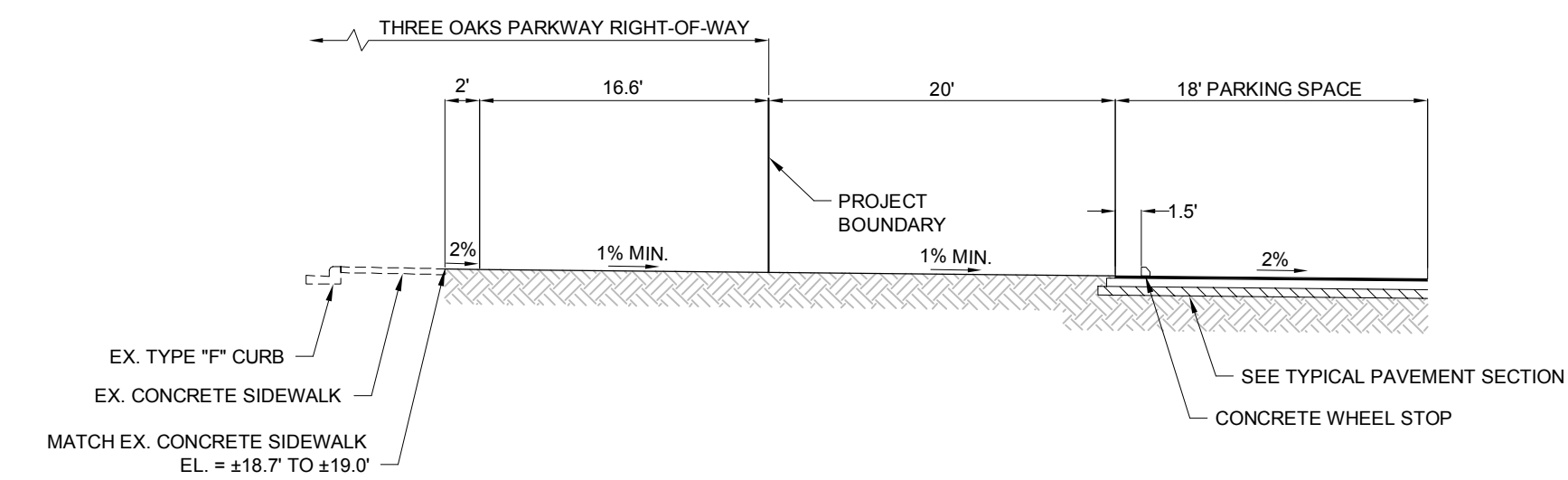
12 PARKING TO SOUTH PROJECT BOUNDARY  
N.T.S.



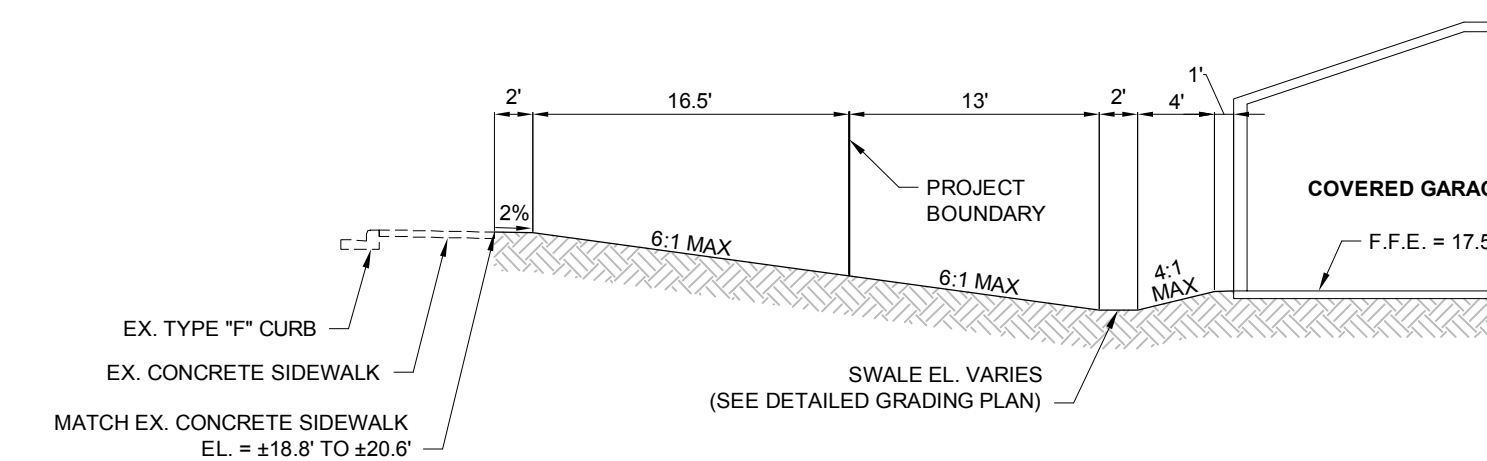
13 PARKING TO SOUTH PROJECT BOUNDARY  
N.T.S.



14 DRIVE AISLE TO SOUTH PROJECT BOUNDARY  
N.T.S.



15 WEST PROJECT BOUNDARY TO PARKING  
N.T.S.



16 WEST PROJECT BOUNDARY TO COVERED GARAGE  
N.T.S.

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
WWW.COURTELIS.COM

PROJECT DESCRIPTION

**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME J23647A18.DWG  
LOCATION J:\23647\DWG\DO  
PLOT DATE THU, 1-17-2019 - 4:09 PM  
PLOT BY JAN BILDZUKIEWICZ

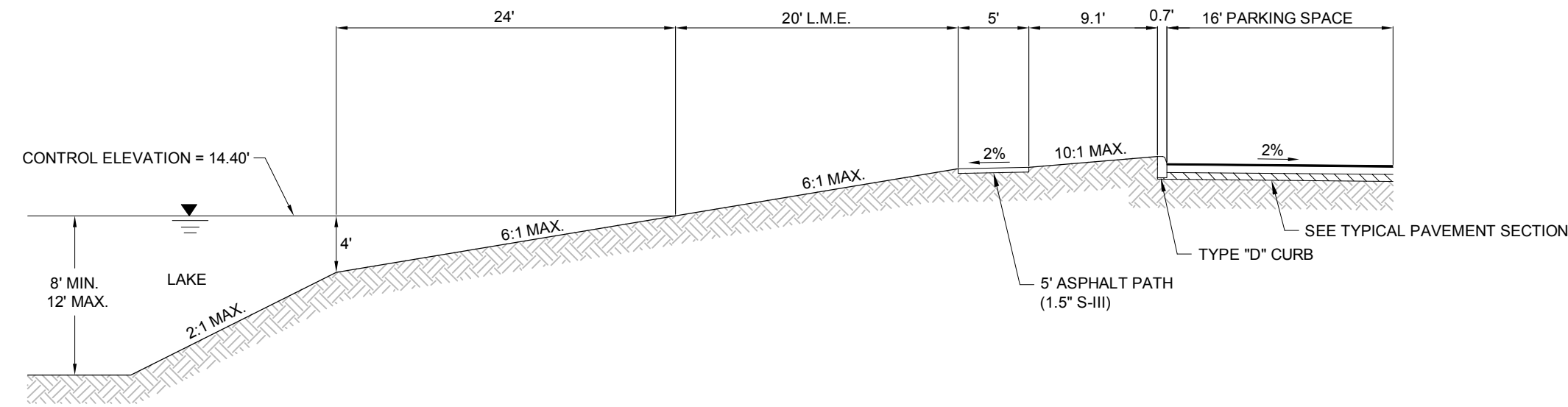
CROSS REFERENCED DRAWINGS

PLAN REVISIONS

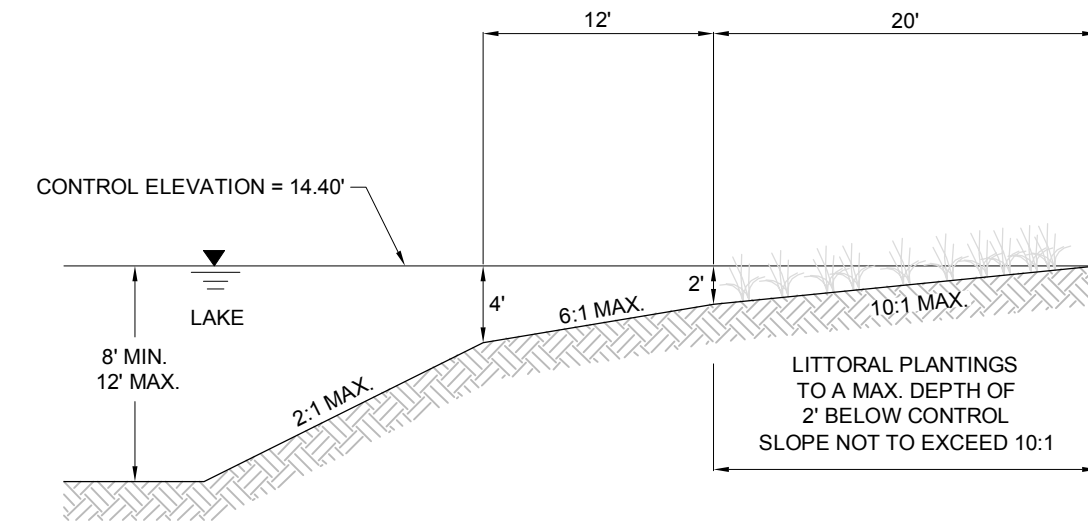
PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

TYPICAL  
SECTIONS  
AND DETAILS

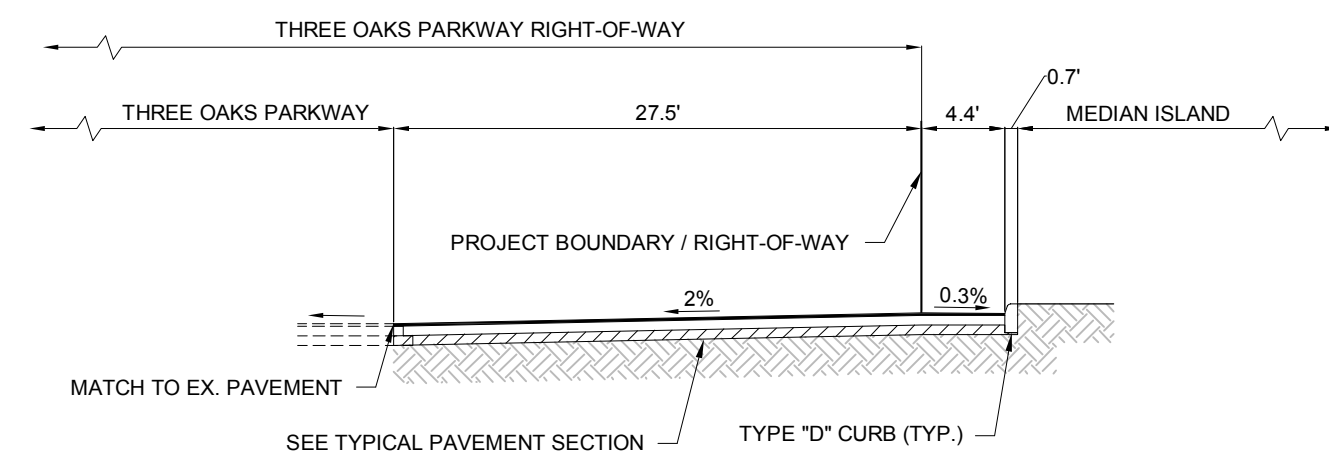
PROJECT / FILE NO. 23647 SHEET NUMBER C8.1



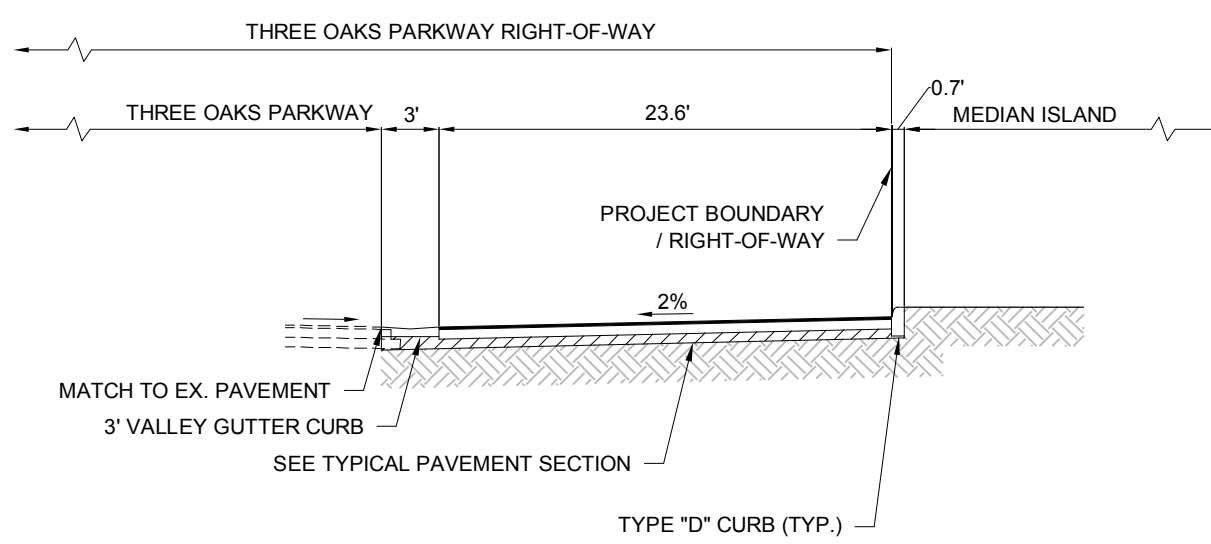
17 LAKE TO PARKING  
N.T.S.



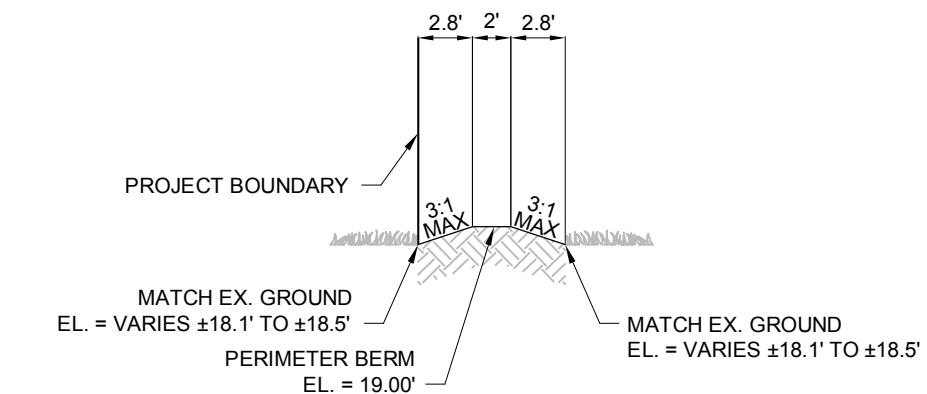
18 TYPICAL LAKE SECTION (LITTORAL ZONE)  
N.T.S.



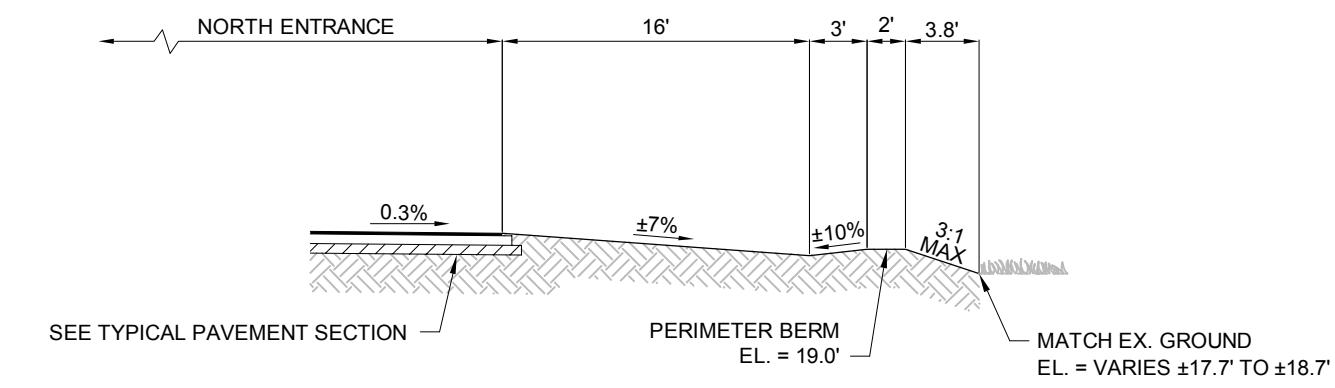
19 NORTH ENTRANCE  
N.T.S.



20 SOUTH ENTRANCE  
N.T.S.

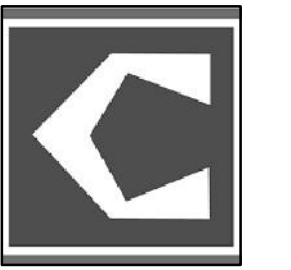


21 PROJECT BOUNDARY TO EXISTING GROUND  
N.T.S.



22 NORTH ENTRANCE TO BERM  
N.T.S.

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: 23647A18.DWG

LOCATION: J:\23647\DWG\DO

PLOT DATE: THU, 1-17-2019 - 4:09 PM

PLOT BY: JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

PLAN REVISIONS

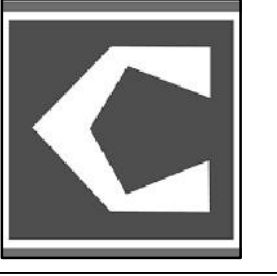
PLAN STATUS

BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**TYPICAL**  
**SECTIONS**  
**AND DETAILS**

PROJECT / FILE NO. SHEET NUMBER

**23647 C8.2**



**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME J:\23647A18.DWG  
LOCATION J:\23647\DWG\DO  
PLOT DATE THU, 1-17-2019 - 4:09 PM  
PLOT BY JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

PLAN REVISIONS

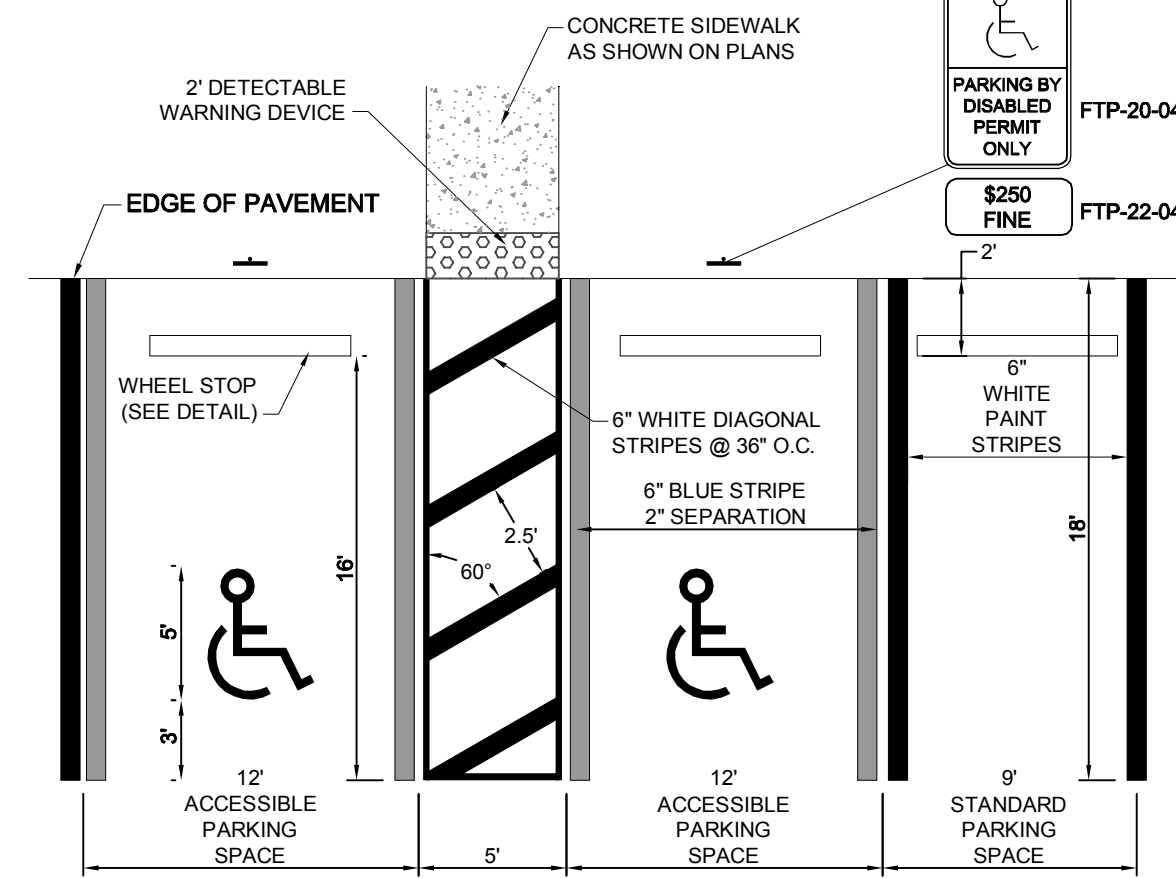
PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

TYPICAL  
SECTIONS  
AND DETAILS

PROJECT / FILE NO. **23647** SHEET NUMBER **C8.3**

**NOTES**

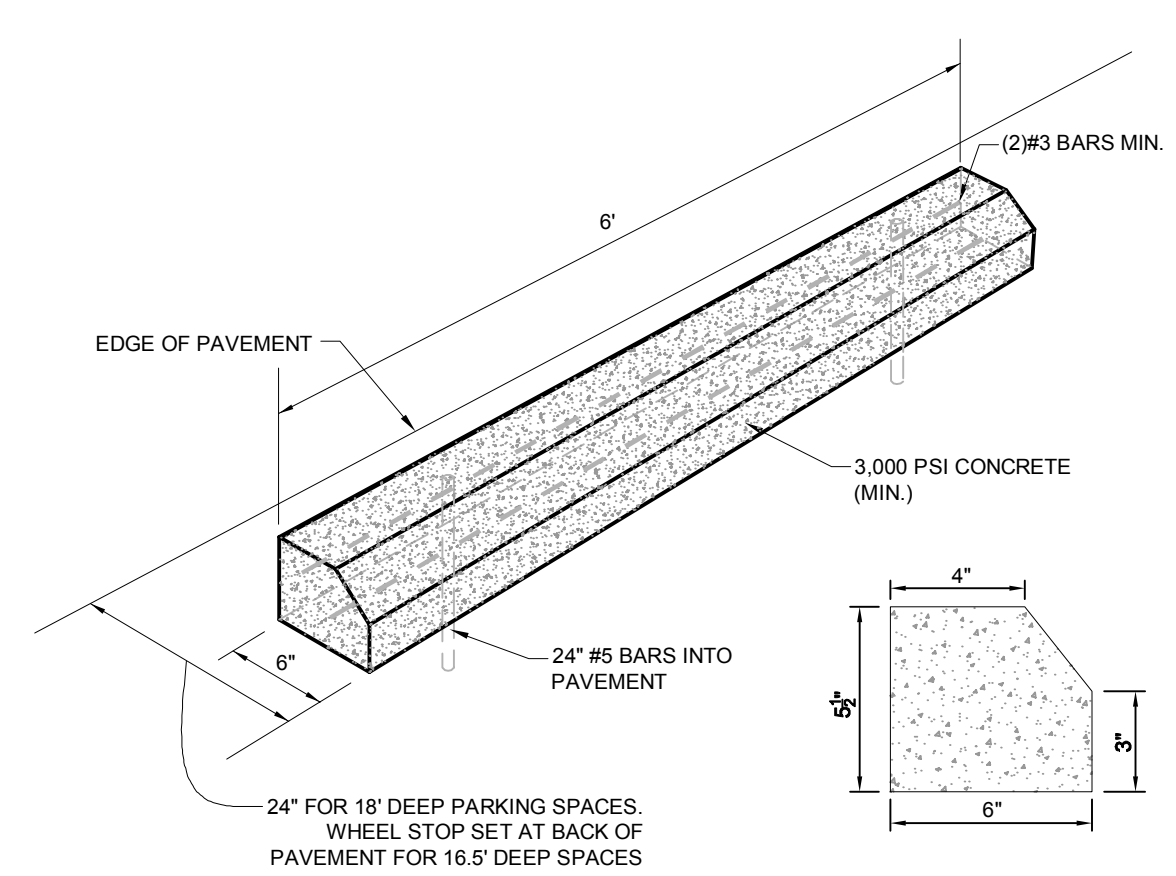
1. BLUE PAVEMENT MARKINGS SHALL BE TINTED TO MATCH 15180 OF FEDERAL STANDARDS 595a.
2. MAXIMUM SLOPE IN ALL ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2% IN ALL DIRECTIONS.
3. DIMENSIONS ARE TO CENTERLINE OF MARKINGS.



**TYPICAL PARKING SPACES**  
N.T.S.

**NOTES**

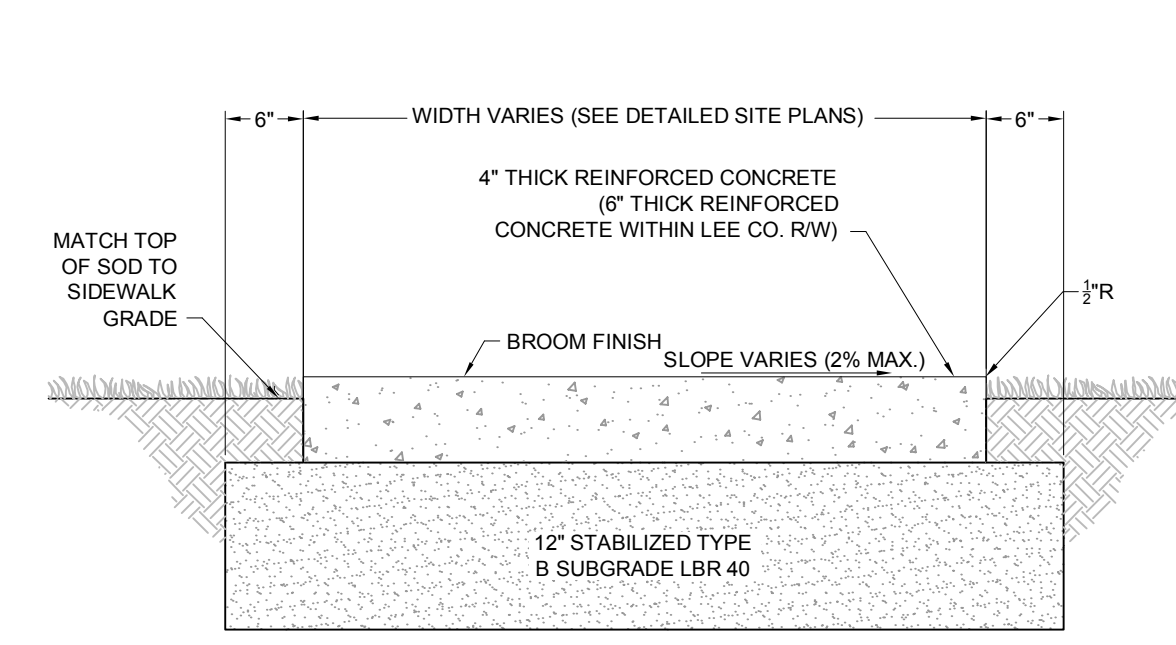
1. SEE DETAILED PLANS FOR LOCATIONS THAT WHEEL STOPS ARE REQUIRED.
2. ALTERNATE WHEEL STOP MATERIALS MAY BE SUBMITTED TO ENGINEER FOR CONSIDERATION.



**WHEEL STOP**  
N.T.S.

**NOTES**

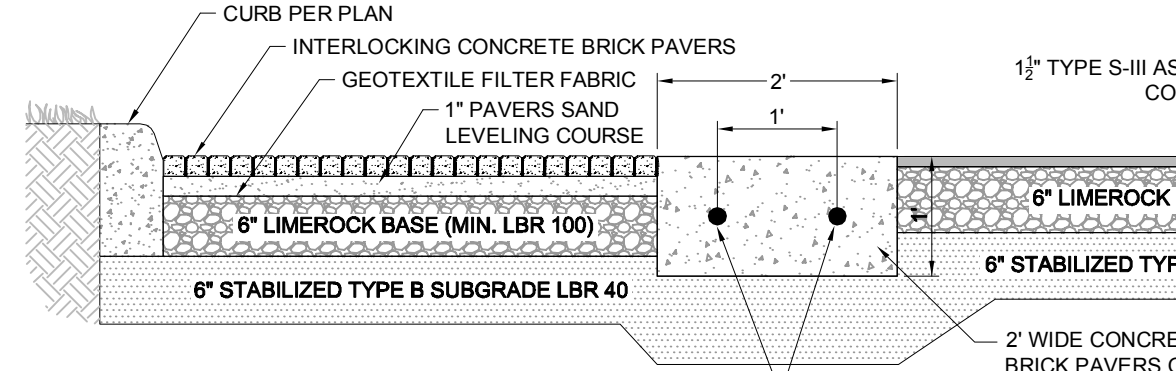
1. PAVBRICKS MAY BE UTILIZED IN PLACE OF CONCRETE SIDEWALK. SEE LANDSCAPE PLANS FOR PAVBRICK LOCATIONS, THICKNESS, SIZE, COLOR, PATTERN, AND SPECIFICATIONS. PAVBRICK SEALANT OR REPELLANT MAY BE USED AT THE OWNER'S DISCRETION.
2. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3,000 PSI. AT 28 DAYS.
3. SIDEWALK SHALL HAVE CONTRACTION JOINTS AT 5' INTERVALS AND AN EXPANSION JOINT EVERY 100'.
4. MAXIMUM LONGITUDINAL SLOPE FOR DISABLED ACCESSIBLE SIDEWALK SHALL BE 1:20.
5. TOP OF SOD TO BE FLUSH WITH SIDEWALK TO PROVIDE POSITIVE SLOPE TO PREVENT PONDING.
6. FIBER REINFORCEMENT MAY BE SUBSTITUTED FOR WIRE MESH REINFORCEMENT AT THE DISCRETION OF THE OWNER.
7. COST OF STABILIZED SUBGRADE FOR SIDEWALK TO BE INCLUDED IN UNIT COST FOR SIDEWALK.



**CONCRETE SIDEWALK**  
N.T.S.

**NOTES**

1. LIMEROCK BASE AND STABILIZED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 98% OF MODIFIED PROCTOR (AASHTO T-180).
2. 3" OF LIMEROCK BASE MATERIAL MAY BE SUBSTITUTED AS AN ALTERNATIVE DESIGN TO THE 6" STABILIZED SUBGRADE.
3. OPTIONAL BRICK PAVEMENT SURFACE MAY BE UTILIZED FOR ALL OR PART OF THE ROADWAY OR PARKING SURFACES.
4. REFERENCE LANDSCAPE PLANS FOR PAVBRICK LOCATIONS, THICKNESS, SIZE, COLOR, PATTERN, AND SPECIFICATIONS. SEALANT MAY BE UTILIZED AT THE DISCRETION OF OWNER.
5. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3,000 PSI. WITHIN 28 DAYS UNLESS NOTED OTHERWISE.



**STRUCTURAL EQUIVALENCY CALCULATIONS:**

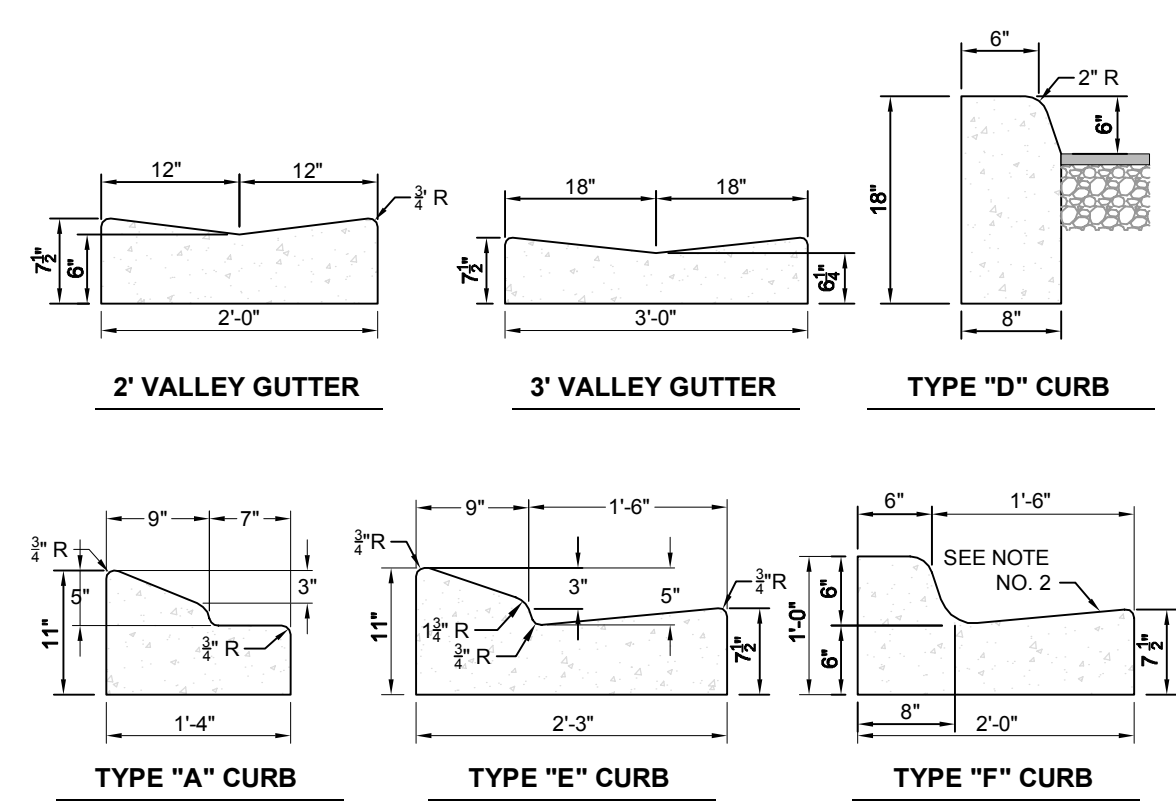
STANDARD PAVEMENT SECTION	LAYER COEFFICIENT	THICKNESS	SUBTOTAL
TYPE S-III ASPHALT PAVEMENT	0.30 / INCH	1-1/2"	0.45
LIMEROCK BASE (LBR 100)	0.18 / INCH	6"	1.08
STABILIZED SUBGRADE (LBR 40)	0.08 / INCH	6"	0.48
TOTAL			2.01

\* TWO (2) 3/4" LIFTS OF TYPE S-III ASPHALTIC CONCRETE MAY BE PROVIDED AS AN ALTERNATE. THE FIRST LIFT SHALL BE PLACED PRIOR TO CERTIFICATE OF COMPLETION FOR SITE WORK. THE SECOND LIFT SHALL BE PLACED PRIOR TO RECEIVING THE CERTIFICATE OF OCCUPANCY FOR THE LAST UNIT IN EACH PHASE OF CONSTRUCTION. ALL UNPAVED AREAS WITHIN THE RIGHT OF WAY SHALL RECEIVE SOD OR SEED & MULCH.

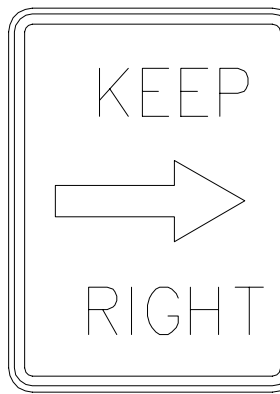
**INTERNAL PAVEMENT SECTION**  
N.T.S.

**NOTES**

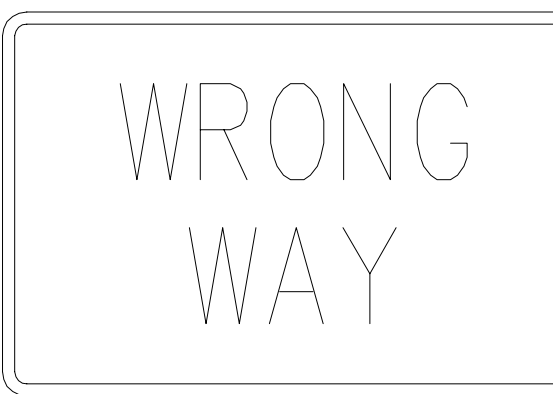
1. SEE F.D.O.T. DESIGN STANDARDS INDEX 300 FOR ADDITIONAL DETAILS.
2. WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT. THE THICKNESS OF THE LIP SHALL BE 6", UNLESS OTHERWISE SHOWN ON PLANS.
3. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3,000 PSI. WITHIN 28 DAYS UNLESS NOTED OTHERWISE.



**CONCRETE CURB**  
N.T.S.



R4-7AR



R5-1A



R6-1R

San Carlos Park Fire District  
**FIRE PREVENTION DIVISION**  
Station # 33  
19591 Don Hill Griffin Pkwy.  
Fort Myers, FL 33913  
(239) 267-7525  
www.sancharlesfire.org Fax (239) 267-7505

**FIRE FLOW TEST RECEIPT**

Hydrant #: 06-027  
Static Pressure: 62 psi before flowing  
Residual Pressure: 55 psi while flowing  
Pitot Pressure: 42 pitot gage reading

Measured Fire Flow @ 20 PSI Residual: **2,862**

Q (total gallons flowing)	Coefficient	C = .9	diameter (d) of outlet in inches	Number of outlets flowing	Pitot (p)	Formula: $Q = 29.83 C (d^2)^{0.75}$			
						Available Fire Flow (AFF)	Total Gallons Flowing	Residual (R)	
1,087	29.83	0.9	2.5	1	42	2,862	1,087	62	55
1,087	29.83	0.9	2.5	1	42	2,818	1,087	55	49

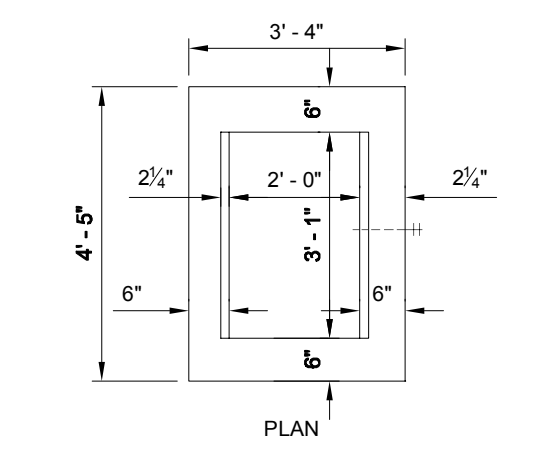
Design Static Pressure: 55 psi before flowing  
Design Residual Pressure: 49 psi while flowing  
Design Pitot Pressure: 42 pitot gage reading

Extrapolated GPM Fire Flow @ 20 PSI Residual: **2,818**

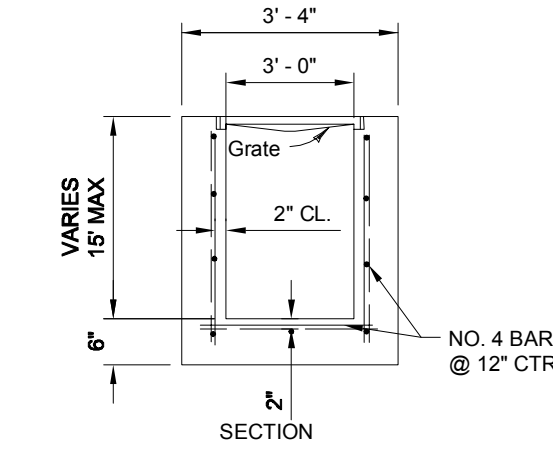
Note:  
Design Static Pressure = Measured Static Pressure less 10% (rounded down)  
Design Residual Pressure = Measured Residual Pressure less 10% (rounded down)

The Extrapolated GPM Fire Flow Must Be Used For Water Supply Determination

Date Received: \_\_\_\_\_ Payment Rec'd By: \_\_\_\_\_  
Payment Issued By: \_\_\_\_\_ Amount of Payment: \_\_\_\_\_  
Comments: Flow test performed 09/05/2018 Cash / Check #: \_\_\_\_\_  
*Steve Lannon Fire Marshal*  
Fire Official's Signature



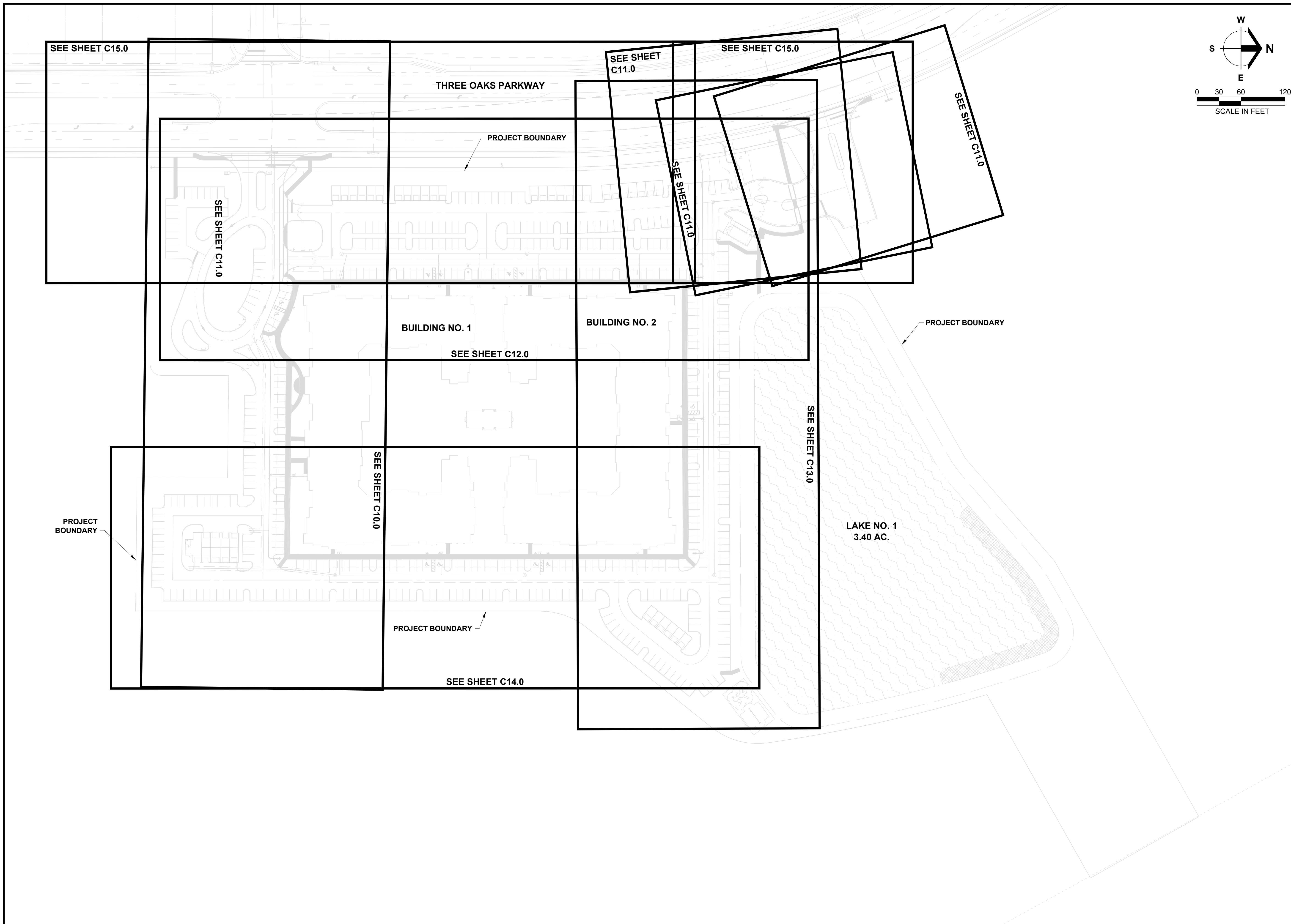
**THREE OAKS PAVMENT SECTION**  
1" TYPE S-III ASPHALT  
2 1/2" TYPE S-I ASPHALT  
10" LIMEROCK BACK  
12" STABILIZED SUBGRADE



**ASPHALT PATH SECTION**  
1 1/2" TYPE S-III ASPHALT  
6" LIMEROCK BACK  
6" STABILIZED SUBGRADE

**TYPE "C" INLET**

RECOMMENDED MAXIMUM PIPE SIZE:  
2' - 0" WALL - 18" PIPE  
3' - 0" WALL - 24" PIPE

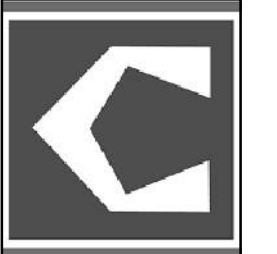


**Barraco**  
and Associates, Inc.

CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME	23647A29.DWG
LOCATION	J:\23647\DWG\DO
PLOT DATE	THU, 1-17-2019 - 4:10 PM
PLOT BY	JAN BILDZUKEWICZ

CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
SURVEY = 23329S00.DWG

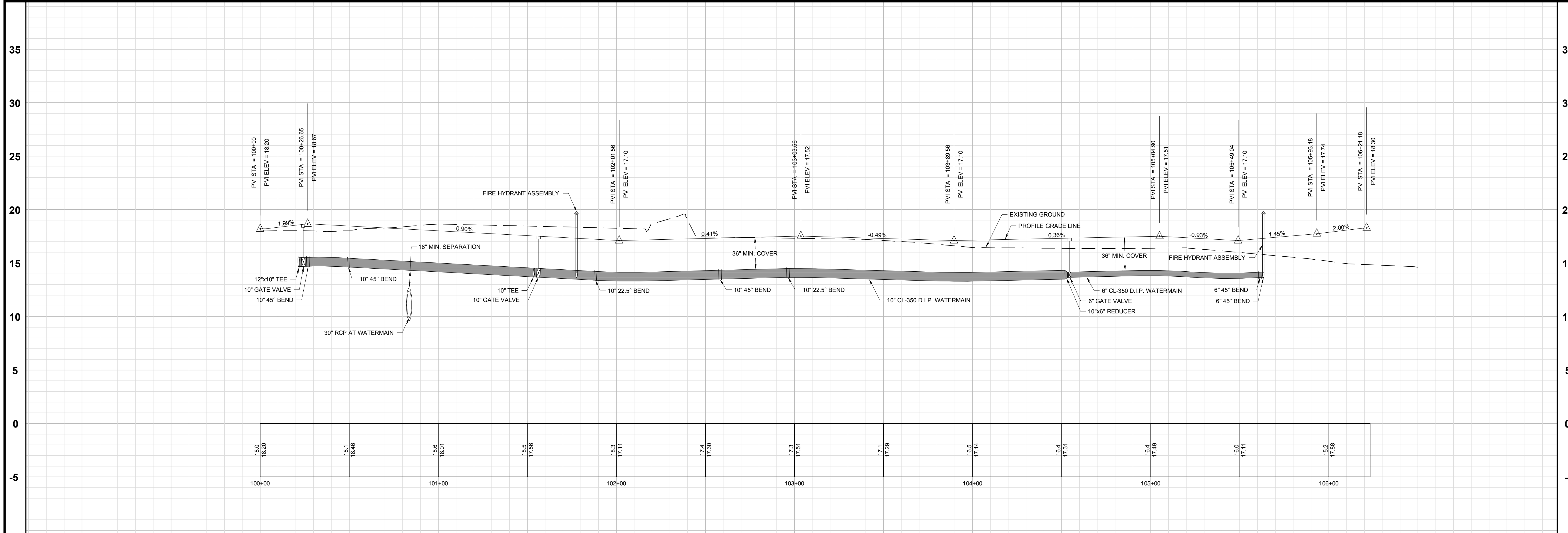
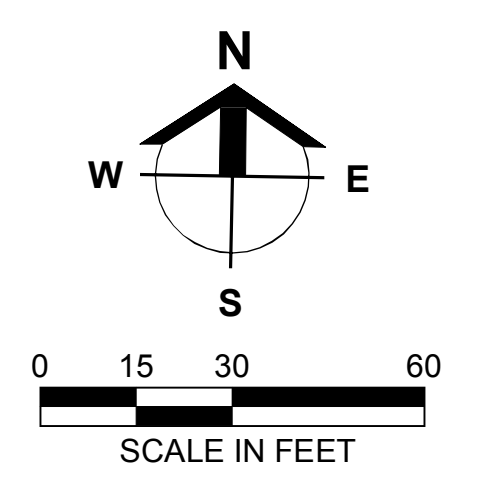
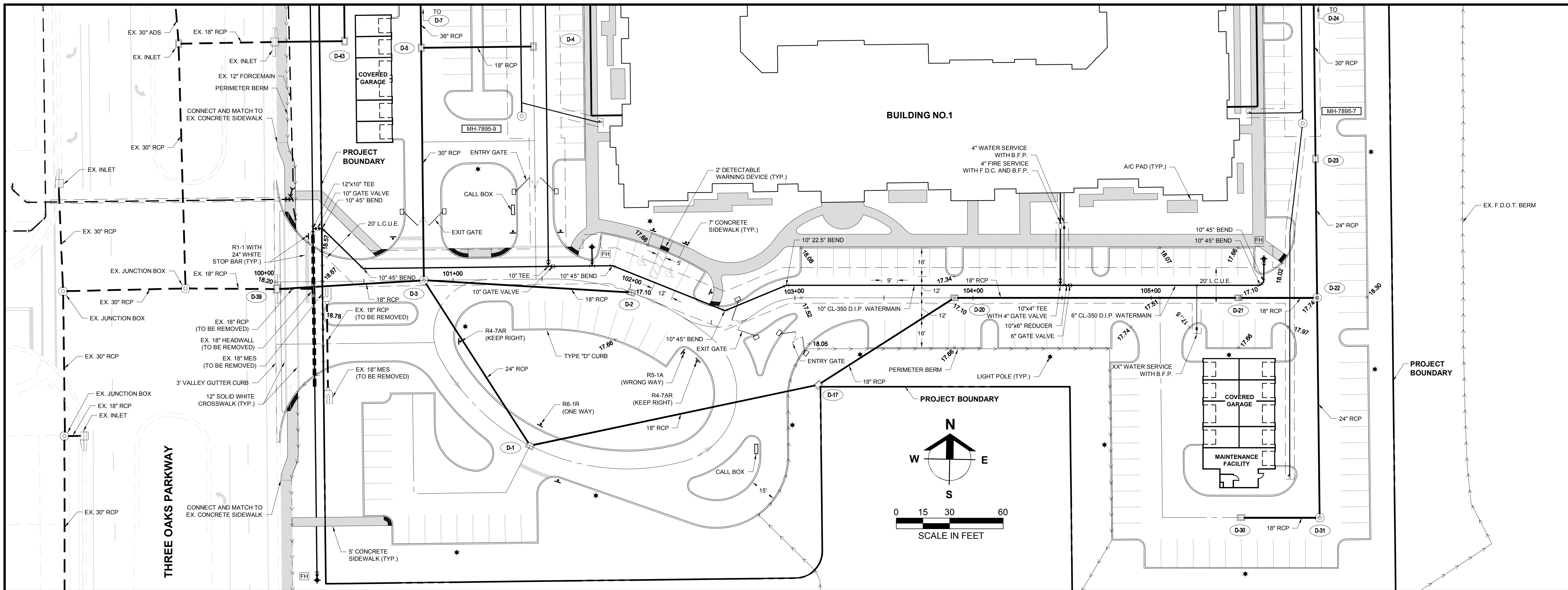
PLAN REVISIONS	

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**PLAN AND  
PROFILE  
KEY SHEET**

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C9.0</b>





**Barraco**  
and Associates, Inc.

CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

# MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: 23647A30A.DWG  
LOCATION: J:\23647\DWG\DO  
PLOT DATE: THU, 1-17-2019 - 4:11 PM  
PLOT BY: JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
PROFILE = 23647A00P.DWG  
SURVEY = 23329S00.DWG

PLAN REVISIONS	

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

## PLAN AND PROFILE STA:100+00 - END

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C10.0</b>

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
WWW.COURTELIS.COM

PROJECT DESCRIPTION

**MURANO**  
AT THREE OAKS  
  
LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: 23647A30B.DWG  
LOCATION: J:\23647\DWG\DWG  
PLOT DATE: THU, 1-17-2019 - 4:11 PM  
PLOT BY: JAN.BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

BASEPLAN = 23647A00.DWG  
PROFILE = 23647A00P.DWG  
SURVEY = 23329500.DWG

PLAN REVISIONS

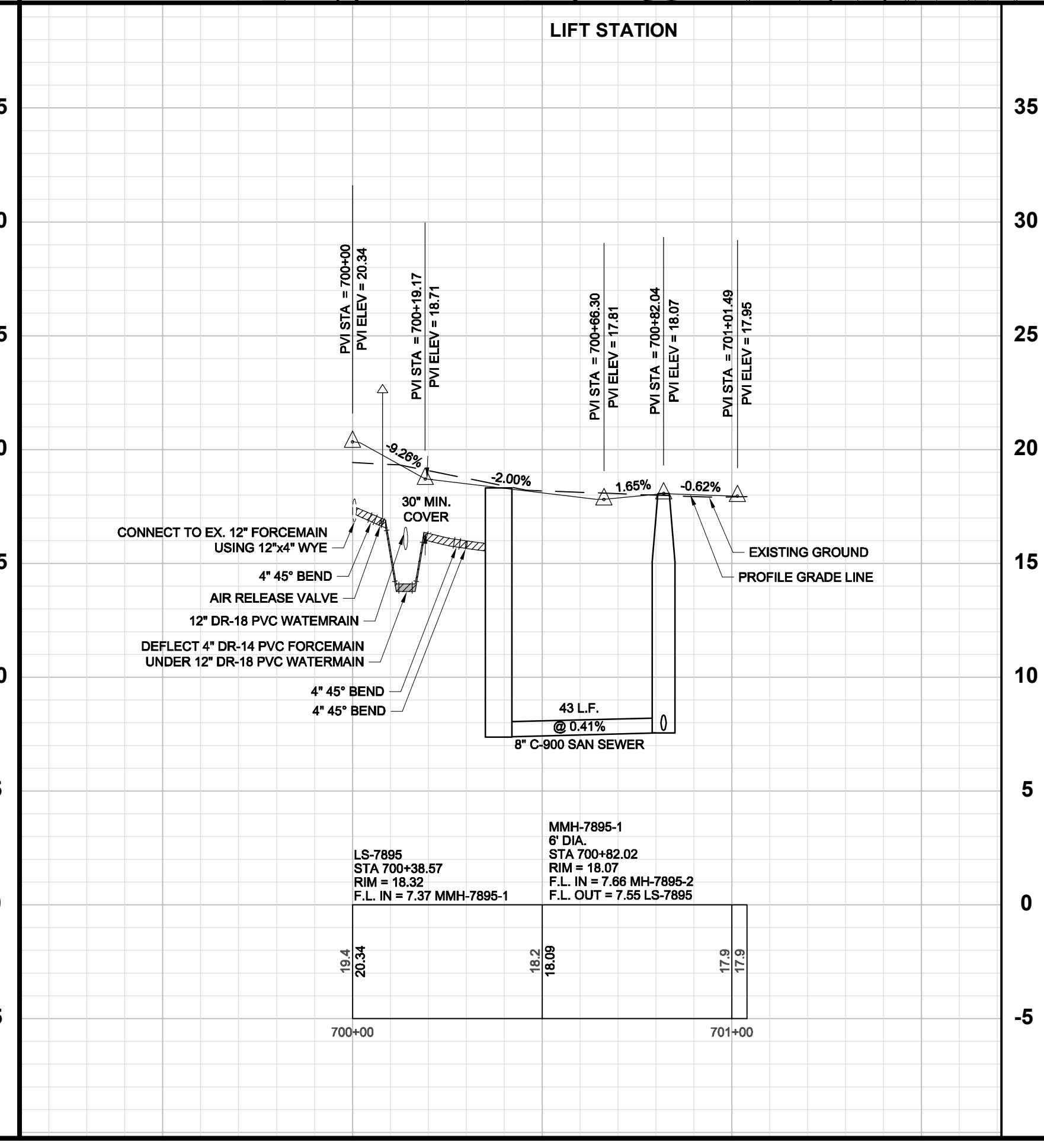
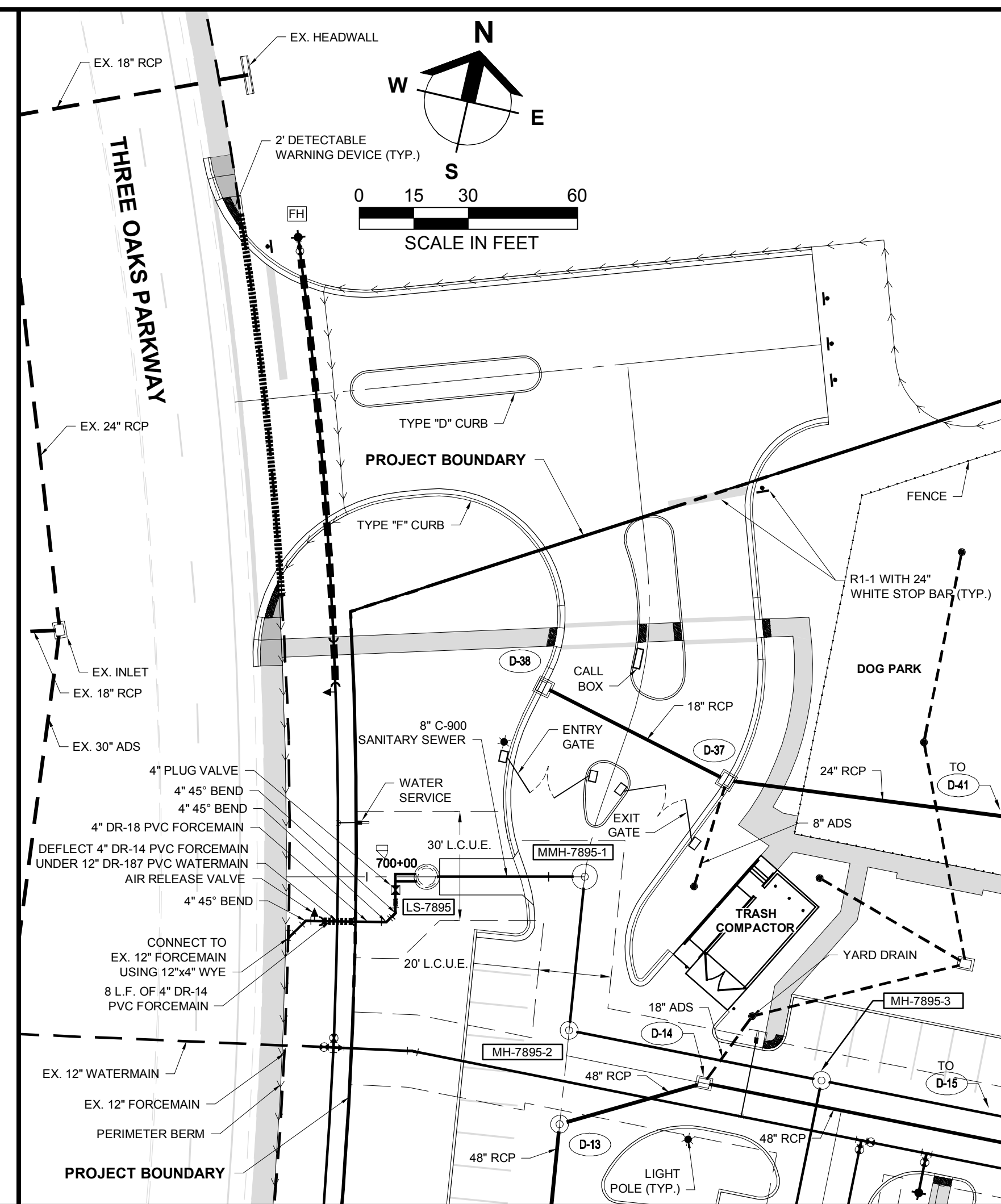
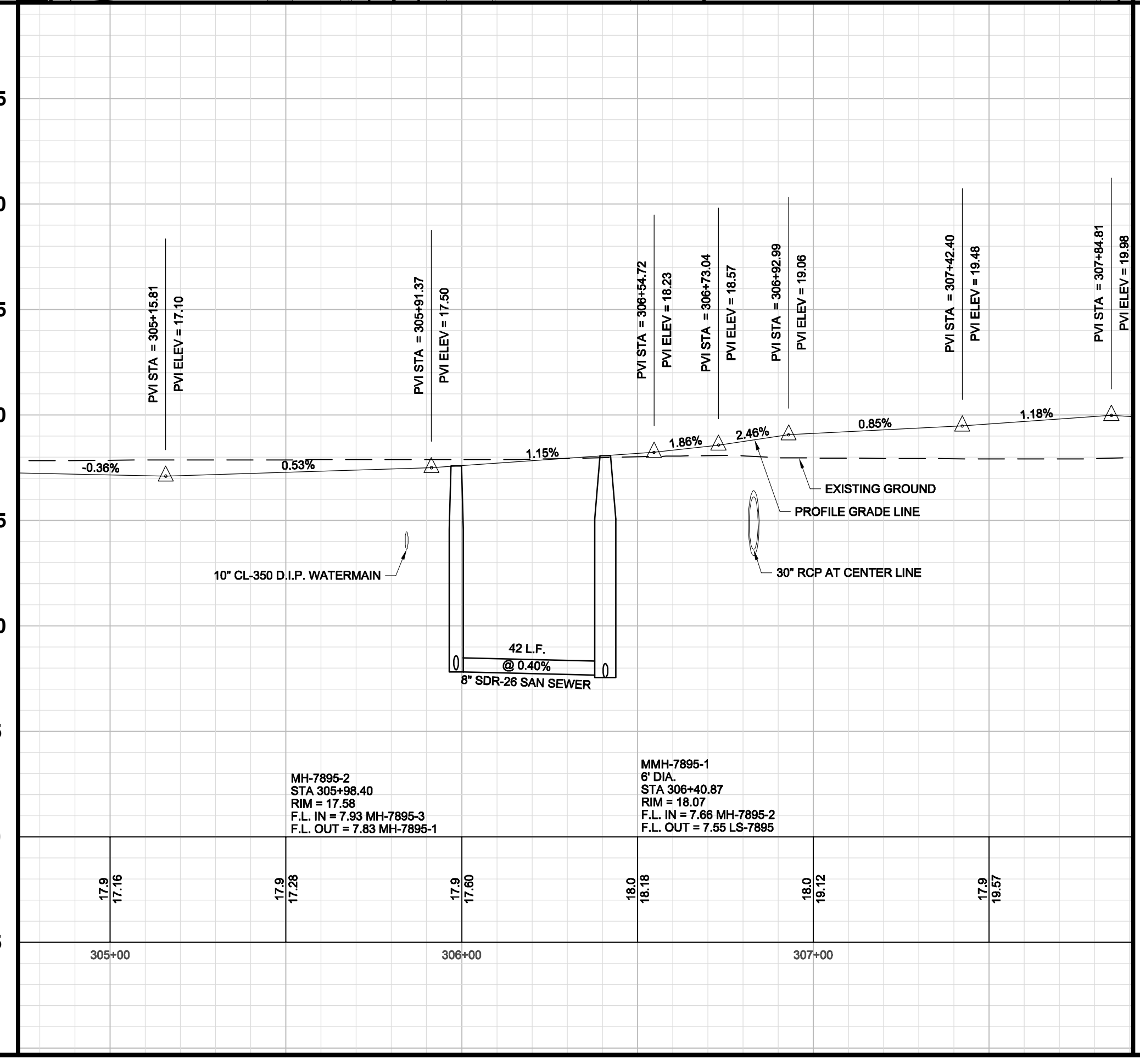
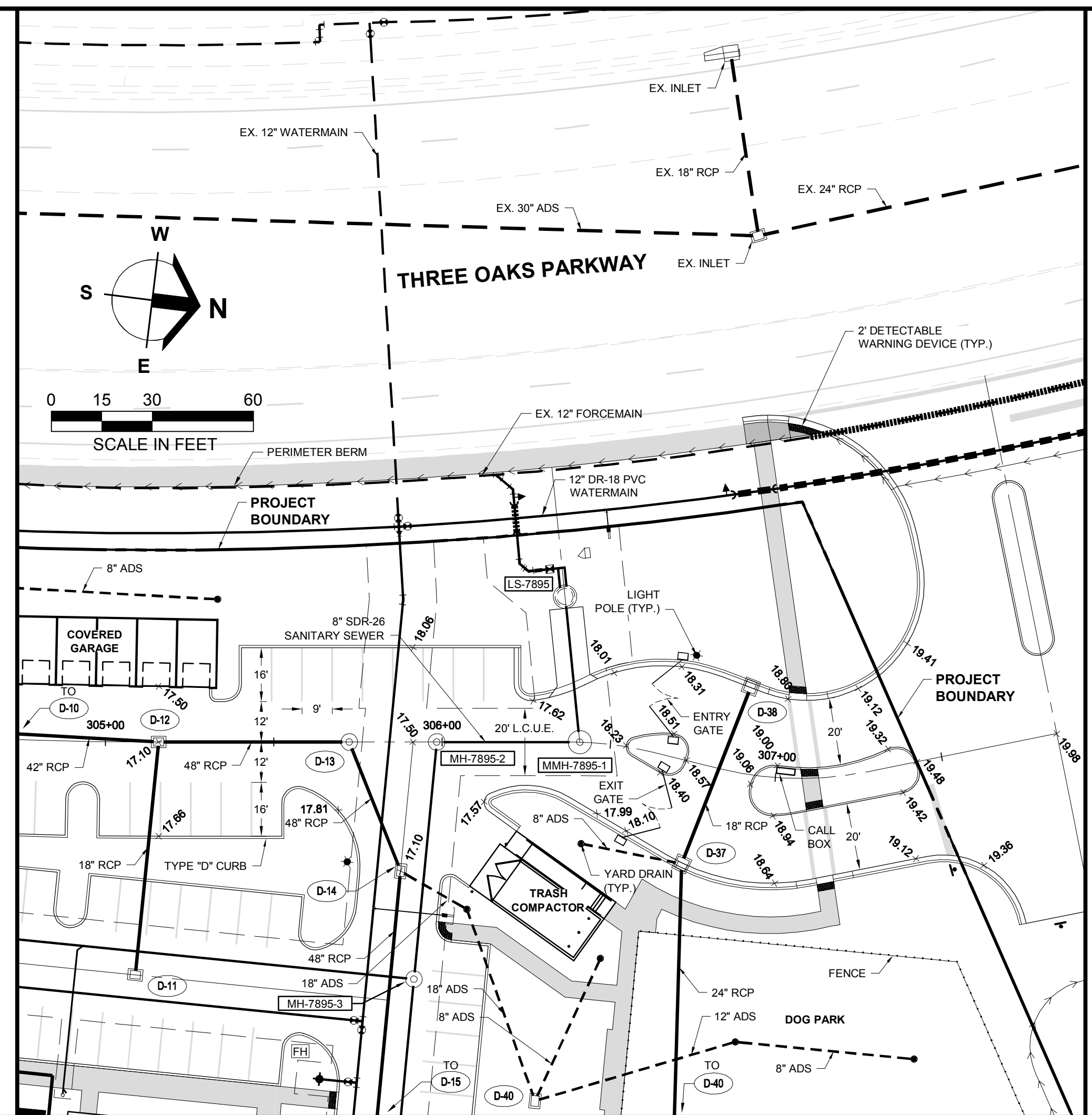
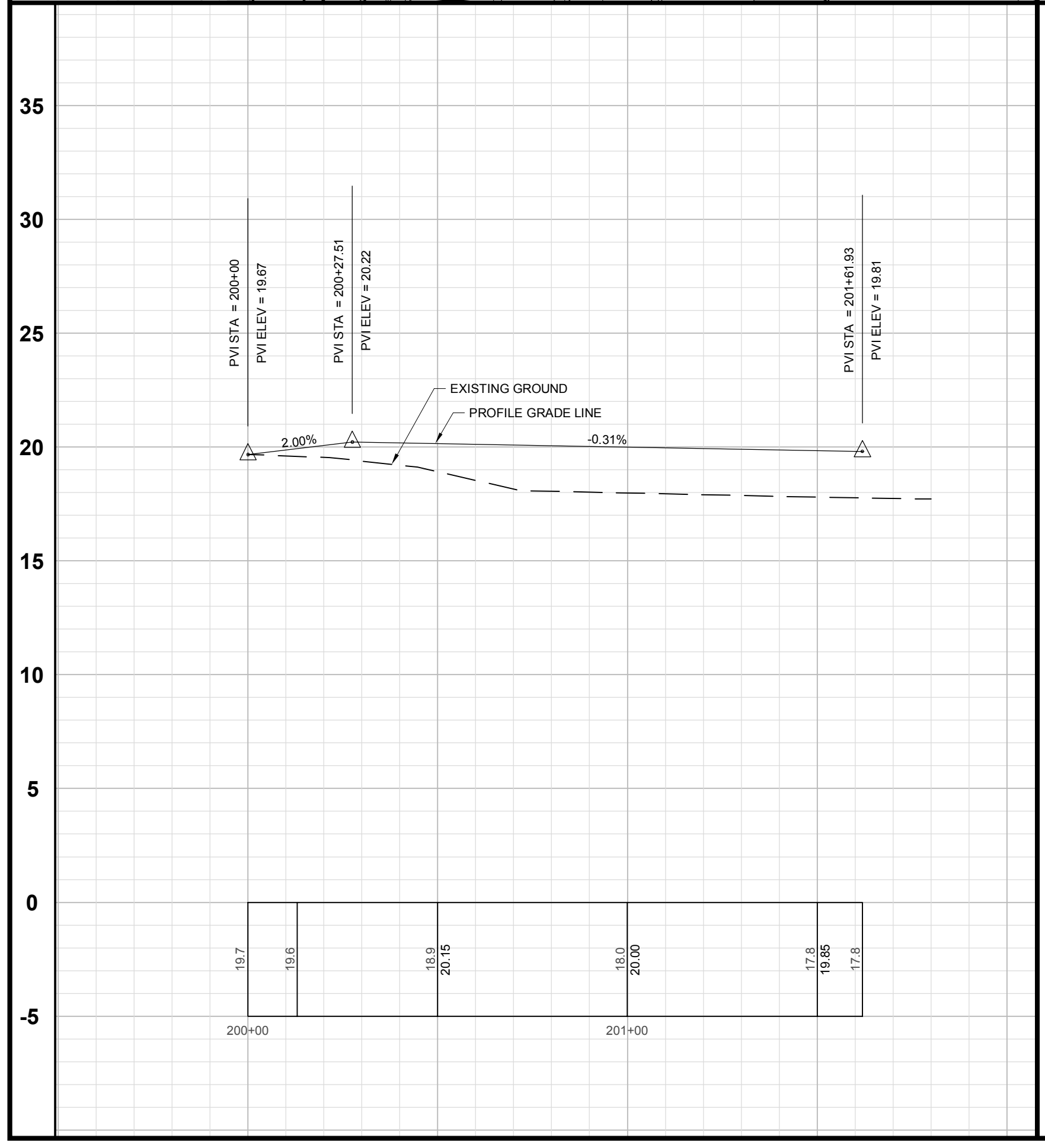
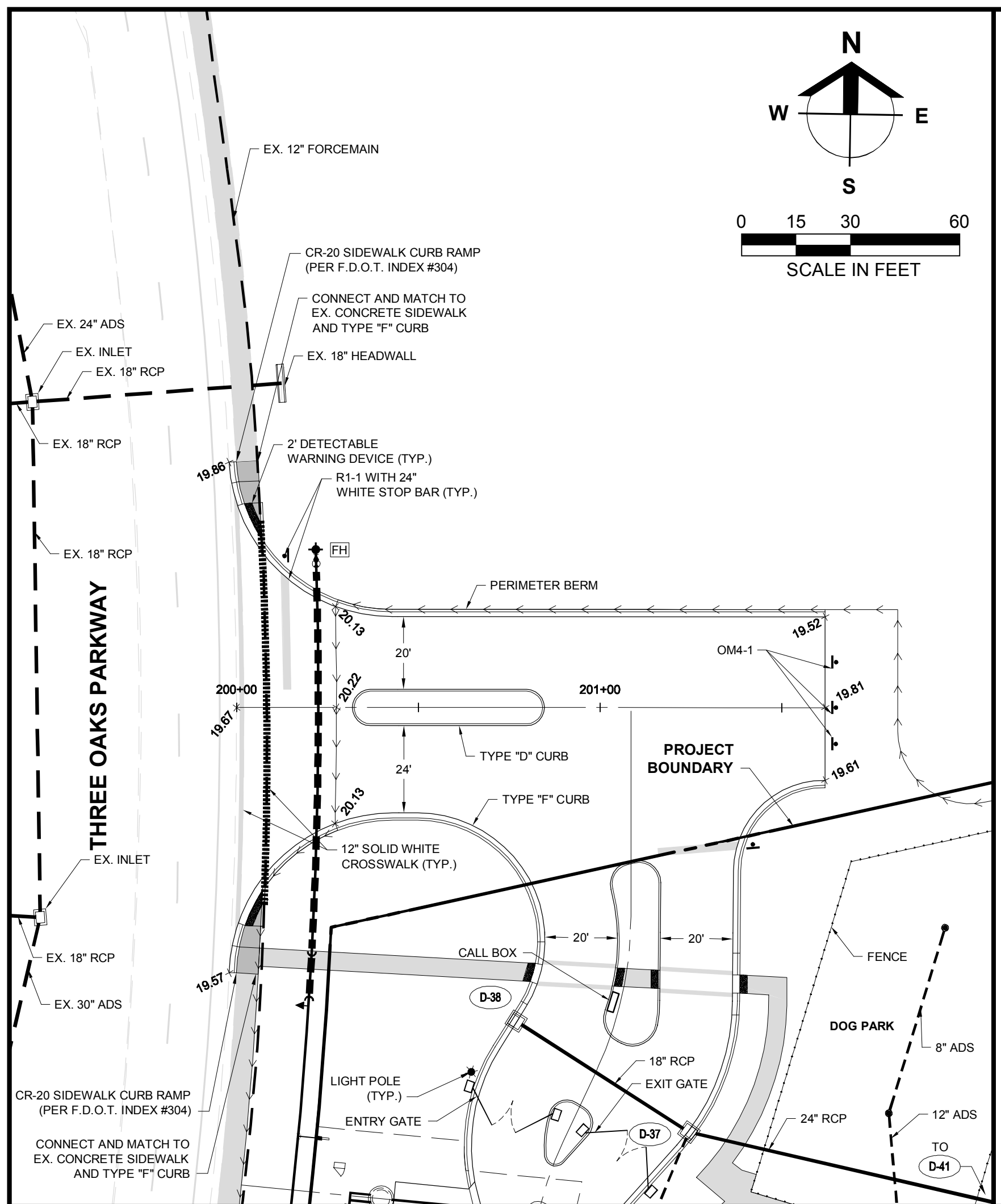
NO.	DESCRIPTION	DATE

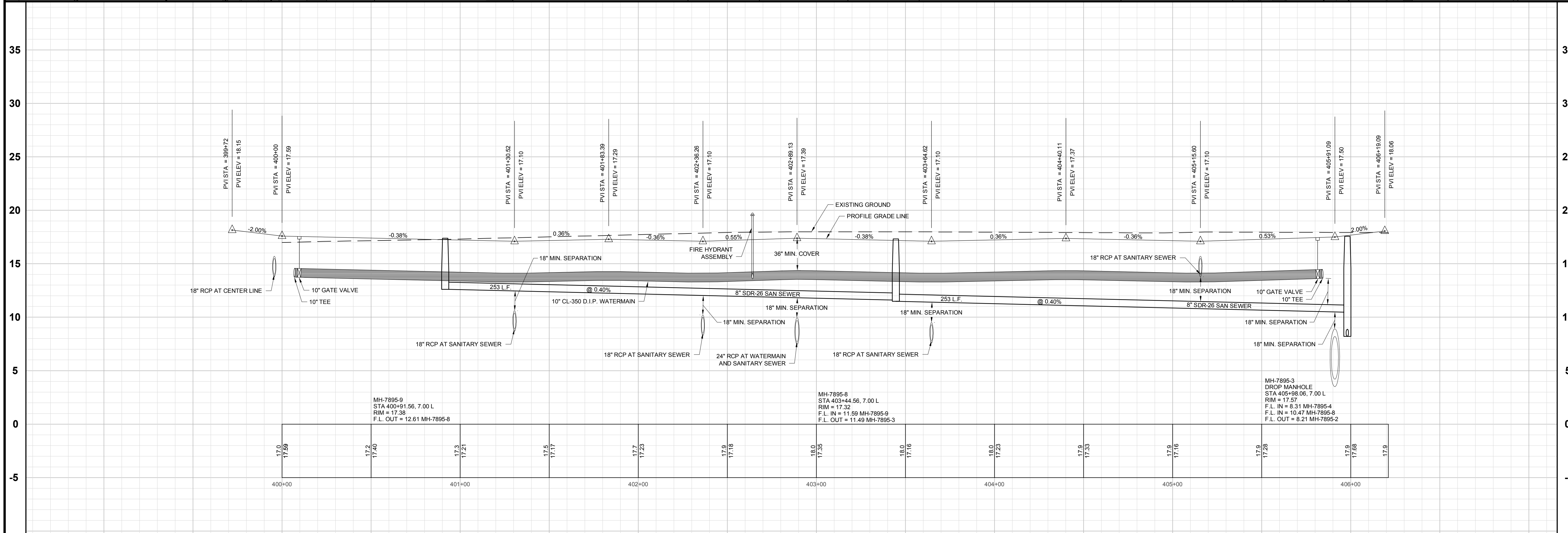
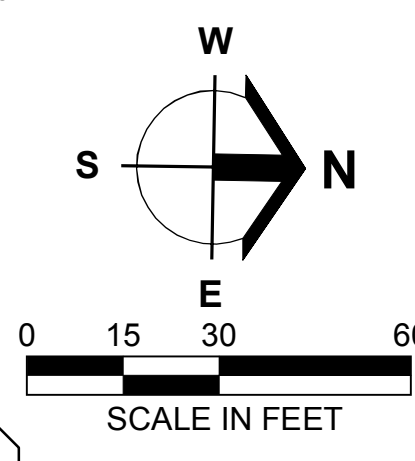
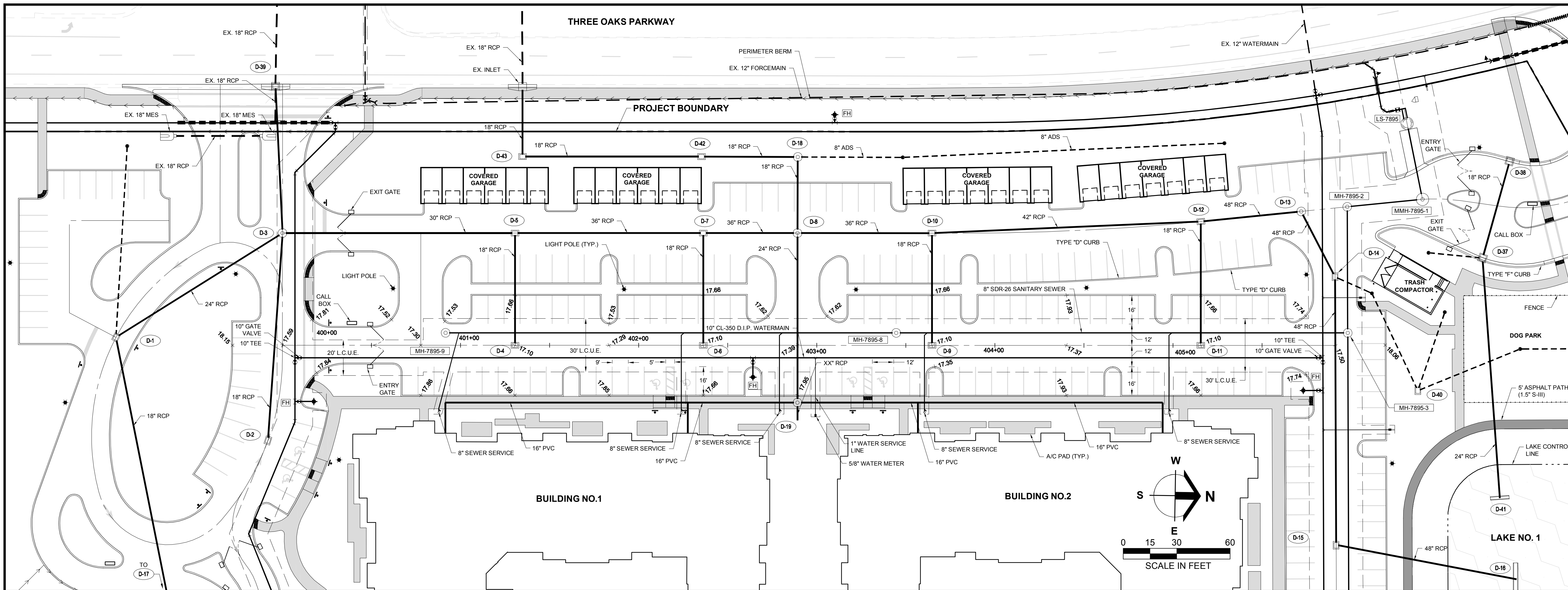
PLAN STATUS

BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION


**PLAN AND PROFILE**

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C11.0</b>





**Barraco**  
and Associates, Inc.  
CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169  
FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR  
  
COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION  
**MURANO**  
AT THREE OAKS  
LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A30C.DWG  
LOCATION = J:\23647\DWG\DO  
PLOT DATE = THU, 1-17-2019 - 4:12 PM  
PLOT BY = JAN.BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

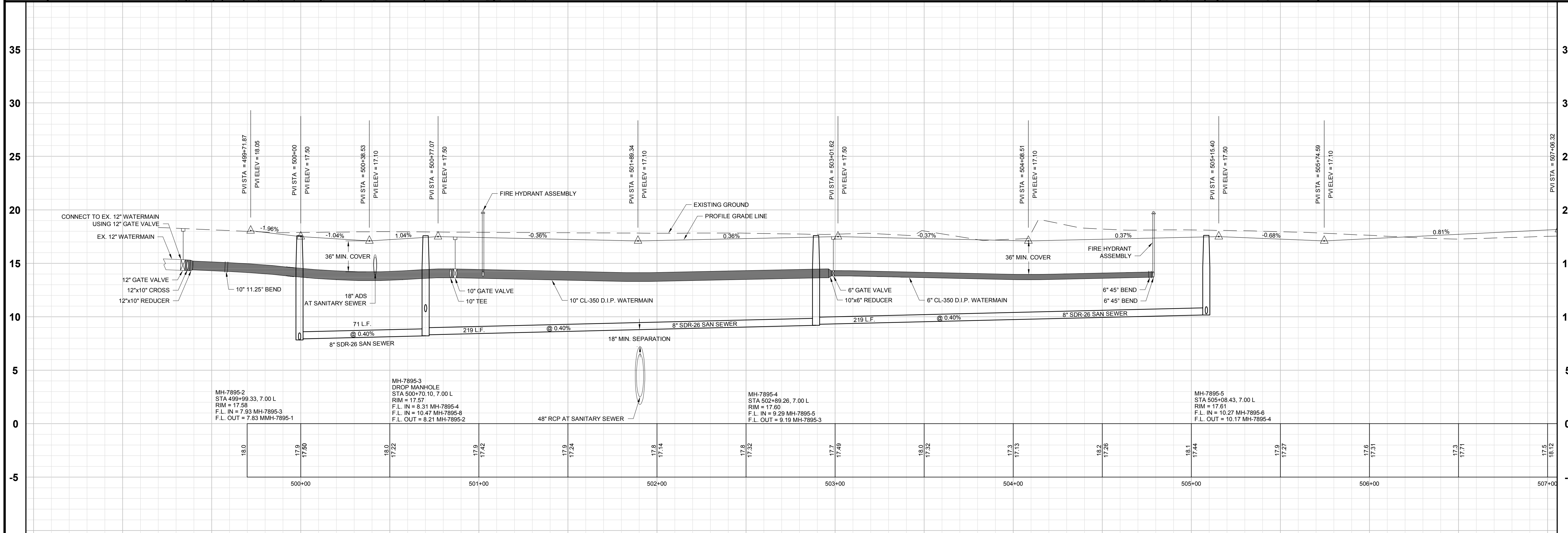
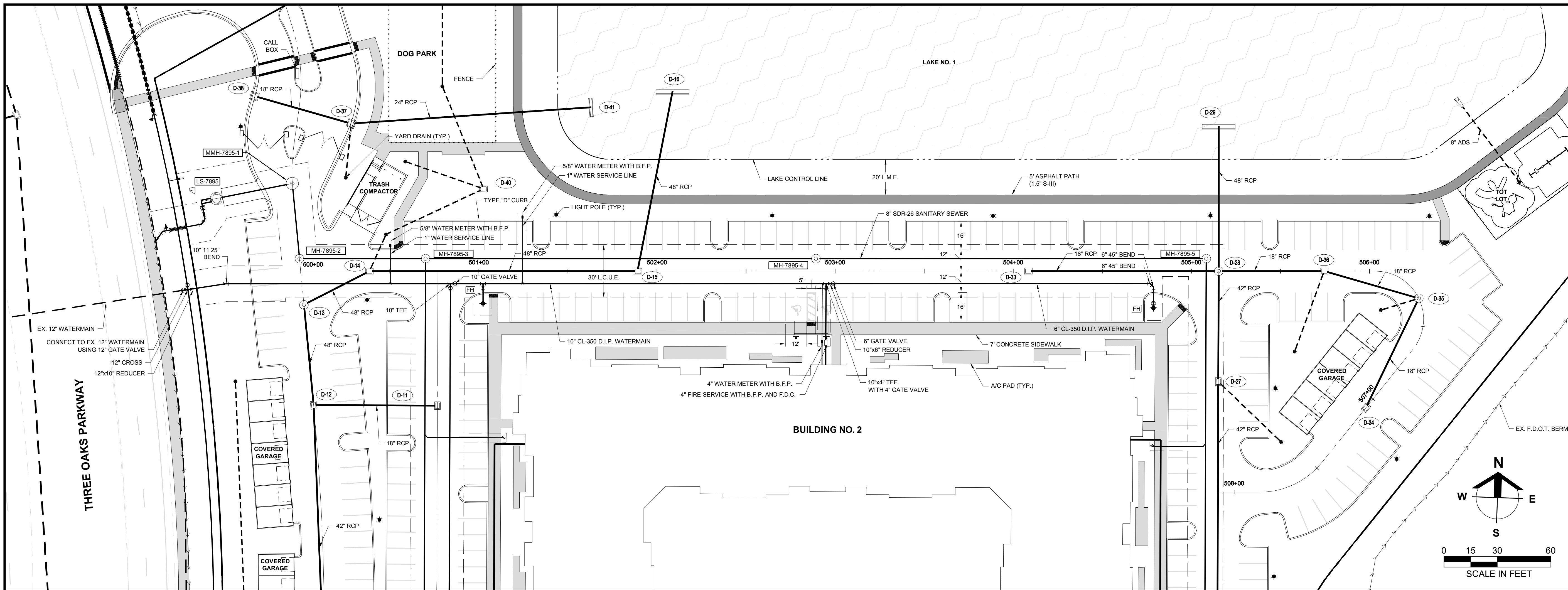
BASEPLAN = 23647A00.DWG
PROFILE = 23647A00P.DWG
SURVEY = 23329S00.DWG

PLAN REVISIONS


PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

PLAN AND PROFILE  
STA:400+00 - END

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C12.0</b>



**MURANO**  
**AT THREE OAKS**

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

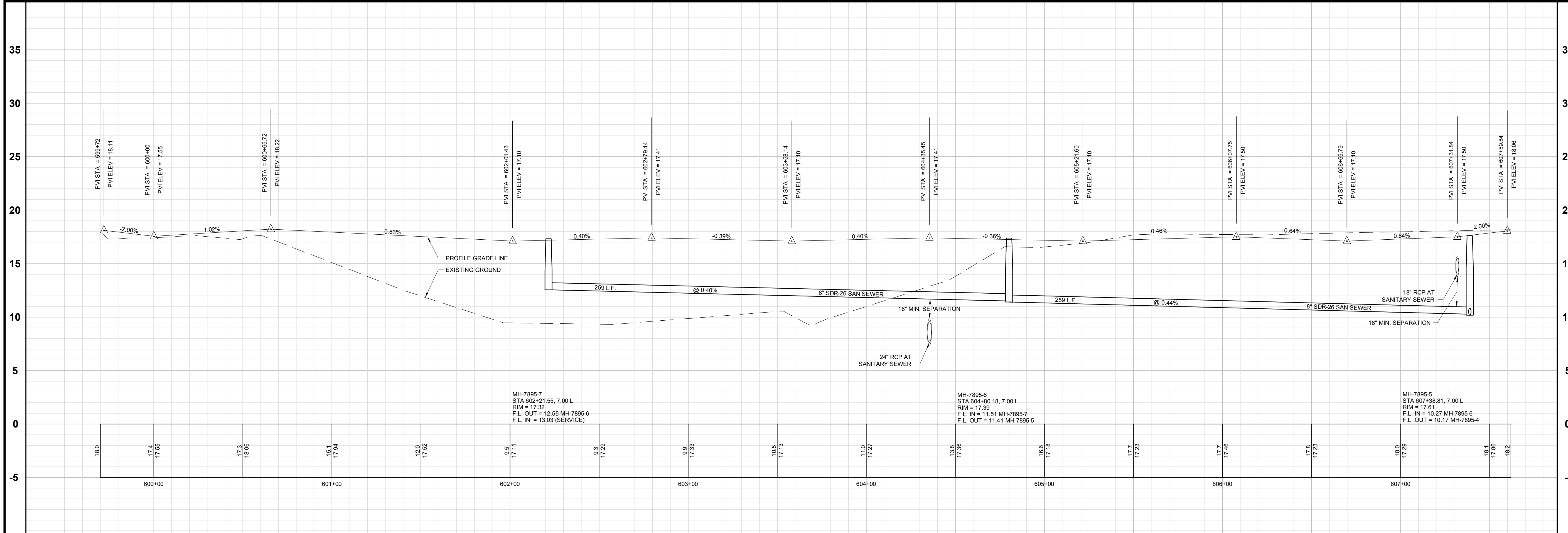
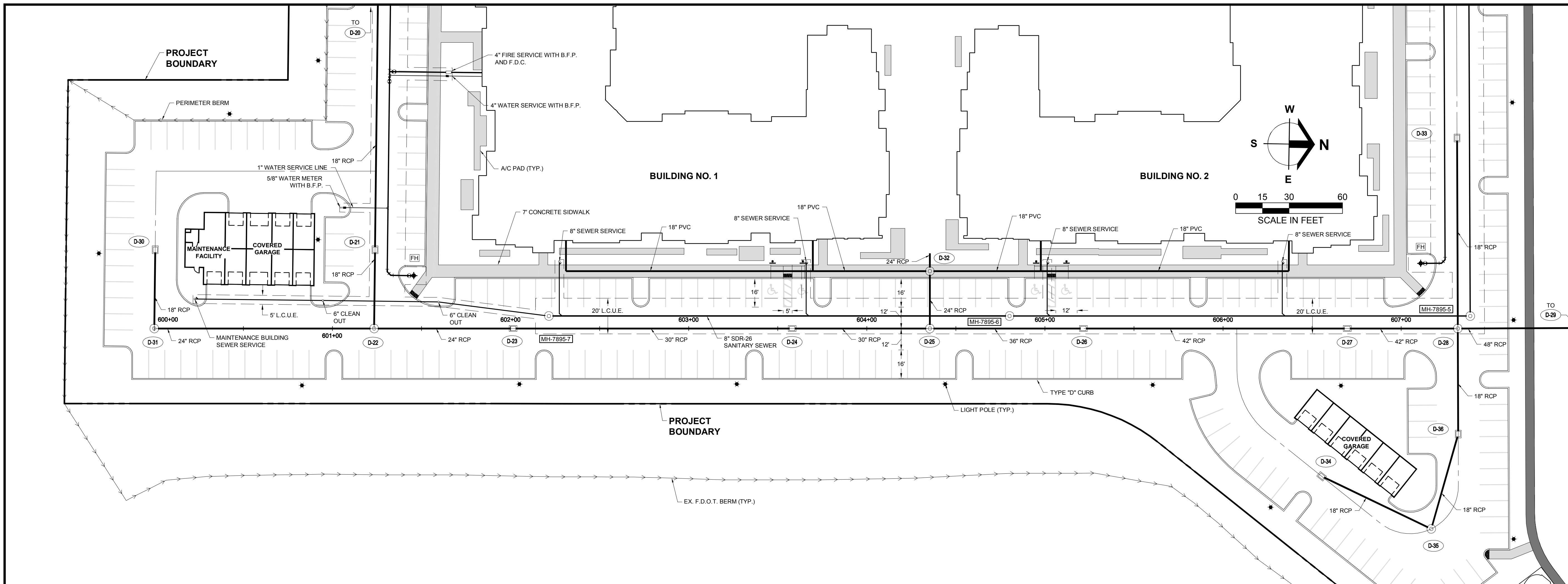
FILE NAME: J:\23647A\DWG  
LOCATION: J:\23647A\DWG\DWG  
PLOT DATE: THU, 1-17-2019 - 4:12 PM  
PLOT BY: JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
PROFILE = 23647A00P.DWG  
SURVEY = 23329S00.DWG

NO.	REVISION

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**PLAN AND PROFILE**  
**STA:500+00 - END**



**Barraco**  
and Associates, Inc.

CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

# MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: J:\23647A00.DWG  
LOCATION: J:\23647A00.DWG  
PLOT DATE: THU, 1-17-2019 - 4:13 PM  
PLOT BY: JAN BILDZUKIEWICZ

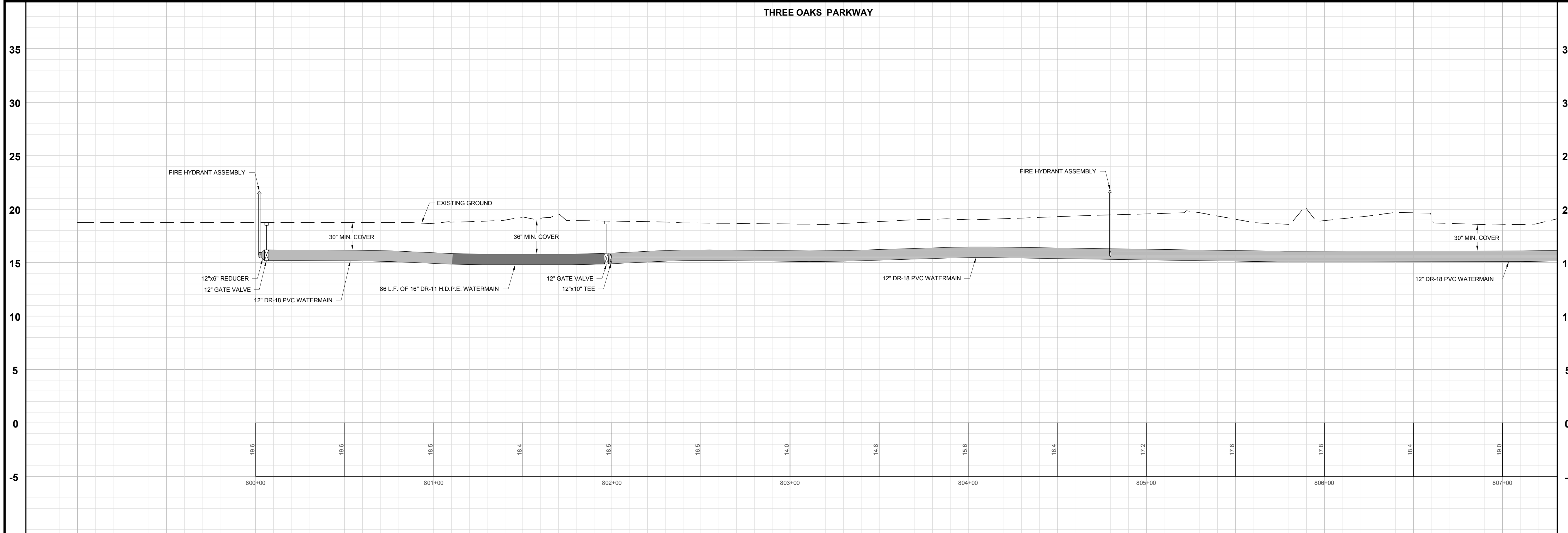
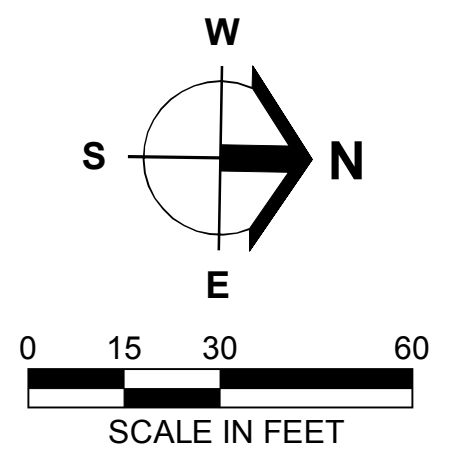
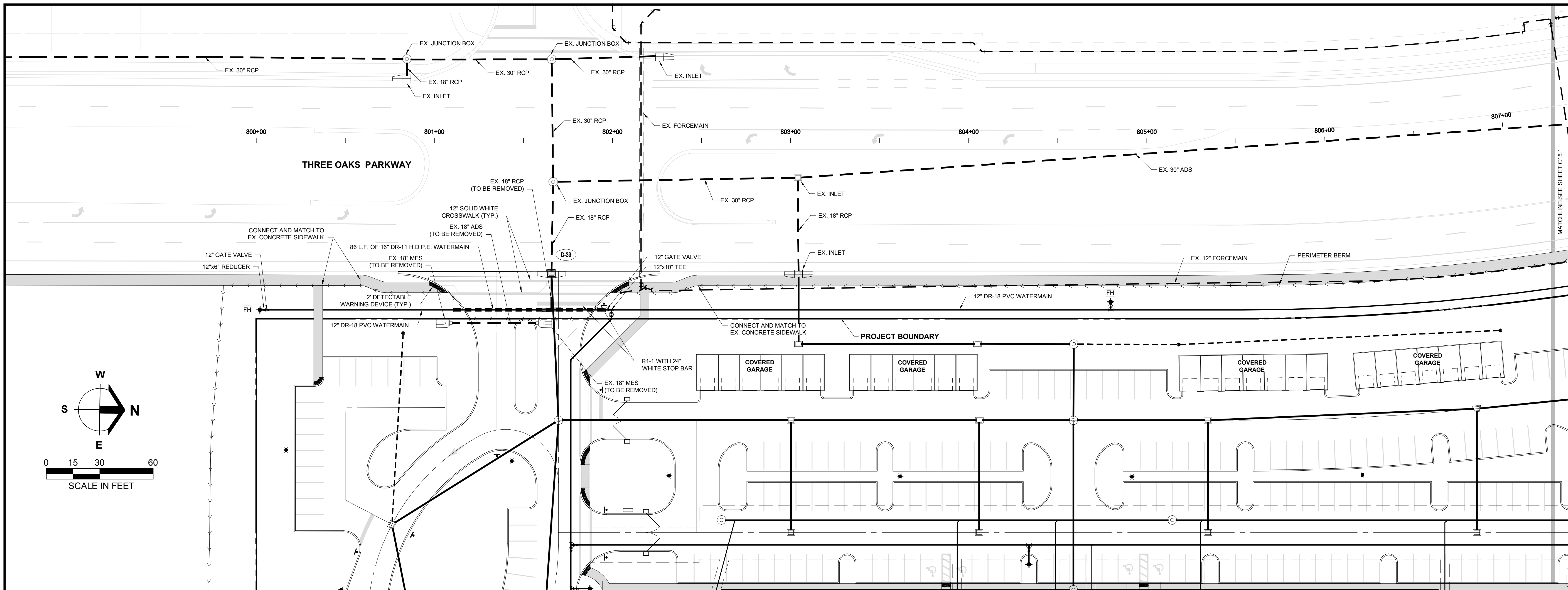
CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
PROFILE = 23647A00P.DWG  
SURVEY = 23329500.DWG

NO.	REVISION

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

## PLAN AND PROFILE STA: 600+00 TO END

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C14.0</b>



**Barraco**  
and Associates, Inc.

CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A00P.DWG  
LOCATION = J:\23647\DWG\DO  
PLOT DATE = THU, 1-17-2019 - 4:18 PM  
PLOT BY = JAN BILDZUKIEWICZ

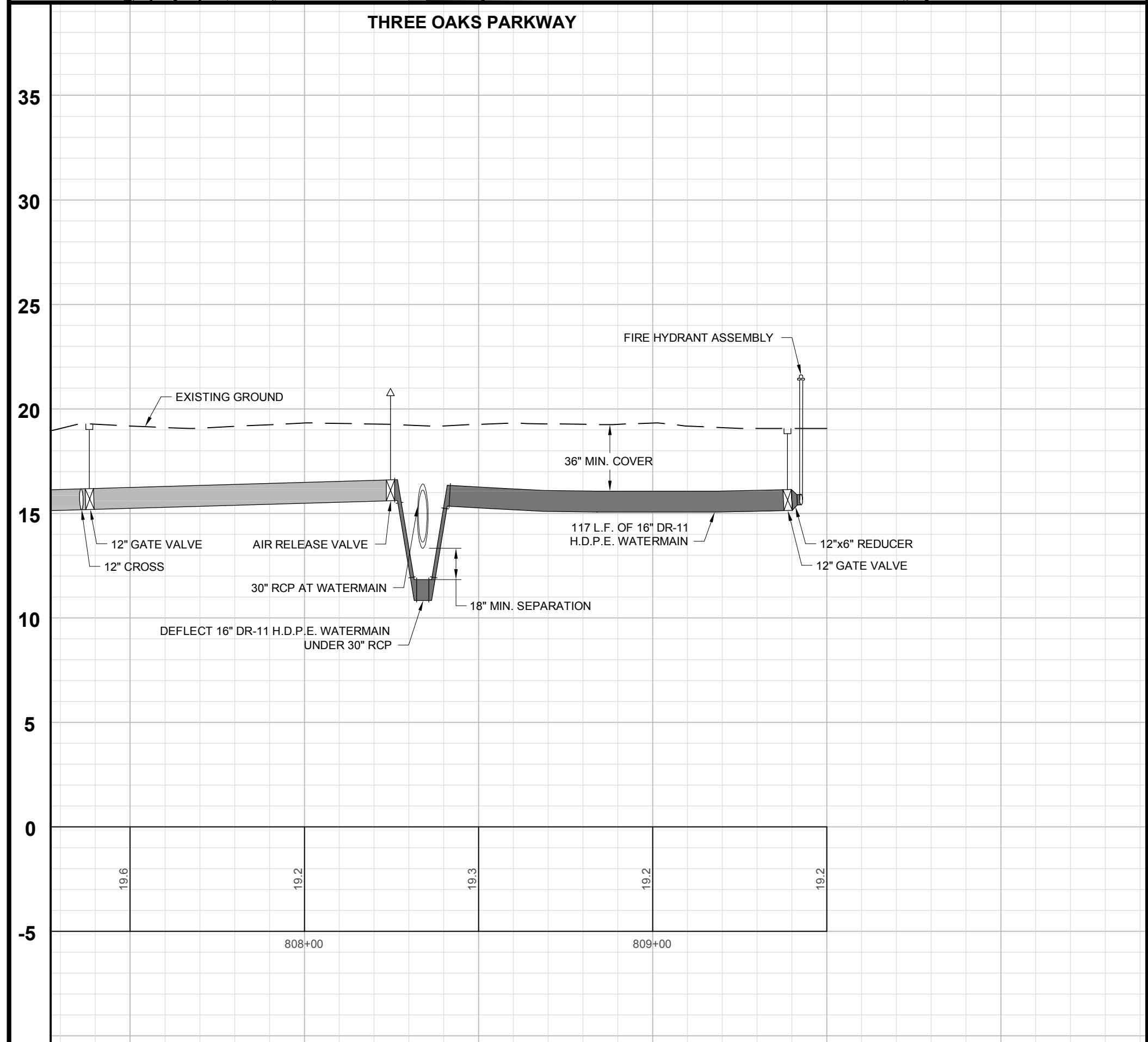
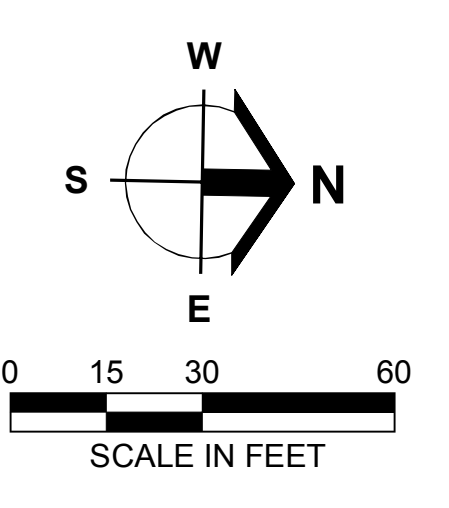
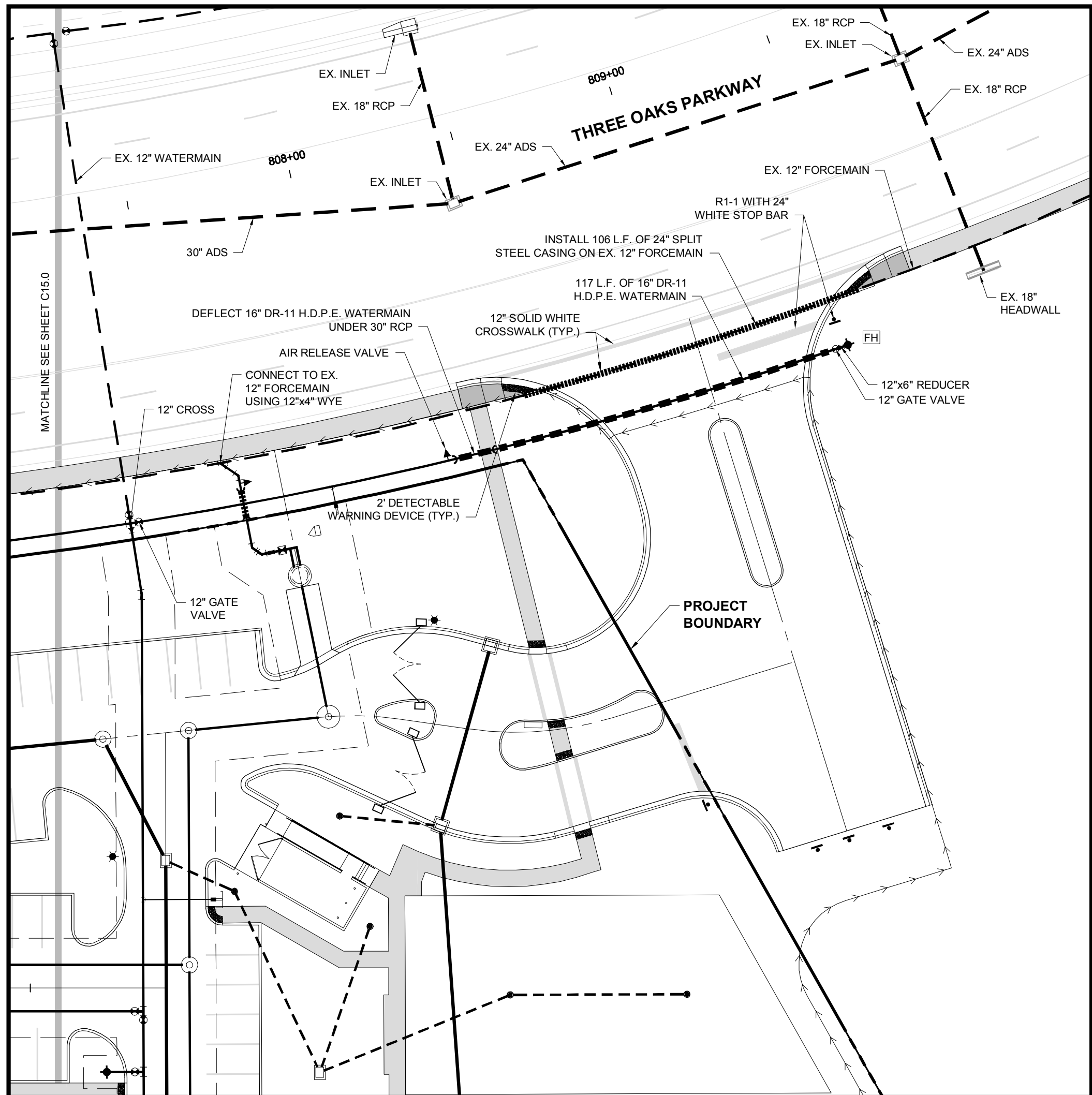
CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
PROFILE = 23647A00P.DWG  
SURVEY = 23329S00.DWG

PLAN REVISIONS	

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**PLAN AND PROFILE**  
**THREE OAKS PARKWAY**  
STA:800+00 - 800+28

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C15.0</b>



# Barraco and Associates, Inc.

CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

## MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARLJR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME	J:\23647\A00P.DWG
LOCATION	J:\23647\DWG\DO
PLOT DATE	THU, 1-17-2019 - 4:18 PM
PLOT BY	JAN BILDZUKEWICZ

CROSS REFERENCED DRAWINGS	
BASEPLAN =	23647A00.DWG
PROFILE =	23647A00P.DWG
SURVEY =	23329S00.DWG

PLAN REVISIONS	

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

### PLAN AND PROFILE THREE OAKS PARKWAY STA:800+28 - END

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C15.1</b>

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
WWW.COURTELIS.COM

PROJECT DESCRIPTION

**MURANO  
AT THREE OAKS**

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME	23647A44.DWG
LOCATION	J:\23647\DWG\DOI
PLOT DATE	THU, 1-17-2019 - 4:18 PM
PLOT BY	JAN BILDZUKEWICZ

CROSS REFERENCED DRAWINGS

PLAN REVISIONS

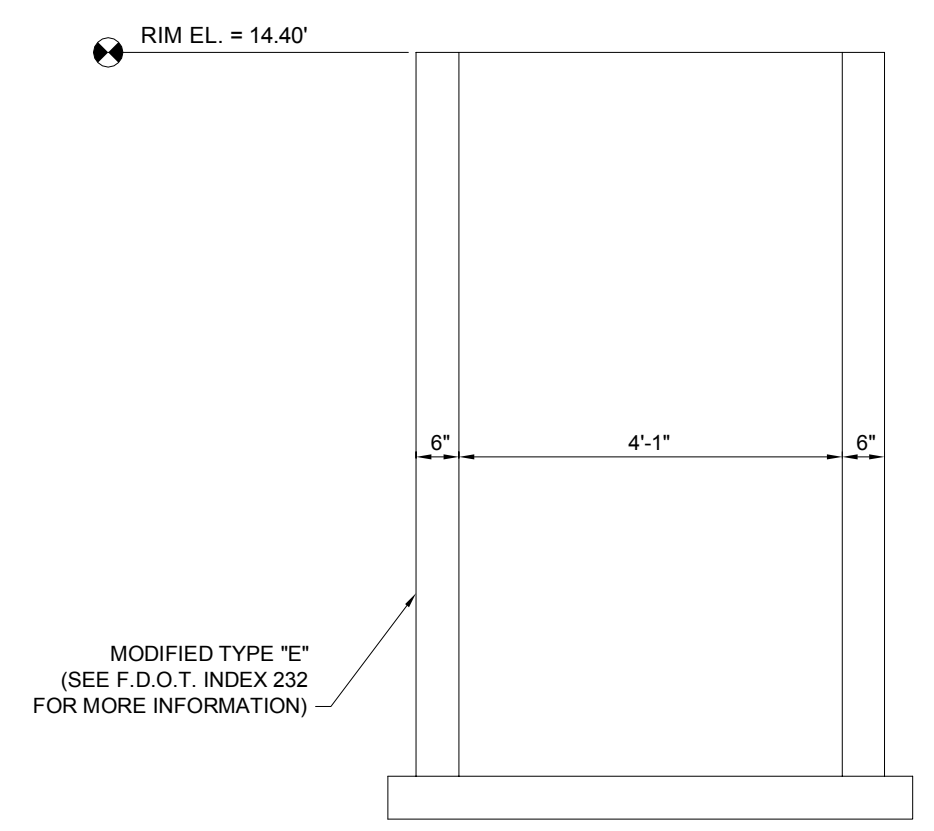
NO.	DESCRIPTION

PLAN STATUS

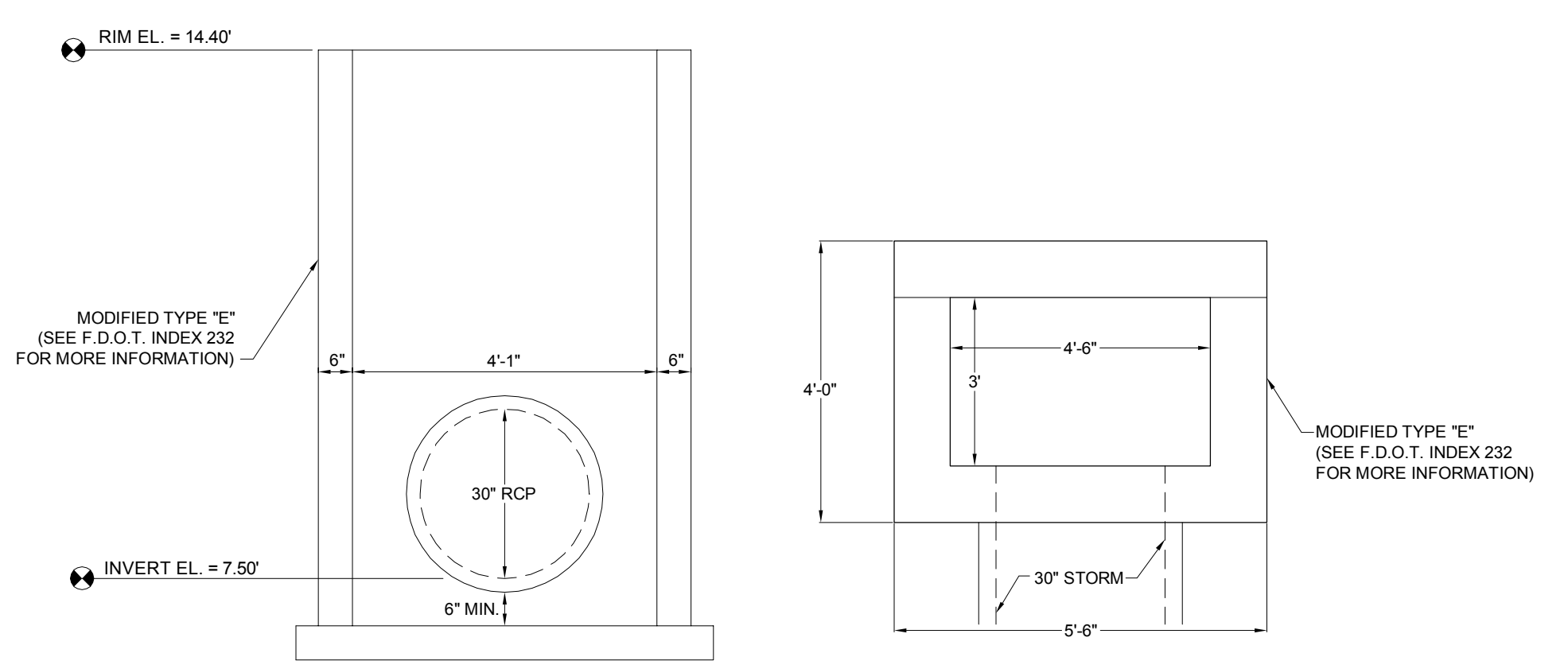
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**DRAINAGE  
DETAILS**

PROJECT / FILE NO.	SHEET NUMBER
<b>23647</b>	<b>C16.0</b>



**FRONT**



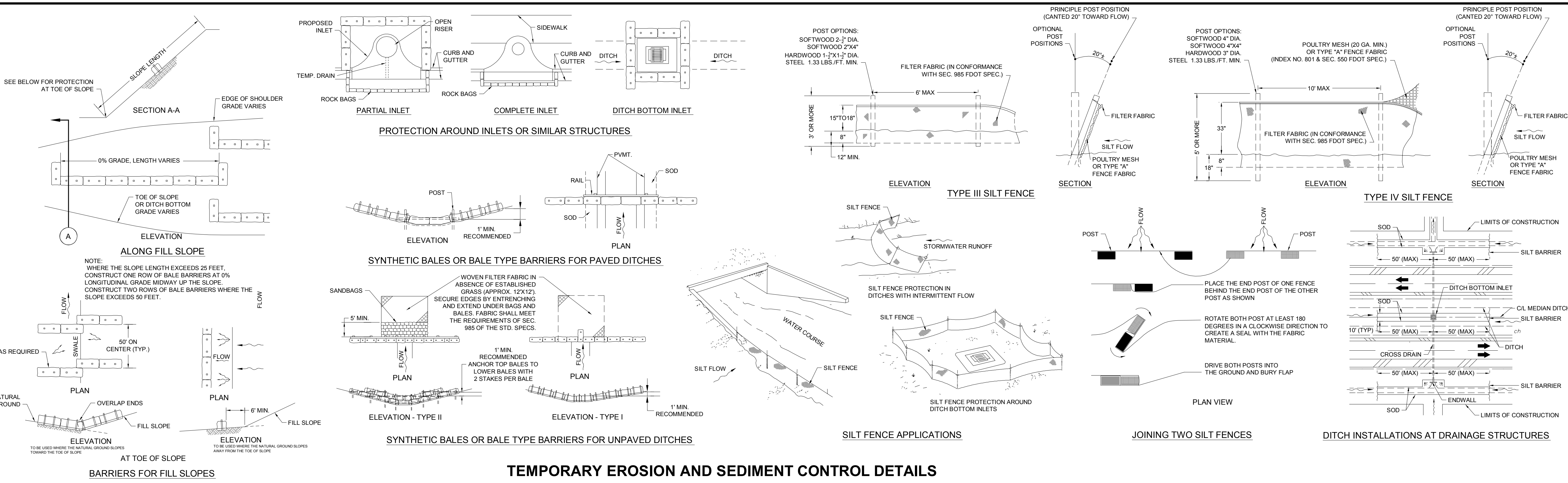
**BACK**

**TOP**

**CONTROL STRUCTURE 1 DETAIL**

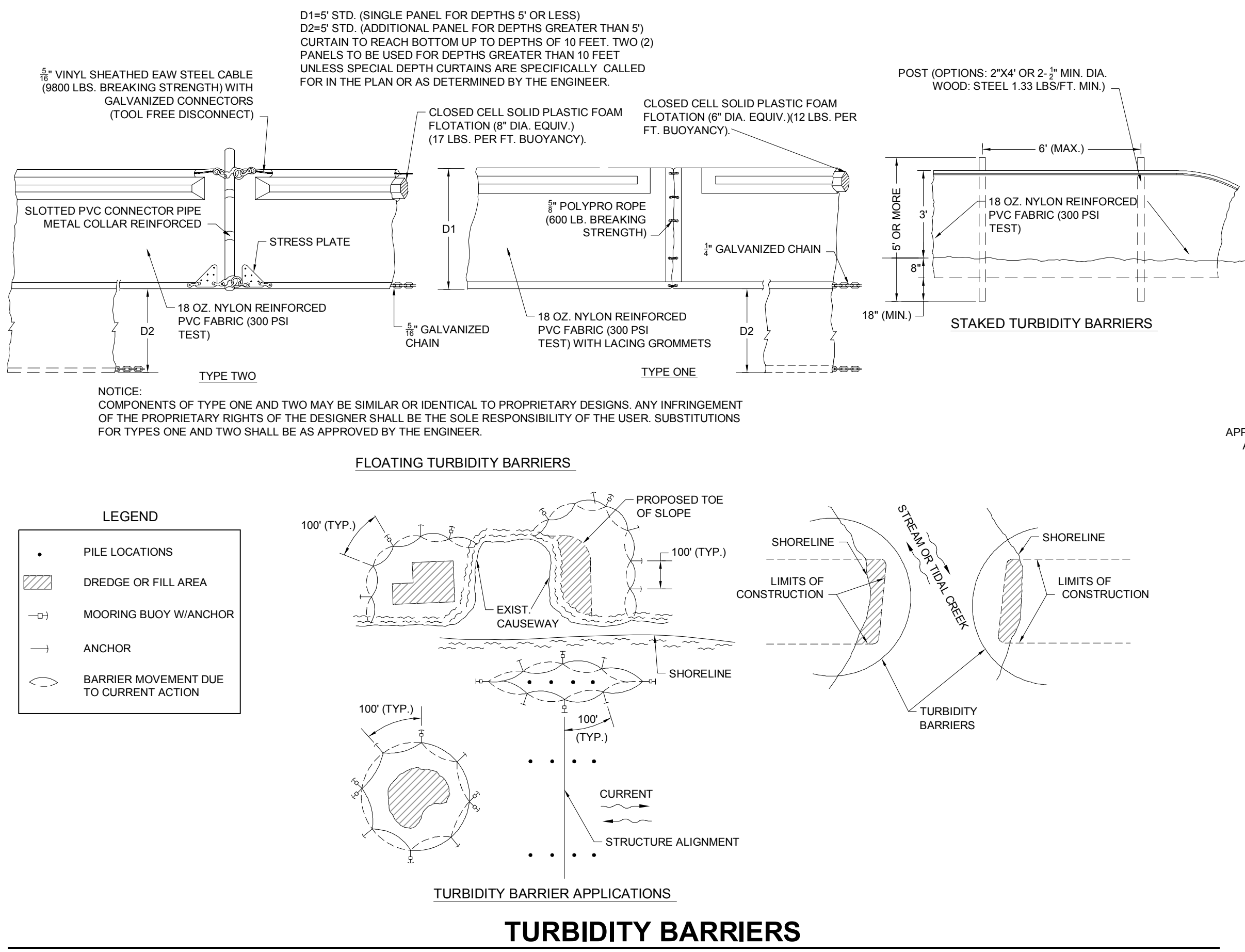
N.T.S.



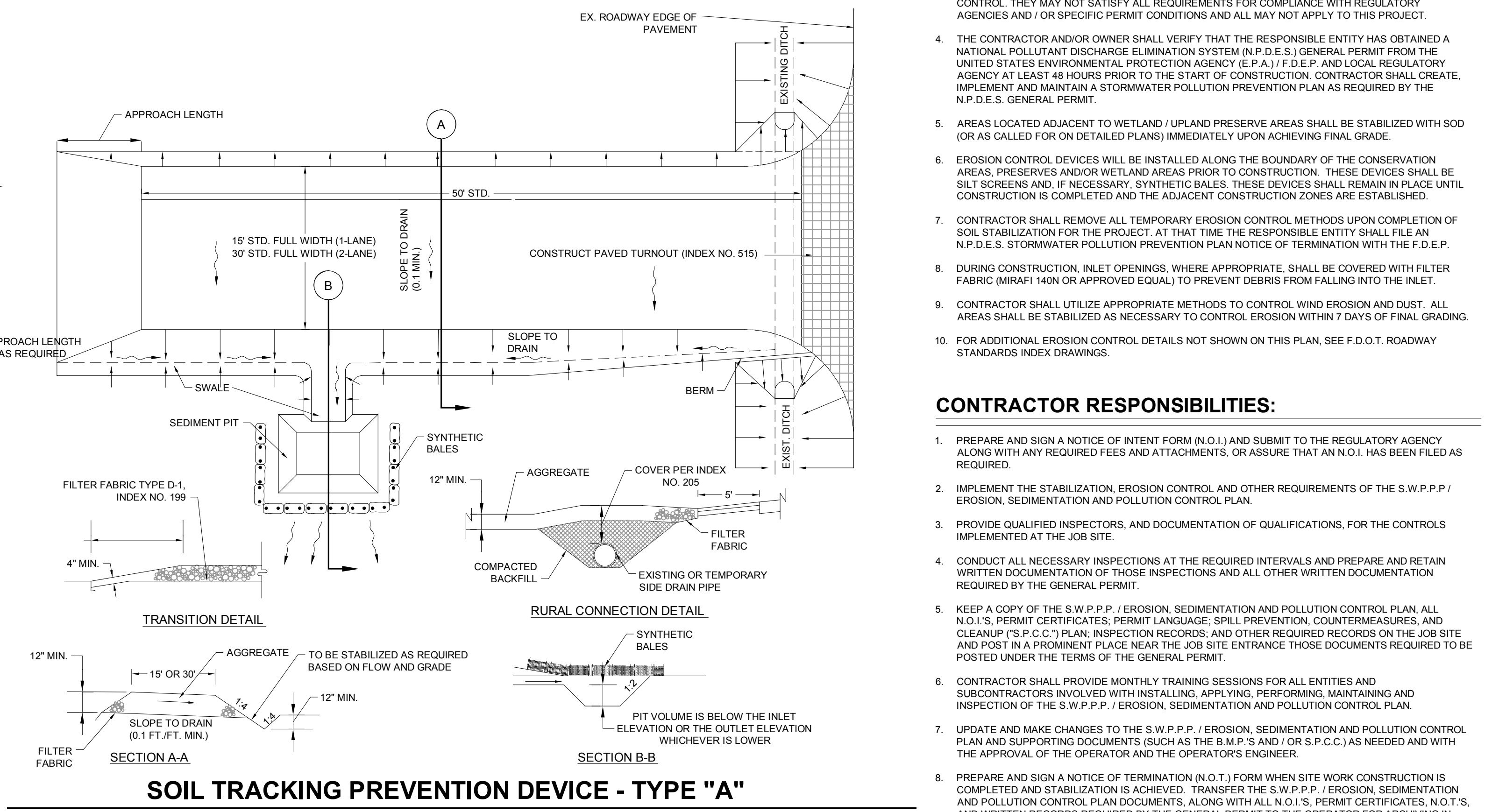


**TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS**

**NOTE: NOT ALL NOTES, DETAILS, SYMBOLS OR OTHER STANDARDS SHOWN ON THIS SHEET MAY BE APPLICABLE TO THIS PROJECT**



**TURBIDITY BARRIERS**



**SOIL TRACKING PREVENTION DEVICE - TYPE "A"**

**EROSION CONTROL NOTES:**

1. PRIOR TO COMMENCEMENT OF CONSTRUCTION APPROPRIATE EROSION CONTROL DEVICES SHALL BE INSTALLED TO CONTROL AND REDUCE SOIL EROSION AND SEDIMENT TRANSPORT TO OFF-SITE AREAS. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES THROUGHOUT THE DURATION OF CONSTRUCTION. ALL DEVICES SHALL REMAIN IN PLACE UNTIL PERMANENT EROSION CONTROL IS ESTABLISHED.
2. THE CONTRACTOR SHALL SUPPLEMENT THIS PLAN AS REQUIRED TO CONTROL AND REDUCE SOIL EROSION BASED ON THE CONTRACTOR'S MEANS, METHODS AND TECHNIQUE OF CONSTRUCTION. IT IS RECOMMENDED THAT THE CONTRACTOR COMPLY WITH THE LATEST EDITIONS OF THE F.D.O.T. STANDARD SPECIFICATIONS SECTION 104 (PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION) AND THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL (THE "E&S" MANUAL).
3. THE DETAILS ON THIS SHEET REPRESENT TYPICAL BEST MANAGEMENT PRACTICES FOR SOIL EROSION CONTROL. THEY MAY NOT SATISFY ALL REQUIREMENTS FOR COMPLIANCE WITH REGULATORY AGENCIES AND / OR SPECIFIC PERMIT CONDITIONS AND ALL MAY NOT APPLY TO THIS PROJECT.
4. THE CONTRACTOR AND/OR OWNER SHALL VERIFY THAT THE RESPONSIBLE ENTITY HAS OBTAINED A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (N.P.D.E.S.) GENERAL PERMIT FROM THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (E.P.A.) / F.D.E.P. AND LOCAL REGULATORY AGENCY AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL CREATE, IMPLEMENT AND MAINTAIN A STORMWATER POLLUTION PREVENTION PLAN AS REQUIRED BY THE N.P.D.E.S. GENERAL PERMIT.
5. AREAS LOCATED ADJACENT TO WETLAND / UPLAND PRESERVE AREAS SHALL BE STABILIZED WITH SOD (OR AS CALLED FOR ON DETAILED PLANS) IMMEDIATELY UPON ACHIEVING FINAL GRADE.
6. EROSION CONTROL DEVICES WILL BE INSTALLED ALONG THE BOUNDARY OF THE CONSERVATION AREAS, PRESERVES AND/OR WETLAND AREAS PRIOR TO CONSTRUCTION. THESE DEVICES SHALL BE SILT SCREENS AND, IF NECESSARY, SYNTHETIC BALES. THESE DEVICES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND THE ADJACENT CONSTRUCTION ZONES ARE ESTABLISHED.
7. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL METHODS UPON COMPLETION OF SOIL STABILIZATION FOR THE PROJECT. AT THAT TIME THE RESPONSIBLE ENTITY SHALL FILE AN N.P.D.E.S. STORMWATER POLLUTION PREVENTION PLAN NOTICE OF TERMINATION WITH THE F.D.E.P.
8. DURING CONSTRUCTION, INLET OPENINGS, WHERE APPROPRIATE, SHALL BE COVERED WITH FILTER FABRIC (MIRAFI 140N OR APPROVED EQUAL) TO PREVENT DEBRIS FROM FALLING INTO THE INLET.
9. CONTRACTOR SHALL UTILIZE APPROPRIATE METHODS TO CONTROL WIND EROSION AND DUST. ALL AREAS SHALL BE STABILIZED AS NECESSARY TO CONTROL EROSION WITHIN 7 DAYS OF FINAL GRADING.
10. FOR ADDITIONAL EROSION CONTROL DETAILS NOT SHOWN ON THIS PLAN, SEE F.D.O.T. ROADWAY STANDARDS INDEX DRAWINGS.

**CONTRACTOR RESPONSIBILITIES:**

1. PREPARE AND SIGN A NOTICE OF INTENT FORM (N.O.I.) AND SUBMIT TO THE REGULATORY AGENCY ALONG WITH ANY REQUIRED FEES AND ATTACHMENTS, OR ASSURE THAT AN N.O.I. HAS BEEN FILED AS REQUIRED.
2. IMPLEMENT THE STABILIZATION, EROSION CONTROL AND OTHER REQUIREMENTS OF THE S.W.P.P.P. / EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN.
3. PROVIDE QUALIFIED INSPECTORS, AND DOCUMENTATION OF QUALIFICATIONS, FOR THE CONTROLS IMPLEMENTED AT THE JOB SITE.
4. CONDUCT ALL NECESSARY INSPECTIONS AT THE REQUIRED INTERVALS AND PREPARE AND RETAIN WRITTEN DOCUMENTATION OF THOSE INSPECTIONS AND ALL OTHER WRITTEN DOCUMENTATION REQUIRED BY THE GENERAL PERMIT.
5. KEEP A COPY OF THE S.W.P.P.P. / EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, ALL N.O.I.'S, PERMIT CERTIFICATES, PERMIT LANGUAGE, SPILL PREVENTION, COUNTERMEASURES, AND CLEANUP ("S.P.C.C.") PLAN, INSPECTION RECORDS, AND OTHER REQUIRED RECORDS ON THE JOB SITE AND POST IN A PROMINENT PLACE NEAR THE JOB SITE ENTRANCE THOSE DOCUMENTS REQUIRED TO BE POSTED UNDER THE TERMS OF THE GENERAL PERMIT.
6. CONTRACTOR SHALL PROVIDE MONTHLY TRAINING SESSIONS FOR ALL ENTITIES AND SUBCONTRACTORS INVOLVED WITH INSTALLING, APPLYING, PERFORMING, MAINTAINING AND INSPECTION OF THE S.W.P.P.P. / EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN.
7. UPDATE AND MAKE CHANGES TO THE S.W.P.P.P. / EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN AND SUPPORTING DOCUMENTS (SUCH AS THE S.M.P.'S AND / OR S.P.C.C.) AS NEEDED AND WITH THE APPROVAL OF THE OPERATOR AND THE OPERATOR'S ENGINEER.
8. PREPARE AND SIGN A NOTICE OF TERMINATION (N.O.T.) FORM WHEN SITE WORK CONSTRUCTION IS COMPLETED AND STABILIZATION IS ACHIEVED. TRANSFER THE S.W.P.P.P. / EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN DOCUMENTS, ALONG WITH ALL N.O.I.'S, PERMIT CERTIFICATES, N.O.T.'S, AND WRITTEN RECORDS REQUIRED BY THE GENERAL PERMIT TO THE OPERATOR FOR ARCHIVING IN BOTH PAPER AND OPTICALLY-SCANNED FORMAT ON A CD.

[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

WWW.COURTELIS.COM

PROJECT DESCRIPTION

**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: J23647.DWG

LOCATION: J:\23647\DWG\DWG

PLOT DATE: THU, 1-17-2019 - 4:19 PM

PLOT BY: JAN BILDZUKIEWICZ

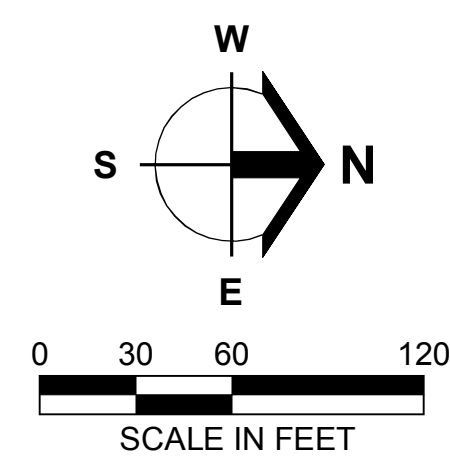
CROSS REFERENCED DRAWINGS  
MASTER = BA1-EROSION-2.DWG

PLAN REVISIONS

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

**EROSION CONTROL DETAILS**

PROJECT / FILE NO. **23647** SHEET NUMBER **C17.0**



**Barraco**  
and Associates, Inc.  
CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169  
FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

# MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME = 23647A52.DWG  
LOCATION = J:\23647\DWG\DO  
PLOT DATE = THU, 1-17-2019 - 4:19 PM  
PLOT BY = JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS  
BASEPLAN = 23647A00.DWG  
SURVEY = 23329S00.DWG

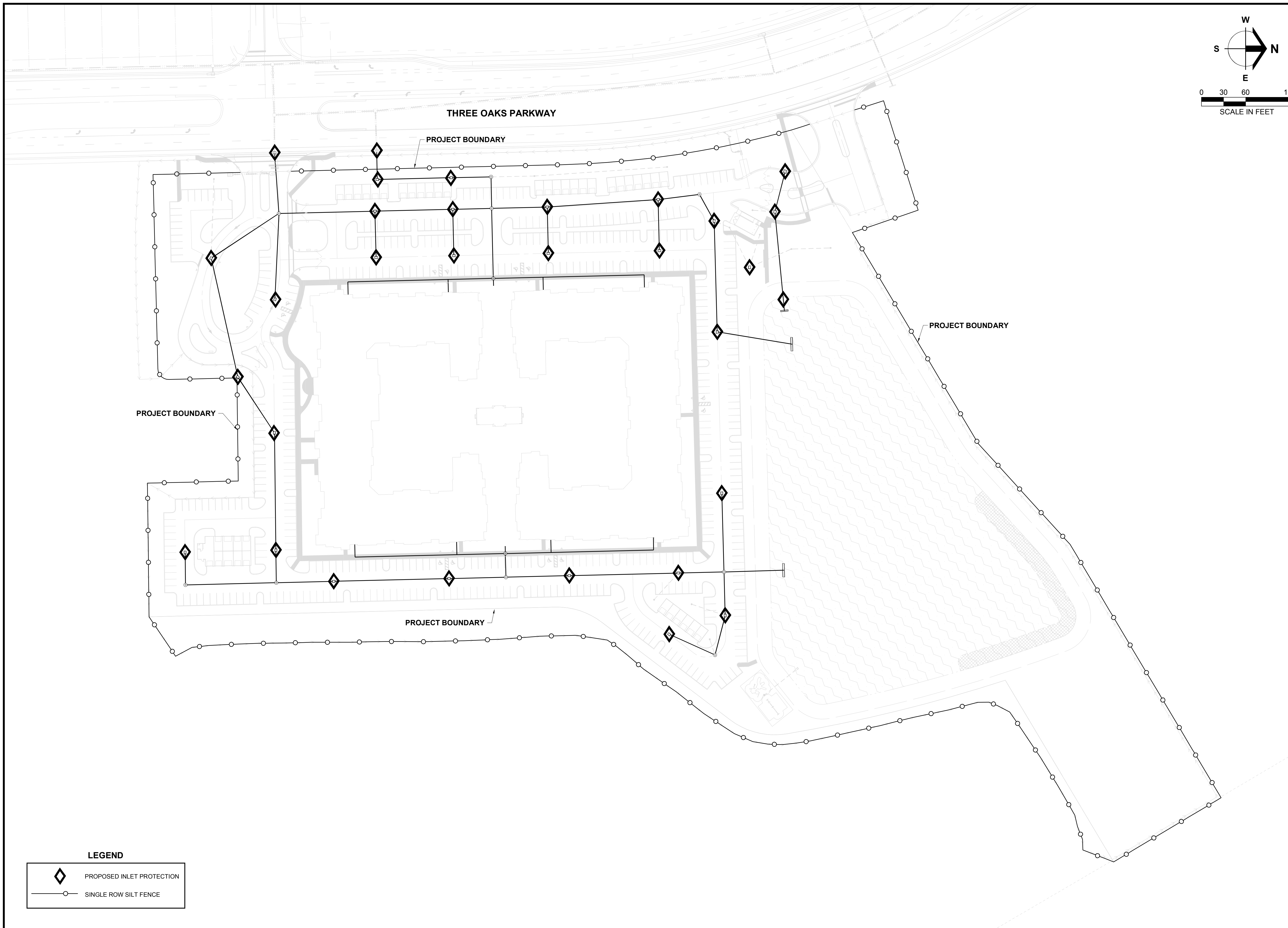
PLAN REVISIONS

PLAN STATUS

BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

## STORMWATER POLLUTION PREVENTION PLAN

PROJECT / FILE NO. **23647** SHEET NUMBER **C18.0**



### LEGEND

- PROPOSED INLET PROTECTION
- SINGLE ROW SILT FENCE

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

WWW.COURTELIS.COM

PROJECT DESCRIPTION

**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: 23647A70.DWG

LOCATION: J:\23647\DWG\DO

PLOT DATE: THU, 1-17-2019 - 4:20 PM

PLOT BY: JAN BLIDZUKIEWICZ

CROSS REFERENCED DRAWINGS

PLAN REVISIONS

PLAN STATUS

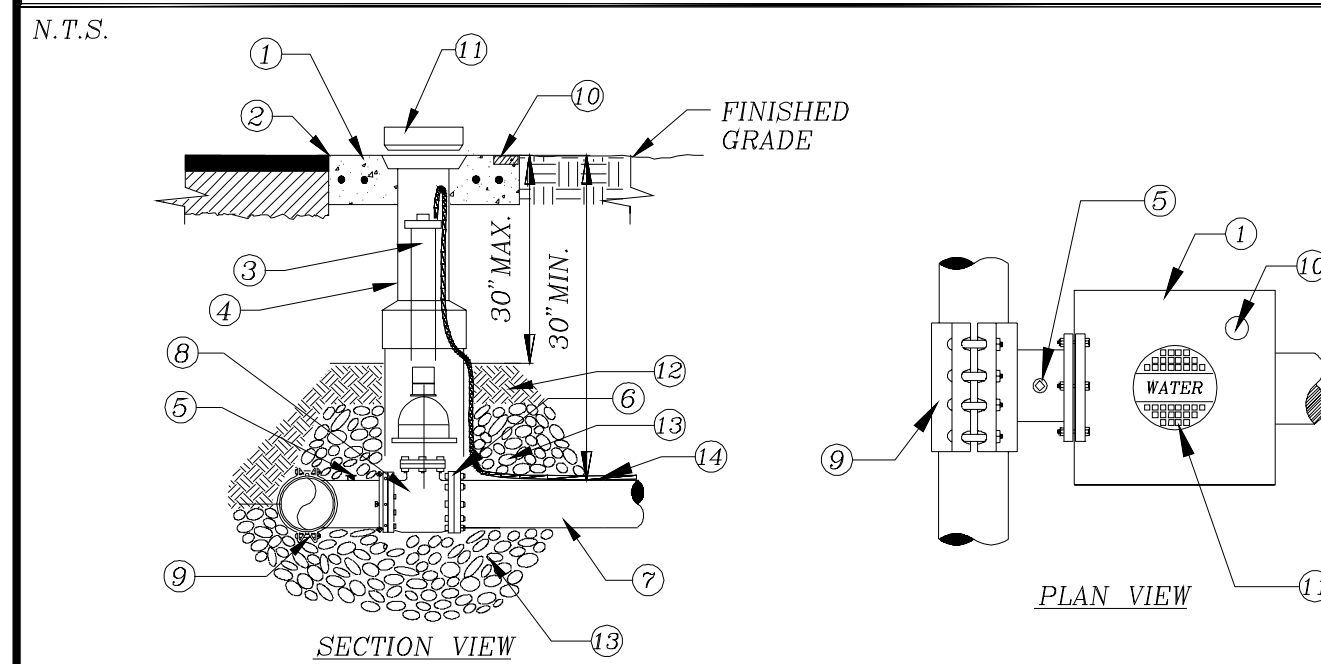
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

UTILITY DETAILS

PROJECT / FILE NO. SHEET NUMBER

23647 C19.0

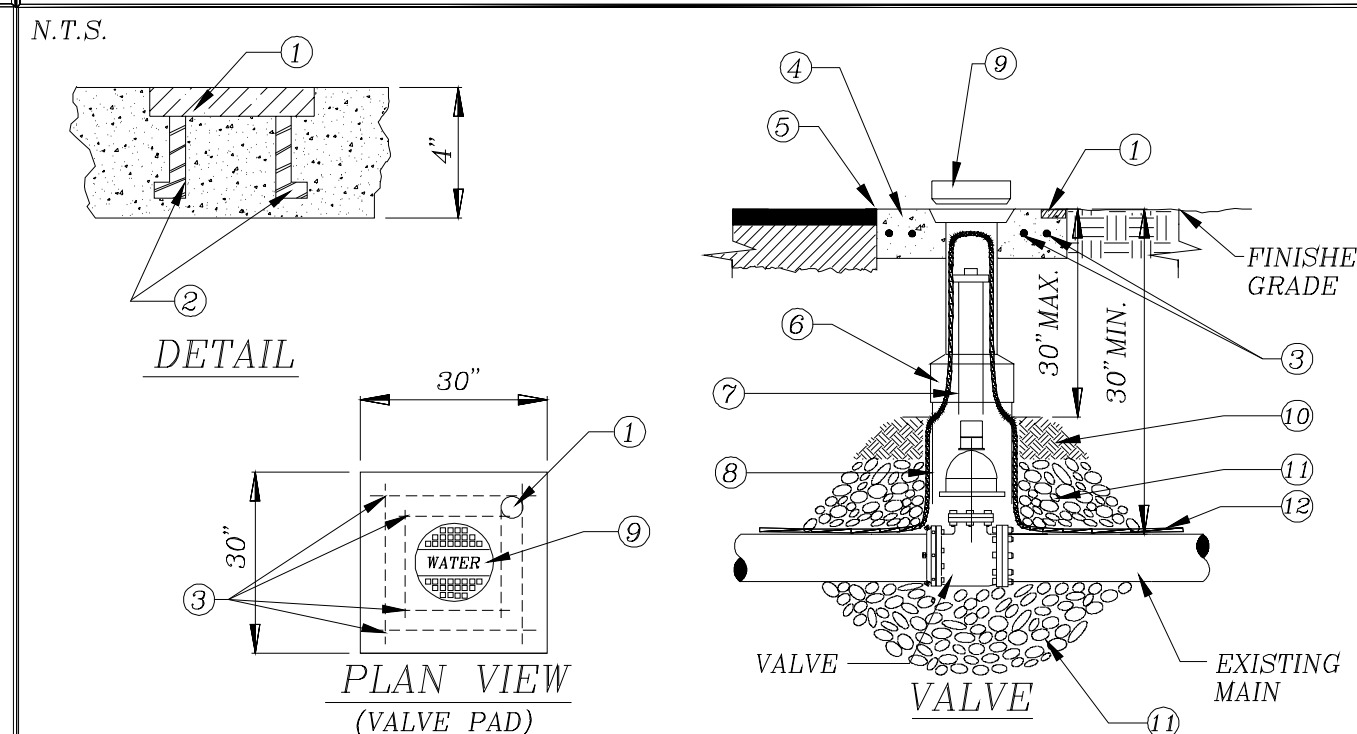
STANDARD DETAIL NO. 6.1  
LEE COUNTY UTILITIES  
TAPPING SLEEVE AND VALVE



- 1 CONCRETE PAD (SEE VALVE INSTALLATION DETAIL)
- 2 SET TOP OF BOX FLUSH WITH FINISHED GRADE
- 3 EXTENSION STEM IF TOP OF OPERATING NUT IS MORE THAN 30" BELOW FINISH GRADE
- 4 VALVE BOX (SEE VALVE INSTALLATION DETAIL)
- 5 OUTLET FOR TESTING
- 6 MJ RESTRAINED
- 7 MAIN SIZE VARIES
- 8 TAPPING VALVE (SEE VALVE INSTALLATION DETAIL)
- 9 LCU APPROVED ALL STAINLESS STEEL PRESSURE RATED TAPPING SLEEVE. FOR SIZE ON SIZE TAPS A FLANGED TAPPING SLEEVE IS REQUIRED. SPRING LOADED TAPPING SLEEVE IS REQUIRED WHEN CONNECTING TO HDPE (SEE APPROVED MATERIAL LIST).
- 10 BRASS PLATE (SEE VALVE INSTALLATION DETAIL)
- 11 CAST IRON DROP COVER MARKED "WATER", "SEWER", OR "REUSE"
- 12 COMPACTED SUITABLE EARTH BACKFILL
- 13 3/4" GRANULAR MATERIAL #57 STONE
- 14 12 GAUGE DOUBLE INSULATED COPPER LOCATING WIRE (SEE LCU STANDARD DETAIL)

REV: 12/10/2015

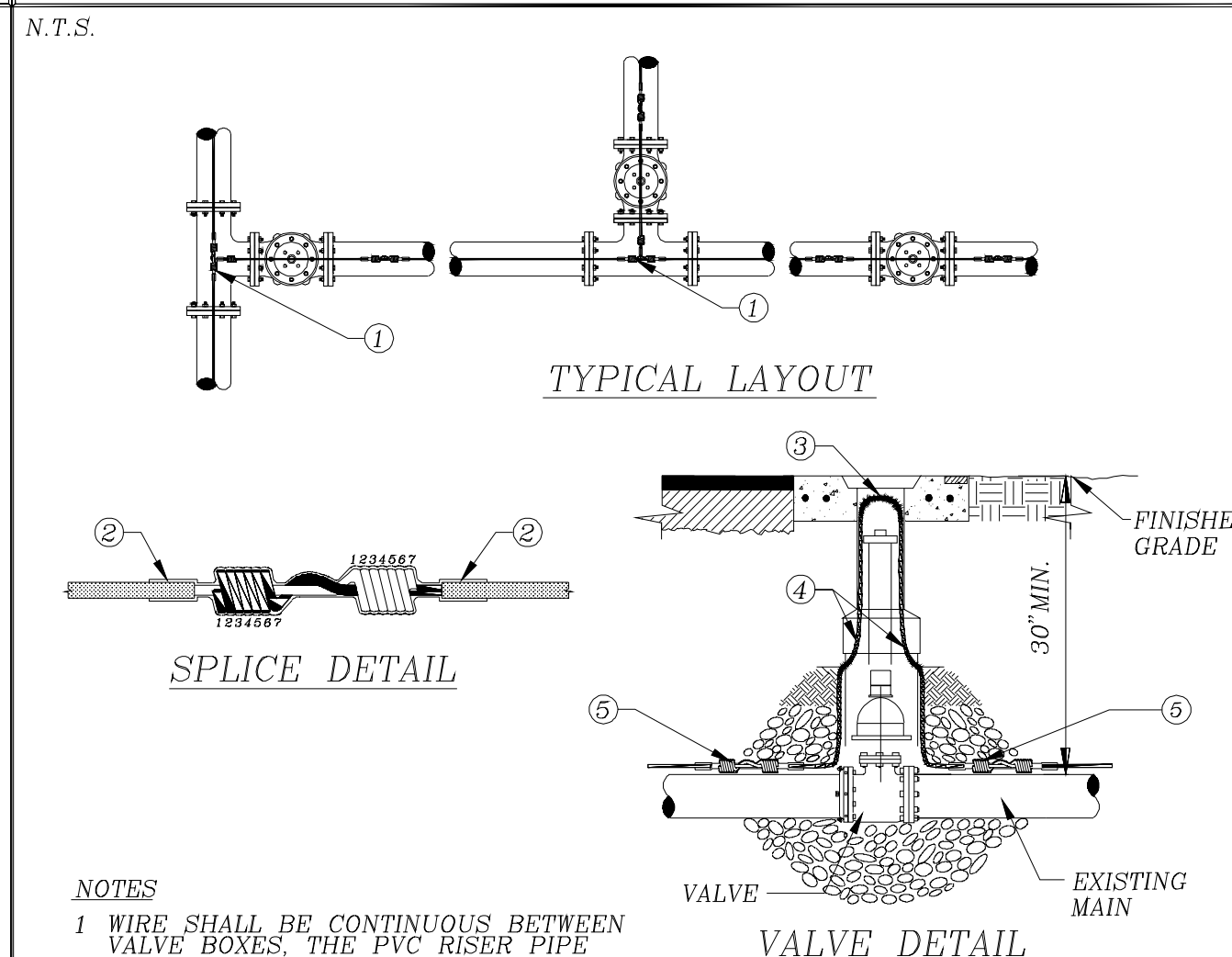
STANDARD DETAIL NO. 6.2  
LEE COUNTY UTILITIES  
VALVE INSTALLATION



- 1 BRASS PLATE: SIZE OF VALVE, VALVE TYPE  
No. OF TURNS & DIRECTION TO OPEN  
VALVE M.F.G. & YEAR INSTALL.  
SYSTEM "WATER" OR "SEWER" OR "REUSE" OR "FIRE"
- 2 ANCHOR
- 3 EIGHT (8) #4 BARS OVERLAP EACH CORNER BY 2"
- 4 30" SQ X 4" THK CONC. PAD SURROUNDING BOX, MIN. 3,000 P.S.I. POURED IN PLACE
- 5 SET TOP OF BOX FLUSH WITH FINISHED GRADE
- 6 HEAVY DUTY TRAFFIC BEARING CAST IRON VALVE BOX, ADJUSTABLE SCREW TYPE, 5 1/4" DIAMETER SHAFT THAT IS LCU APPROVED
- 7 EXTENSION STEM WITH 2" OPERATING NUT AS REQUIRED, IF NUT IS MORE THAN 30" BELOW FINISH GRADE
- 8 RISER NOT TO BEAR ON VALVE OR PIPE
- 9 CAST IRON DROP COVER MARKED "WATER" OR "SEWER" OR "REUSE" OR "FIRE"
- 10 COMPACTED SUITABLE EARTH BACKFILL
- 11 3/4" GRANULAR MATERIAL #57 STONE
- 12 12 GAUGE DOUBLE INSULATED COPPER LOCATING WIRE (SEE LCU STANDARD DETAIL)

REV: 12/10/2015

STANDARD DETAIL NO. 6.3  
LEE COUNTY UTILITIES  
LOCATING WIRE FOR PRESSURE MAINS

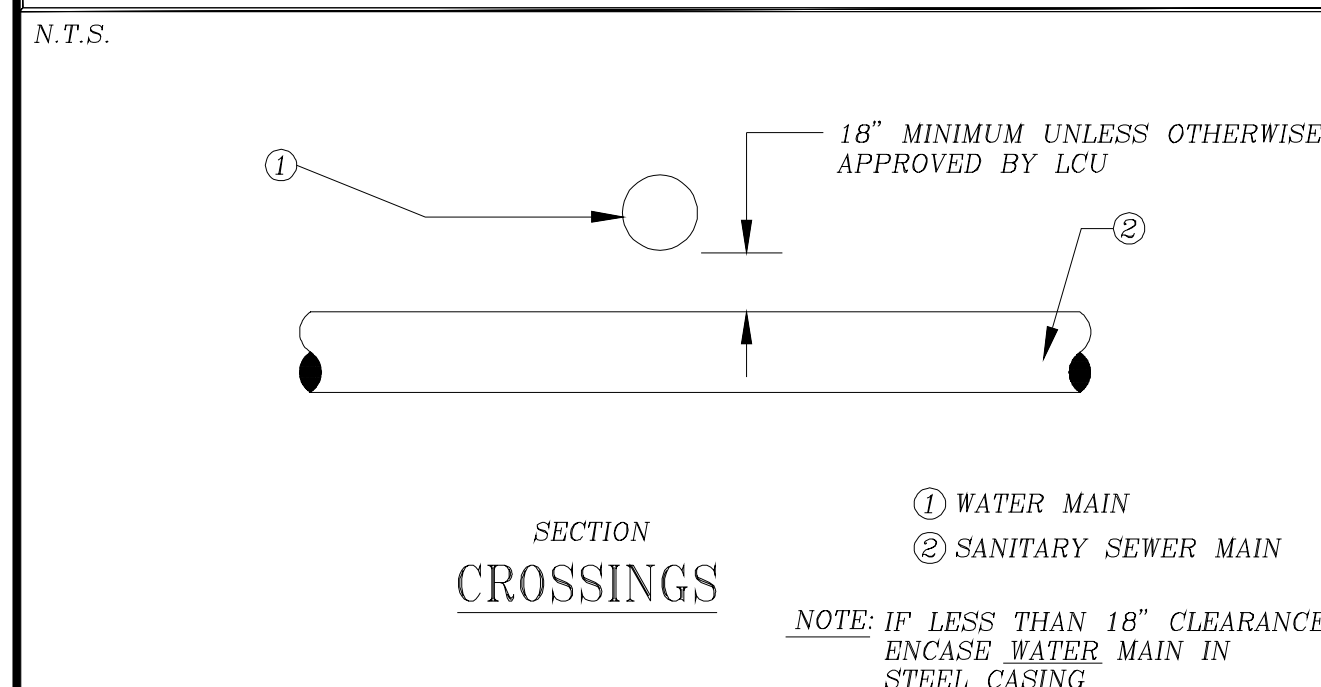


NOTES

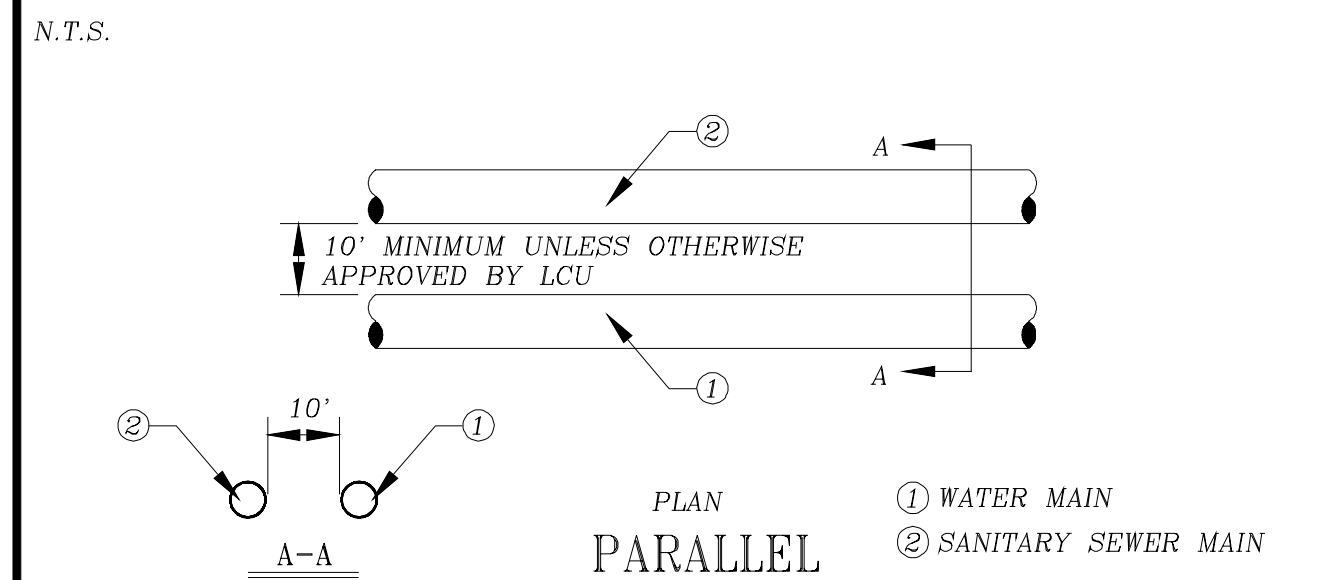
- 1 WIRE SHALL BE CONTINUOUS BETWEEN VALVE BOXES. THE PVC RISER PIPE SHALL BE NOTCHED AND THE WIRE ATTACHED TO THE RISER PIPE TO ALLOW FOR THE WIRE TO FIT INSIDE THE CAST IRON VALVE BOX WITHOUT SHEARING THE WIRE.
- 2 LOCATING WIRE SHALL BE LAID ON TOP OF THE MAIN AND SHALL BE TAPED TO IT AT 10' INTERVALS AND TAPED AT ALL FITTINGS. TAPE SHALL BE 10 MIL. POLYETHYLENE.
- 3 CONTRACTOR SHALL CONDUCT A CONTINUITY TEST ON ALL LOCATING WIRE SPLICES PRIOR TO SCHEDULING THE OFFICIAL FINAL INSPECTION WITH LCU.
- 4 ALL SPLICES SHALL UTILIZE A DIRECT BURY WATERPROOF SPLICE KIT (SEE APPROVED MATERIAL LIST)

REV: 12/10/2015

STANDARD DETAIL NO. 6.8  
LEE COUNTY UTILITIES  
WATER AND SEWER CROSSING DETAIL



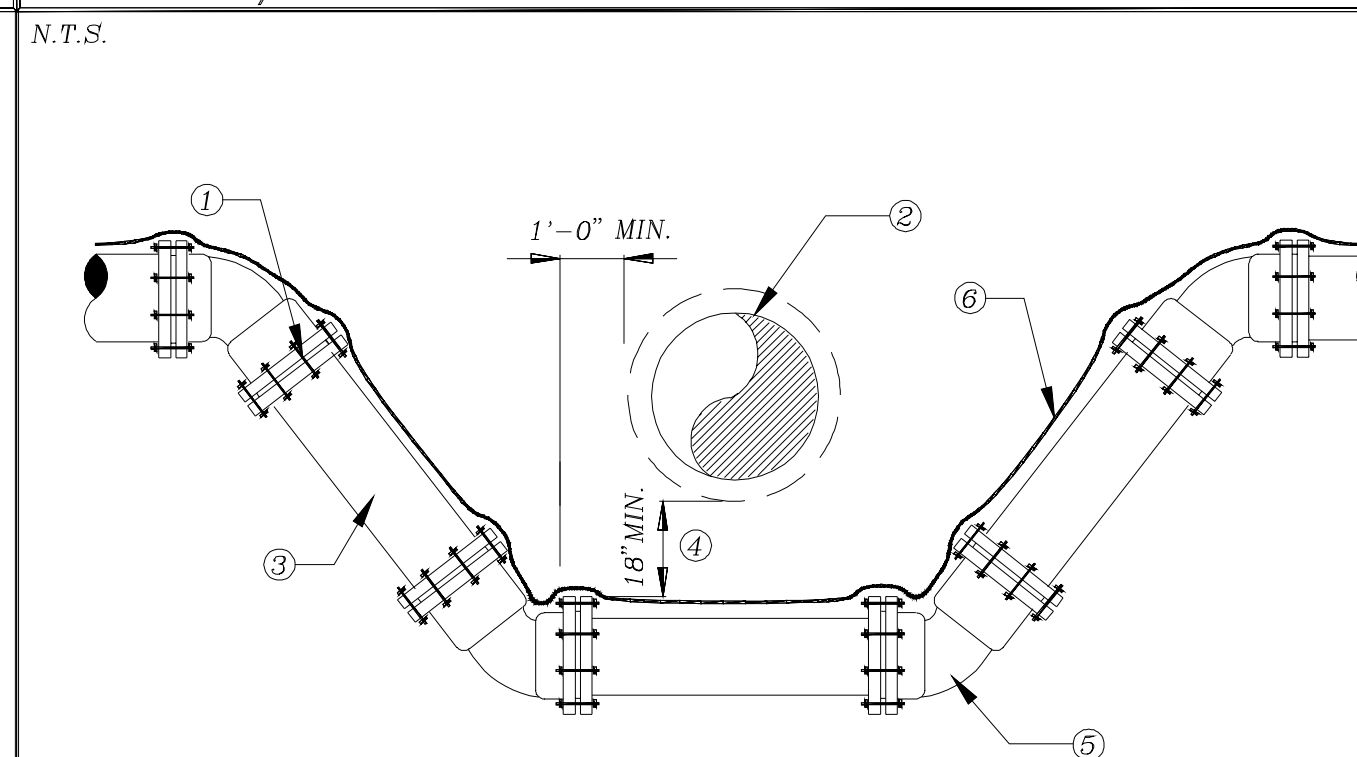
NOTE: IF LESS THAN 18" CLEARANCE ENCASE WATER MAIN IN STEEL CASING



NOTE: IF LESS THAN 10" CLEARANCE ENCASE WATER MAIN IN STEEL CASING

REV: 12/10/2015

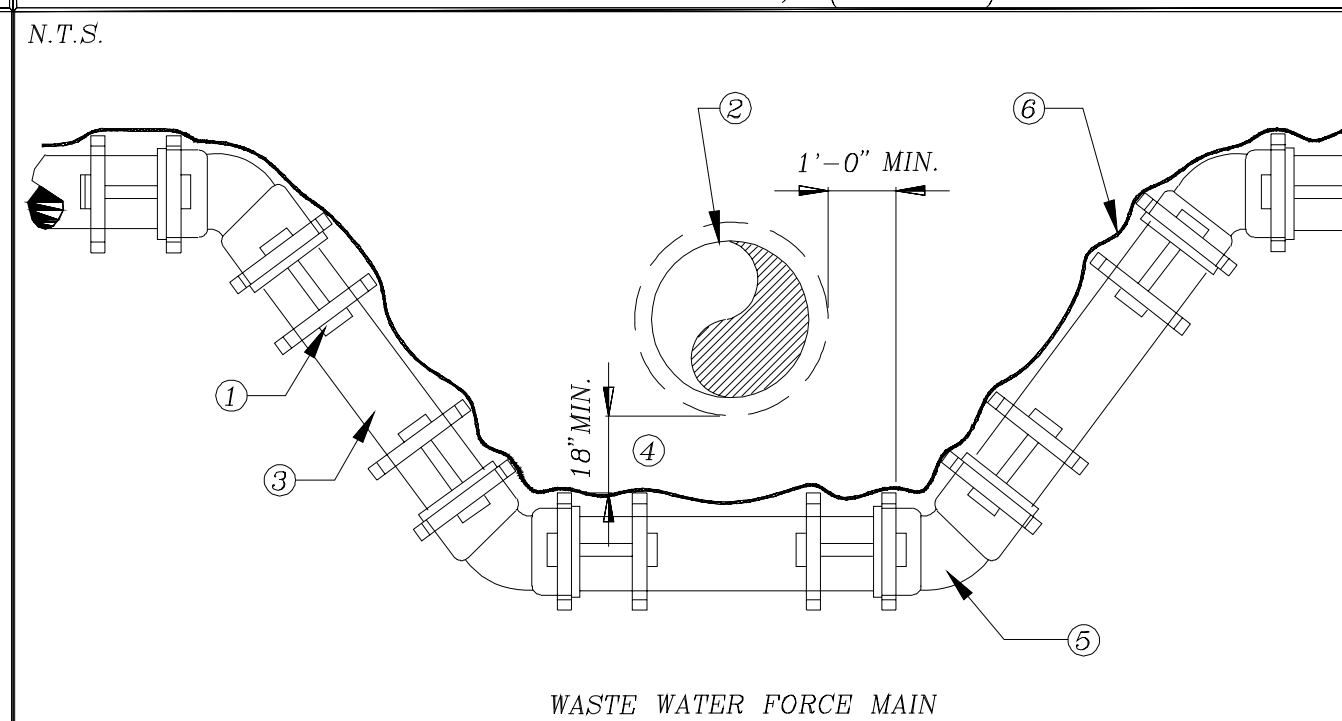
STANDARD DETAIL NO. 6.10  
LEE COUNTY UTILITIES  
WATER PRESSURE LINE VERTICAL OFFSET  
W/ DUCTILE IRON MJ FITTINGS & PIPE



- 1 LCU APPROVED JOINT RESTRAINT FOR D.I., M.J. PIPE AND FITTINGS PLACED IN ACCORDANCE WITH JOINT RESTRAINT SCHEDULE. (SEE DETAIL 6.12)
- 2 CONFLICT PIPE
- 3 LCU APPROVED DUCTILE IRON PIPING PRESSURE CLASS 350
- 4 18" MIN. UNLESS OTHERWISE APPROVED BY LCU
- 5 45° MECHANICAL JOINT FITTING, TYPICAL
- 6 12 GAUGE DOUBLE INSULATED COPPER WIRE (SEE LCU STANDARD DETAIL)

REV: 12/10/2015

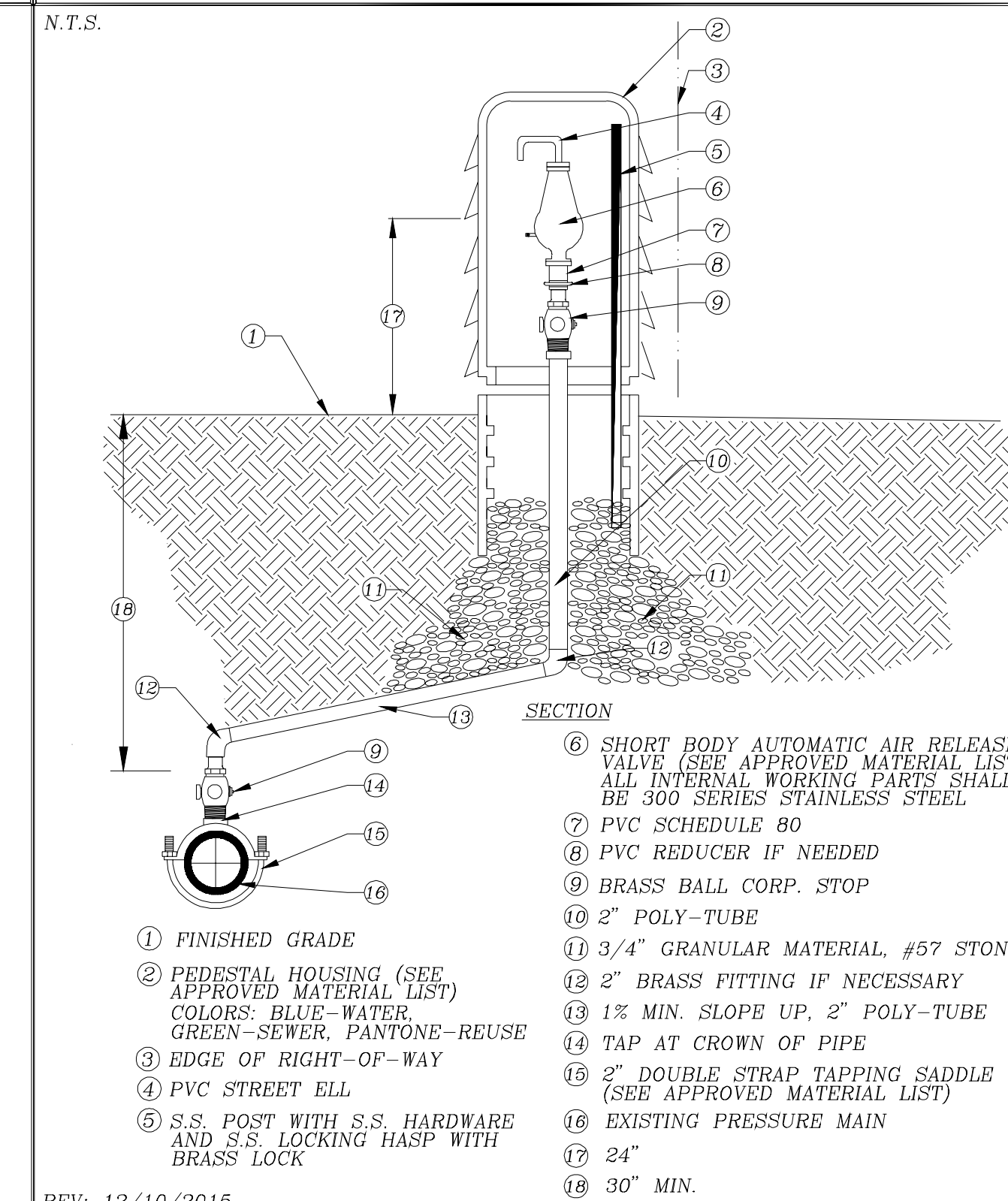
STANDARD DETAIL NO. 6.11  
LEE COUNTY UTILITIES  
WASTE WATER FORCE MAIN VERTICAL OFFSET  
WITH FITTINGS, (P.V.C.)



- 1 LCU APPROVED JOINT RESTRAINT FOR P.V.C., M.J. PIPE AND FITTINGS PLACED IN ACCORDANCE WITH JOINT RESTRAINT SCHEDULE. (SEE DETAIL 6.12)
- 2 CONFLICT PIPE
- 3 LCU APPROVED C-900 PVC DR 14
- 4 18" MIN. UNLESS OTHERWISE APPROVED BY LCU
- 5 45° MECHANICAL JOINT FITTING, TYPICAL
- 6 12 GAUGE DOUBLE INSULATED COPPER WIRE (SEE LCU STANDARD DETAIL)

REV: 12/10/2015

STANDARD DETAIL NO. 6.4  
LEE COUNTY UTILITIES  
AUTOMATIC AIR RELEASE VALVE



- 1 FINISHED GRADE
- 2 PEDESTAL HOUSING (SEE APPROVED MATERIAL LIST)  
COLORS: BLUE-WATER,  
GREEN-SEWER, PANTONE-REUSE
- 3 EDGE OF RIGHT-OF-WAY
- 4 PVC STREET ELL
- 5 S.S. POST WITH S.S. HARDWARE AND S.S. LOCKING HASP WITH BRASS LOCK
- 6 SHORT BODY AUTOMATIC AIR RELEASE VALVE (SEE APPROVED MATERIAL LIST)  
ALL INTERNAL WORKING PARTS SHALL BE 300 SERIES STAINLESS STEEL
- 7 PVC SCHEDULE 80
- 8 PVC REDUCER IF NEEDED
- 9 BRASS BALL CORP. STOP
- 10 2" POLY-TUBE
- 11 3/4" GRANULAR MATERIAL #57 STONE
- 12 2" BRASS FITTING IF NECESSARY
- 13 1% MIN. SLOPE UP, 2" POLY-TUBE
- 14 TAP AT CROWN OF PIPE
- 15 2" DOUBLE STRAP TAPPING SADDLE (SEE APPROVED MATERIAL LIST)
- 16 EXISTING PRESSURE MAIN
- 17 24"
- 18 30" MIN.

REV: 12/10/2015

STANDARD DETAIL NO. 6.12  
LEE COUNTY UTILITIES  
RESTRAINED LENGTH SCHEDULE

DUCTILE IRON PIPE

PIPE SIZE (Inches)	MINIMUM RESTRAINED PIPE LENGTH (FEET)					
	90°	45°	22-1/2°	11-1/4°	DEAD END	HORIZONTAL TEE
4	17	7	4	2	29	6
6	23	10	5	2	40	17
8	29	12	6	3	53	29
10	35	14	7	4	63	38
12	41	17	8	4	74	49
16	51	21	11	5	94	68
24	69	29	14	7	131	105
30	81	34	17	8	156	129

PVC PIPE

PIPE SIZE (Inches)	MINIMUM RESTRAINED PIPE LENGTH (FEET)					
	90°	45°	22-1/2°	11-1/4°	DEAD END	HORIZONTAL TEE
4	20	8	4	2	45	8
6	29	12	6	3	63	25
8	36	15	8	4	83	43
10	44	18	9	5	99	58
12	51	21	11	5	116	74
16	63	26	13	7	149	103
24	87	36	18	9	208	158
30	102	42	21	10	248	194

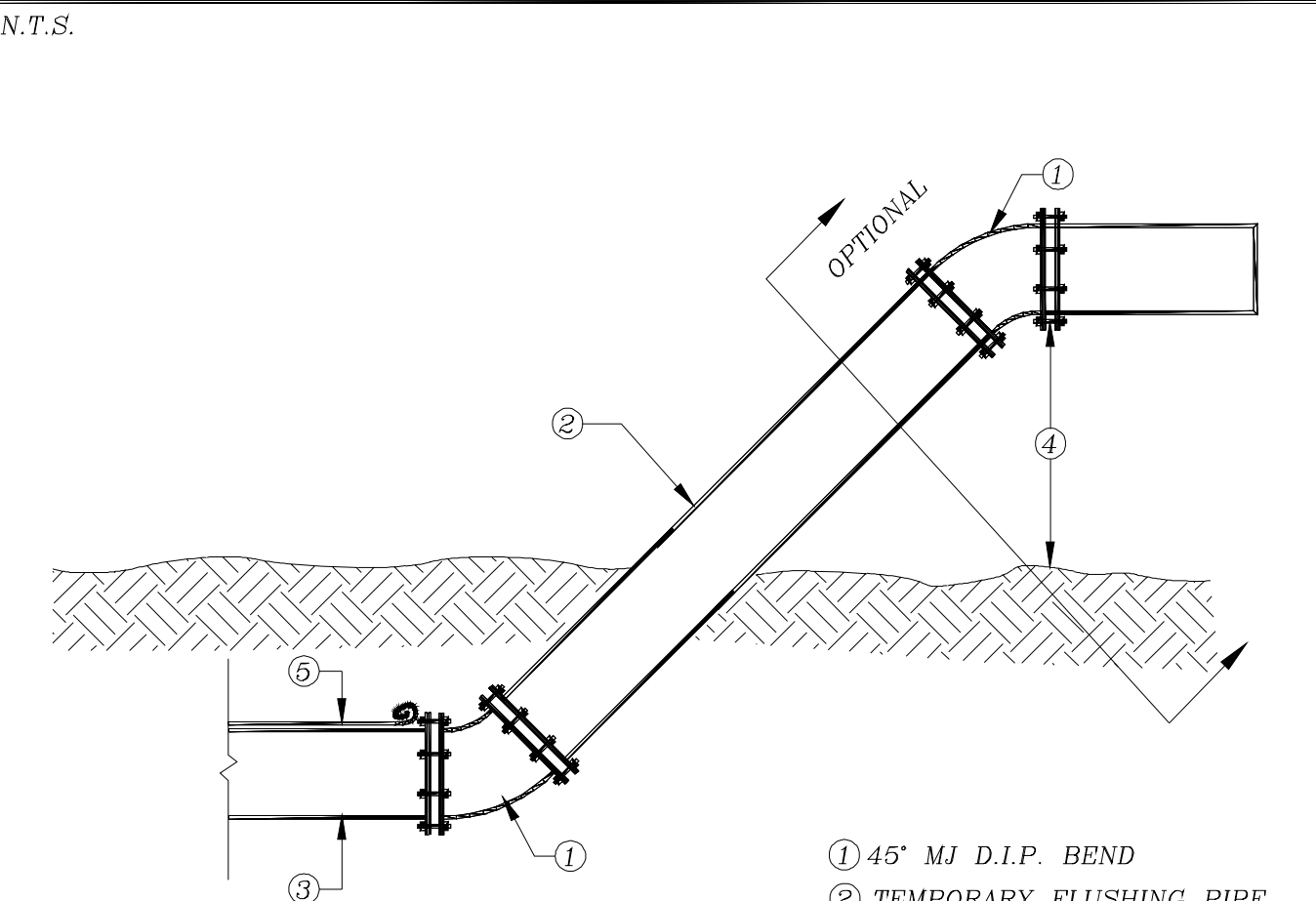
A COMPLETE JOINT RESTRAINING SCHEDULE FOR ALL ENCOUNTERED VERTICAL & HORIZONTAL BENDS, VERTICAL OFFSETS, TEES, AND DEAD ENDS SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER.

LENGTH FIGURES BASED ON FOLLOWING:

Pressure = 150 psi, FS = 1.5, trench type = 3, 30' cover on Bare pipe, Soil type = GP & SP

REV: 12/10/2015

### STANDARD DETAIL NO. 6.13 LEE COUNTY UTILITIES WATER MAIN FLUSHING DETAIL



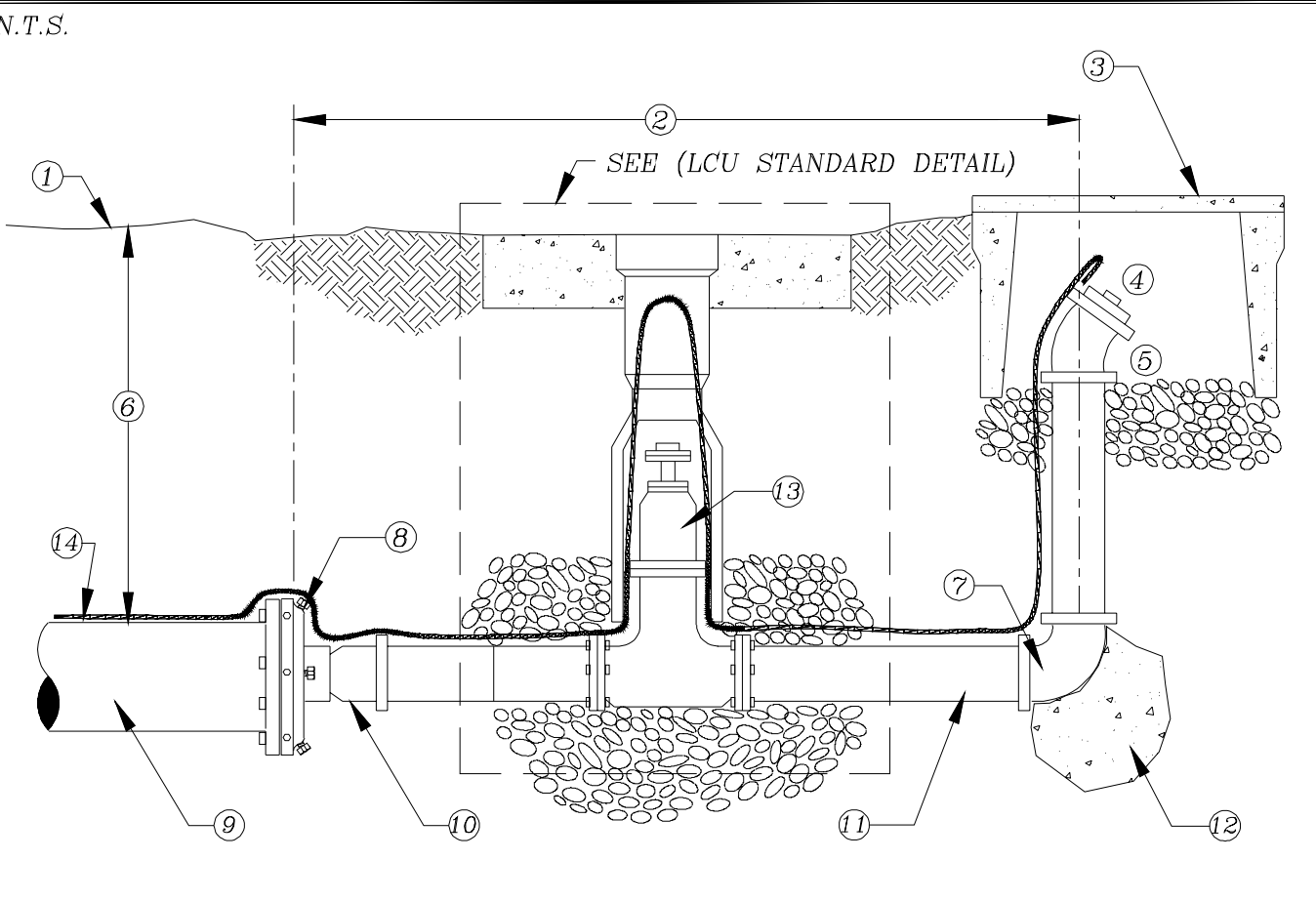
N.T.S.

1 45° M.J. D.I.P. BEND  
2 TEMPORARY FLUSHING PIPE  
3 END OF WATER MAIN  
4 24" MIN.

NOTES:  
1. FLUSHING DETAIL TO BE USED ON WATER LINES 8" DIAMETER OR GREATER.  
2. FLUSHING PIPE SHALL BE THE SAME DIAMETER AS WATER MAIN.  
3. CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE FOR FLUSHED WATER.  
4. PROVIDE M.J. CAP IF ASSEMBLY IS LEFT IN PLACE UNATTENDED.  
5. 12 GAUGE DOUBLE INSULATED COPPER LOCATING WIRE (SEE LCU STANDARD DETAIL)

REV: 12/10/2015

### STANDARD DETAIL NO. 6.14 LEE COUNTY UTILITIES BLOW OFF DETAIL



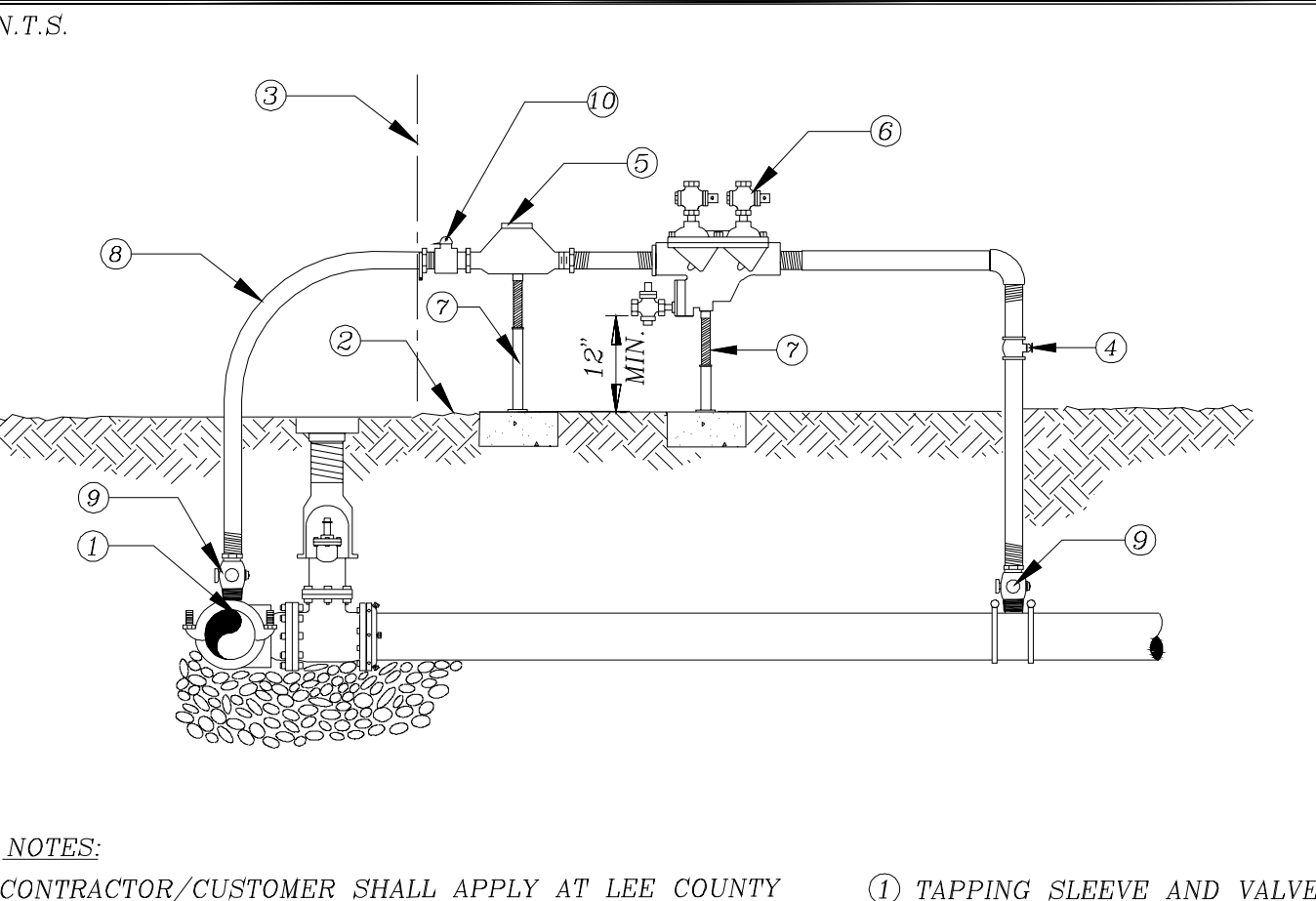
N.T.S.

1 FINISHED GRADE  
2 5'-0" MAX.  
3 WATER METER BOX W/ GRAVEL BOTTOM (SEE APPROVED MATERIAL LIST)  
4 2" THREADED PLUG  
5 2" 45° BEND  
6 30" MIN.  
7 2"-90° BEND  
8 M.J. CAP WITH 2" TAP  
9 END OF WATER MAIN, R.J. PER SCHEDULE  
10 2" THREADED  
11 2" P.V.C. (SCH 80) C. MALE ADAPTER  
12 POURED IN PLACE THRUST BLOCKING (SEE DETAIL 9.20)  
13 2" DIAMETER GATE VALVE  
14 12 GAUGE DOUBLE INSULATED COPPER LOCATING WIRE (SEE LCU STANDARD DETAIL)

NOTE:  
ALL PIPING TO BE 2" P.V.C. (SCH 80) THREADED FITTINGS OR SOLVENT WELDED FITTINGS

REV: 12/10/2015

### STANDARD DETAIL NO. 6.15 LEE COUNTY UTILITIES TEMPORARY CONSTRUCTION JUMPER WITH METER



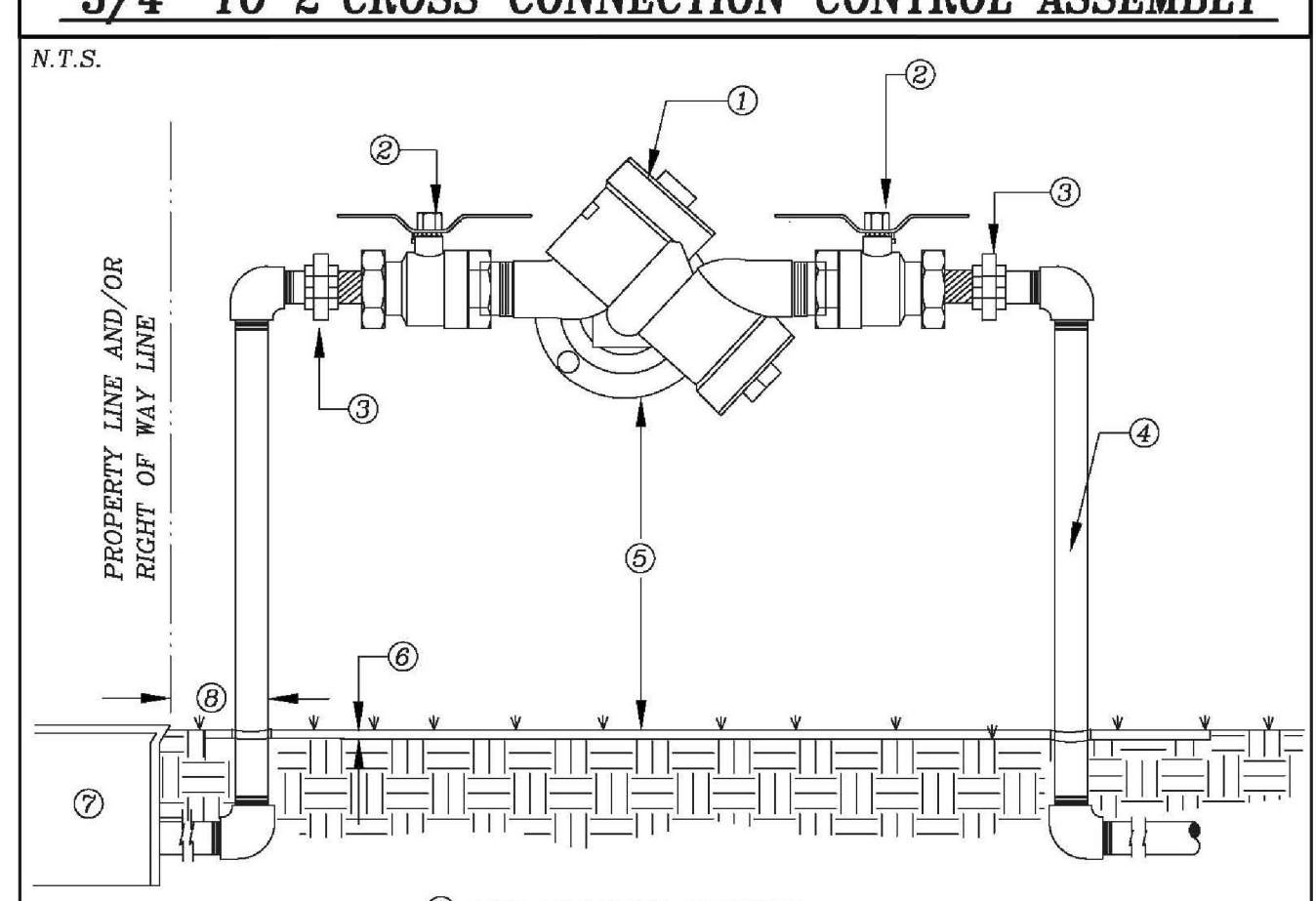
N.T.S.

NOTES:  
CONTRACTOR/CUSTOMER SHALL APPLY AT LEE COUNTY UTILITIES FOR TEMPORARY WATER SERVICE FIVE DAYS PRIOR TO REQUIRED SERVICE DATE. THE METER ONLY WILL BE FURNISHED BY LEE COUNTY UTILITIES. ALL FITTINGS, PIPING, VALVES AND MATERIALS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR/CUSTOMER. THE APPROVED BACKFLOW PREVENTION DEVICE SHALL BE TESTED AND CERTIFIED BY LEE COUNTY UTILITIES APPROVED CERTIFIED BACKFLOW PREVENTION TECHNICIAN (FURNISHED BY CONTRACTOR/CUSTOMER) AT TIME OF METER INSTALLATION. CONTRACTOR/CUSTOMER SHALL PROTECT THE ASSEMBLY FROM DAMAGE. TEMPORARY CONSTRUCTION JUMPER/METER ASSEMBLY SHALL NOT BE REMOVED UNTIL SYSTEM IS ACCEPTED AND DEPARTMENT OF HEALTH CERTIFICATION AND CLEARANCE FOR SERVICE FORM HAS BEEN RECEIVED BY LEE COUNTY UTILITIES. WHEN THE NEW SYSTEM IS ACCEPTED, THE TEMPORARY CONSTRUCTION JUMPER METER ASSEMBLY MUST BE COMPLETELY REMOVED DOWN TO CORP STOPS.

1 TAPPING SLEEVE AND VALVE TO BE FULLY RESTRAINED ON EXISTING MAIN (SEE LCU STANDARD DETAIL)  
2 GRADE  
3 PROPERTY LINE AND/OR RIGHT OF WAY LINE  
4 BRONZE BALL VALVE  
5 METER FURNISHED BY LEE COUNTY UTILITIES  
6 REDUCED PRESSURE BACKFLOW PREVENTER  
7 PIPE STAND (SEE LCU STANDARD DETAIL)  
8 2" DIA. HDPE DR9  
9 2" DIA. CORPORATION STOP  
10 2" DIA. CURB STOP

REV: 12/10/2015

### STANDARD DETAIL NO. 6.19 LEE COUNTY UTILITIES 3/4" TO 2" CROSS CONNECTION CONTROL ASSEMBLY



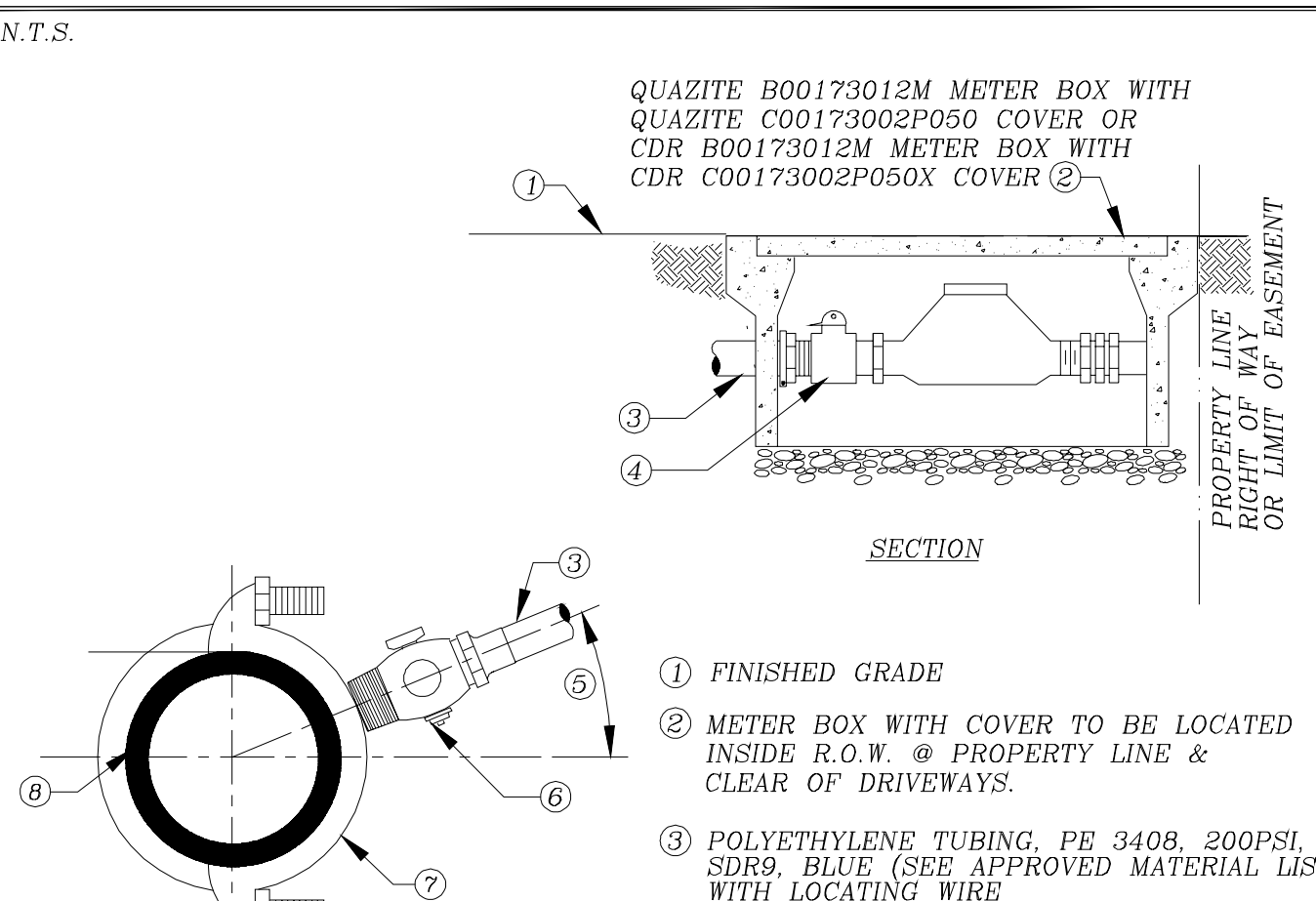
N.T.S.

1 LCU APPROVED REDUCED PRESSURE BACKFLOW PREVENTION DEVICE (SEE APPROVED MATERIAL LIST)  
2 FULL FLOW BRONZE BALL VALVE  
3 UNION  
4 ALL PIPING AND FITTINGS SHALL BE BRASS OR COPPER  
5 12" MIN - 24" MAX UNLESS OTHERWISE APPROVED BY LCU  
6 FINISHED GRADE  
7 METER BOX  
8 2" MAXIMUM

NOTES:  
1. UNIONS REQUIRED  
2. INITIAL AND ANNUAL DEVICE TESTING REQUIRED

REV: 12/10/2015

### STANDARD DETAIL NO. 6.17 LEE COUNTY UTILITIES WATER SERVICE INSTALLATION 1-1/2" THROUGH 2"



N.T.S.

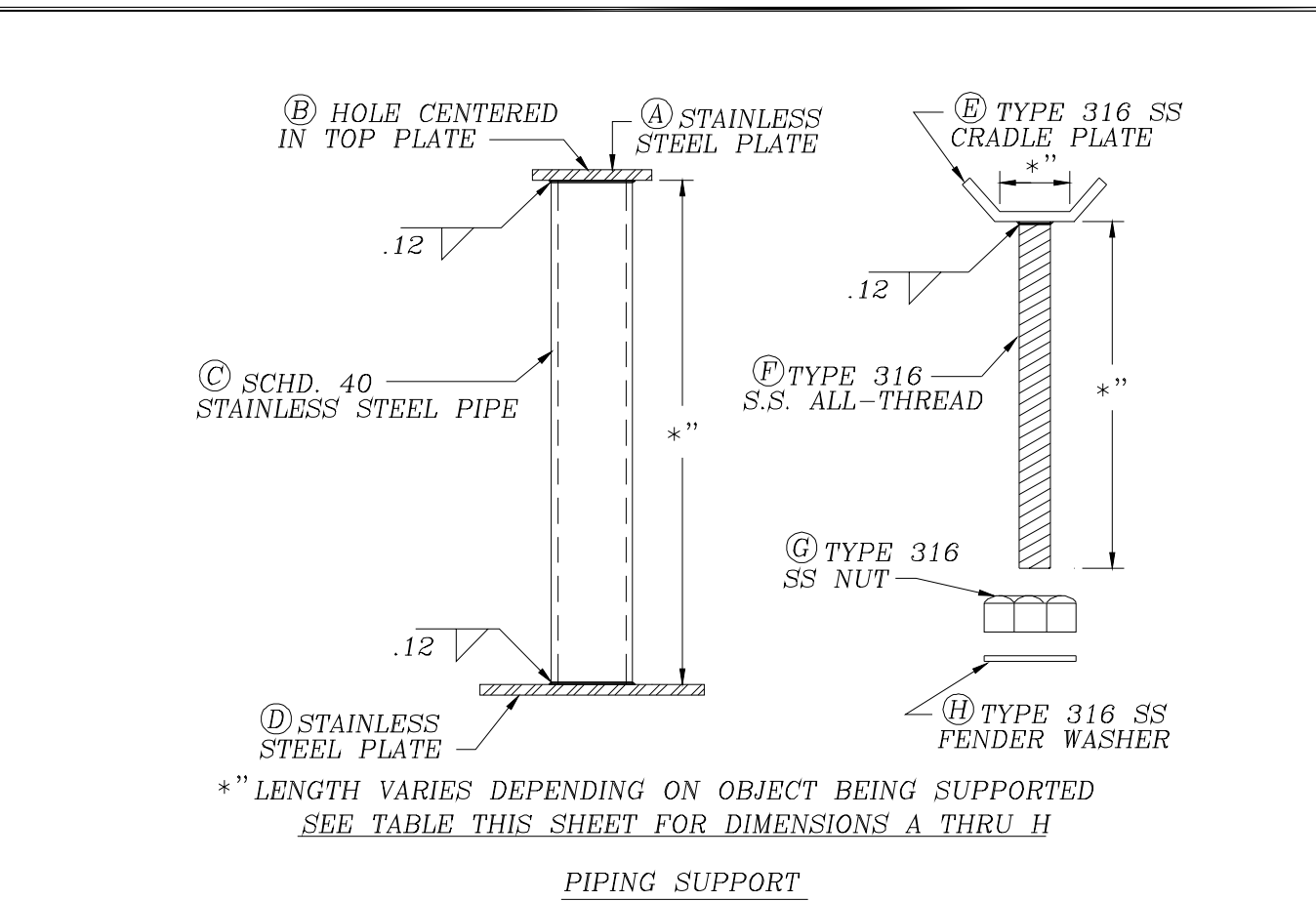
QUAZITE B00173012M METER BOX WITH QUAZITE C00173002P050 COVER OR CDR B00173012M METER BOX WITH CDR C00173002P050X COVER

1 FINISHED GRADE  
2 METER BOX WITH COVER TO BE LOCATED INSIDE R.O.W. @ PROPERTY LINE & CLEAR OF DRIVEWAYS.  
3 POLYETHYLENE TUBING, PE 3408, 200PSI, SDR9, BLUE (SEE APPROVED MATERIAL LIST) WITH LOCATING WIRE  
4 STRAIGHT CURB STOP WITH PADLOCK WINGS CONNECTED TO LEE COUNTY WATER METER (SEE APPROVED MATERIAL LIST)  
5 MIN. 22 1/2" NOT TO EXCEED 45°  
6 BALL CORPORATION STOP (SEE APPROVED MATERIAL LIST)  
7 DOUBLE STRAP SERVICE SADDLE PROVIDE SPRING LOADED TAPPING SADDLE WHEN TAPPING HDPE (SEE APPROVED MATERIAL LIST)  
8 WATER MAIN

NOTE:  
1. TUBING UNDER ROADWAY SHALL BE ENCASED IN 4" P.V.C. PIPE SCHEDULE 40 MINIMUM AND EXTEND 4 FEET BEYOND THE EDGES OF PAVEMENT OR BACK OF CURB.

REV: 12/10/2015

### STANDARD DETAIL NO. 6.22 LEE COUNTY UTILITIES PIPING SUPPORT



N.T.S.

1 HOLE CENTERED IN TOP PLATE  
2 STAINLESS STEEL PLATE  
3 TYPE 316 SS CRADLE PLATE  
4 SCHED. 40 STAINLESS STEEL PIPE  
5 TYPE 316 S.S. ALL-THREAD  
6 TYPE 316 SS NUT  
7 TYPE 316 SS FENDER WASHER  
8 STAINLESS STEEL PLATE  
9 TYPE 316 SS NUT

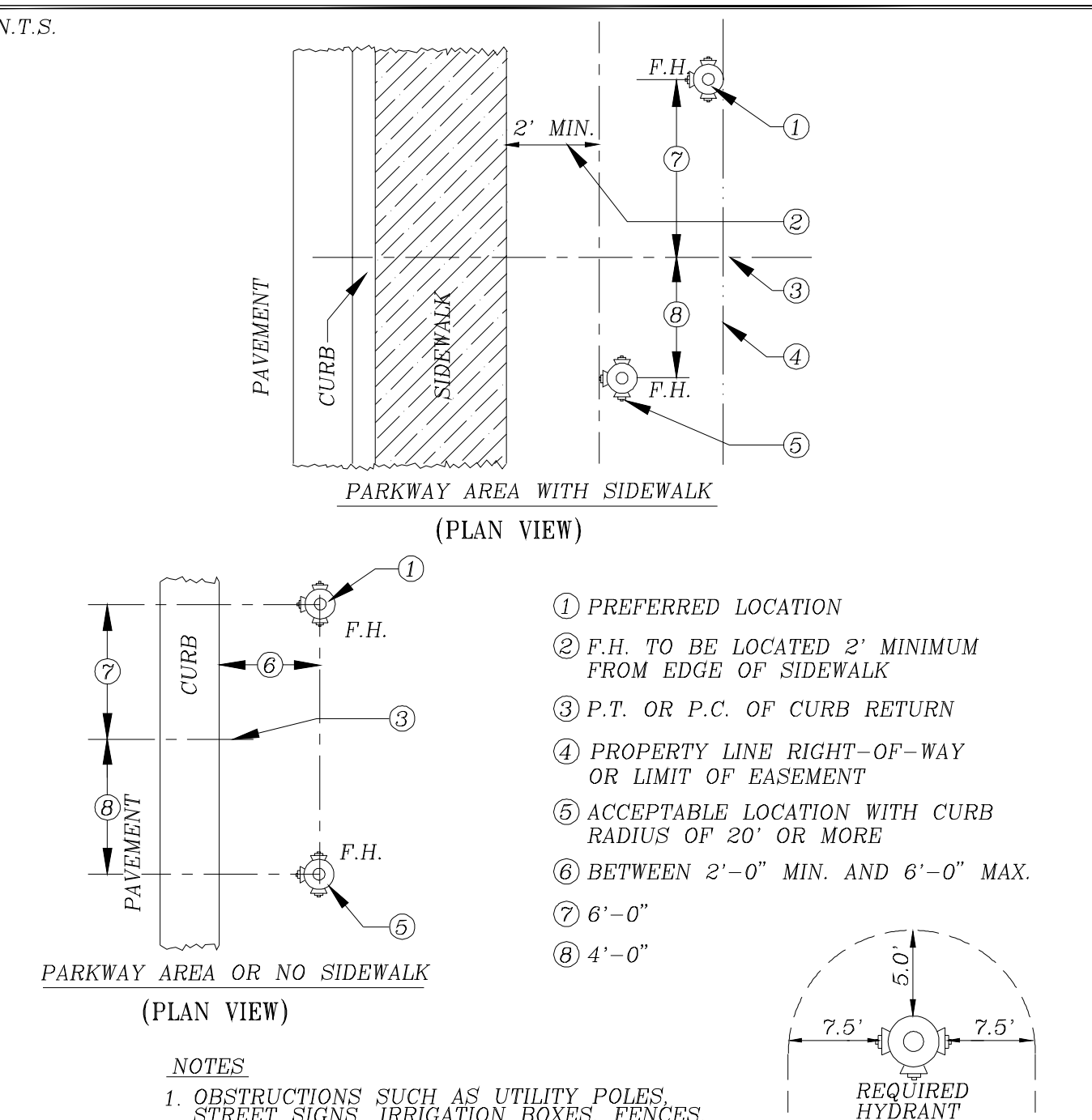
\* LENGTH VARIES DEPENDING ON OBJECT BEING SUPPORTED SEE TABLE THIS SHEET FOR DIMENSIONS A THRU H

	FOR 3/4" & 1"	FOR 1-1/2" TO 3"	FOR 4" & LARGER
A	1/4" x 3" x 3"	1/4" x 3-1/4" x 3-1/4"	1/4" x 5" x 5"
B	1.0"	1.0"	1-1/2"
C	2.0"	2-1/2"	4"
D	1/4" x 6" x 6"	1/4" x 8" x 8"	1/4" x 10" x 10"
E	1/4" x 2" x 4"	1/2" x 2" x 4"	1/2" x 4" x 6"
F	3/4"	7/8"	1-1/4"
G	3/4"	7/8"	1-1/4"
H	1.0"	1.0"	1-1/2"

NOTE:  
1. HOT DIPPED GALVANIZED STEEL MAY BE USED IN PLACE OF STAINLESS STEEL.

REV: 12/10/2015

### STANDARD DETAIL NO. 6.25 LEE COUNTY UTILITIES FIRE HYDRANT LOCATIONS/CLEARANCE



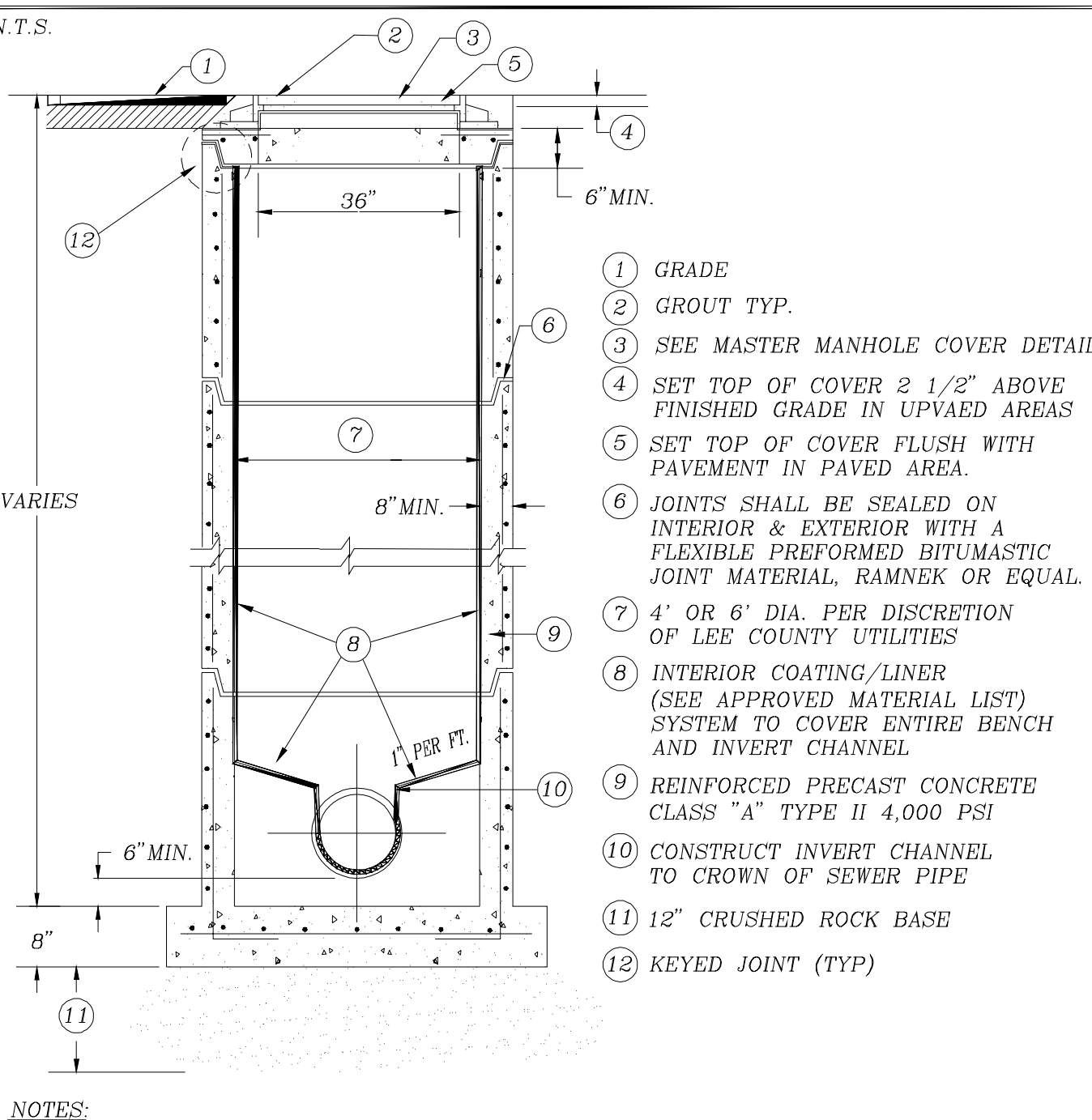
N.T.S.

1 PREFERRED LOCATION  
2 F.H. TO BE LOCATED 2' MINIMUM FROM EDGE OF SIDEWALK  
3 P.T. OR P.C. OF CURB RETURN  
4 PROPERTY LINE RIGHT-OF-WAY OR LIMIT OF EASEMENT  
5 ACCEPTABLE LOCATION WITH CURB RADIUS OF 20' OR MORE  
6 BETWEEN 2'-0" MIN. AND 6'-0" MAX.  
7 6'-0"  
8 4'-0"

NOTES:  
1. OBSTRUCTIONS SUCH AS UTILITY POLES, STREET SIGNS, IRRIGATION BOXES, FENCES, ETC. SHALL NOT BE PLACED BETWEEN CURB AND HYDRANT.  
2. SOME LOCATIONS APPLY AT EITHER END OF CURB RETURNS.  
3. DIMENSION SHOWN ON CONSTRUCTION DRAWINGS SUPERCEDE LOCATIONS SHOWN HERE.

REV: 12/10/2015

### STANDARD DETAIL NO. 6.28 LEE COUNTY UTILITIES MASTER PRECAST CONCRETE MANHOLE



N.T.S.

1 GRADE  
2 GROUT TYP.  
3 SEE MASTER MANHOLE COVER DETAIL  
4 SET TOP OF COVER 2 1/2" ABOVE FINISHED GRADE IN UNPAVED AREAS  
5 SET TOP OF COVER FLUSH WITH PAVEMENT IN PAVED AREA.  
6 JOINTS SHALL BE SEALED ON INTERIOR & EXTERIOR WITH A FLEXIBLE PREFORMED BITUMASTIC JOINT MATERIAL, RAMNEK OR EQUAL.  
7 4' OR 6' DIA. PER DISCRETION OF LEE COUNTY UTILITIES  
8 INTERIOR COATING/LINER (SEE APPROVED MATERIAL LIST) SYSTEM TO COVER ENTIRE BENCH AND INVERT CHANNEL  
9 REINFORCED PRECAST CONCRETE CLASS "A" TYPE II 4,000 PSI  
10 CONSTRUCT INVERT CHANNEL TO CROWN OF SEWER PIPE  
11 12" CRUSHED ROCK BASE  
12 KEYED JOINT (TYP)

NOTES:  
1. MASTER MANHOLES FOR WASTEWATER PUMPING STATIONS SHALL HAVE ONLY ONE INFLUENT AND ONE EFFLUENT PIPE, UNLESS OTHERWISE APPROVED BY LEE COUNTY UTILITIES.  
2. FLEXIBLE, RESILIENT CONNECTIONS SHALL BE INSTALLED FOR ALL CONNECTIONS BETWEEN MANHOLE AND PIPES.

REV: 12/10/2015

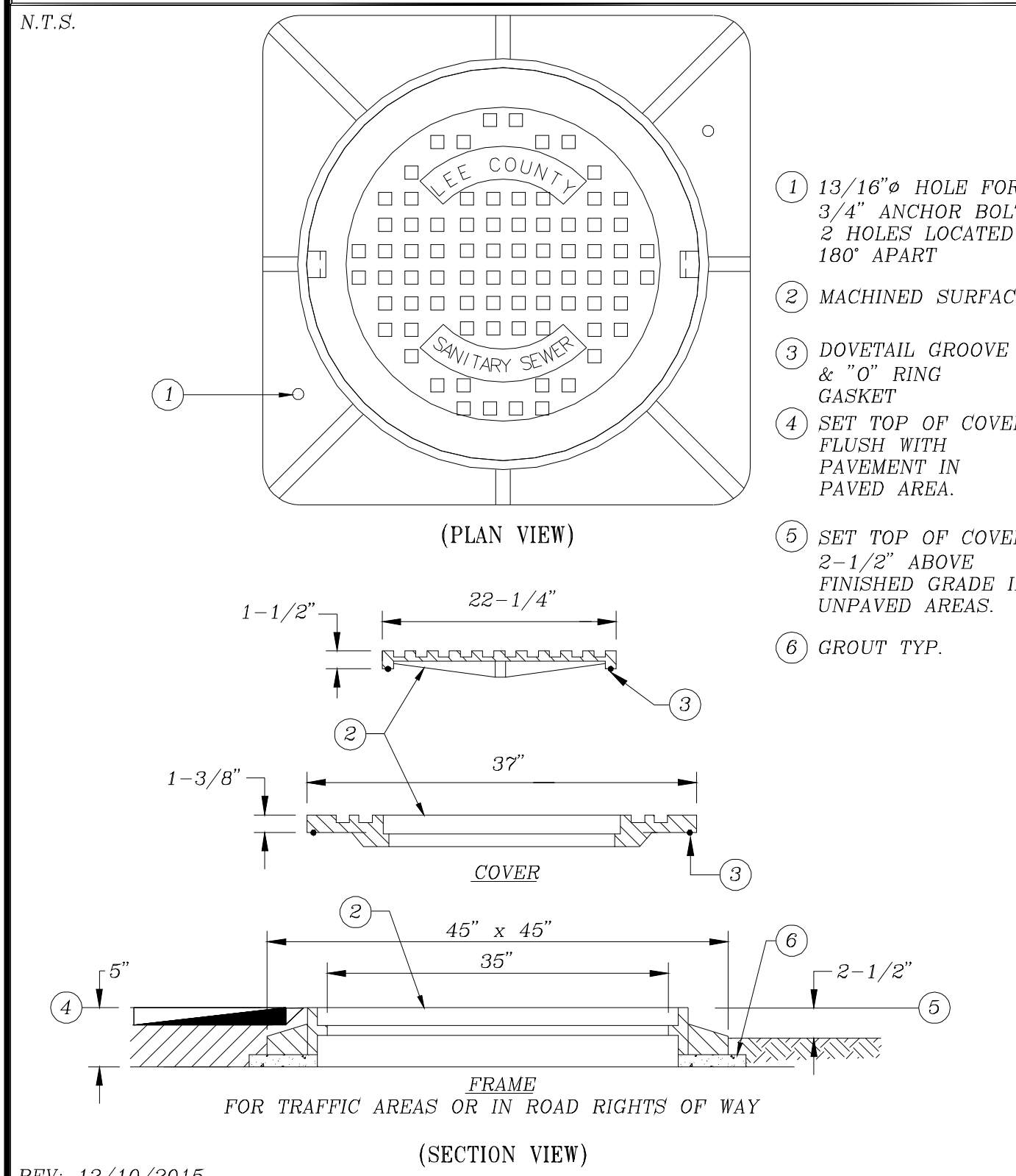


**MURANO**  
AT THREE OAKS

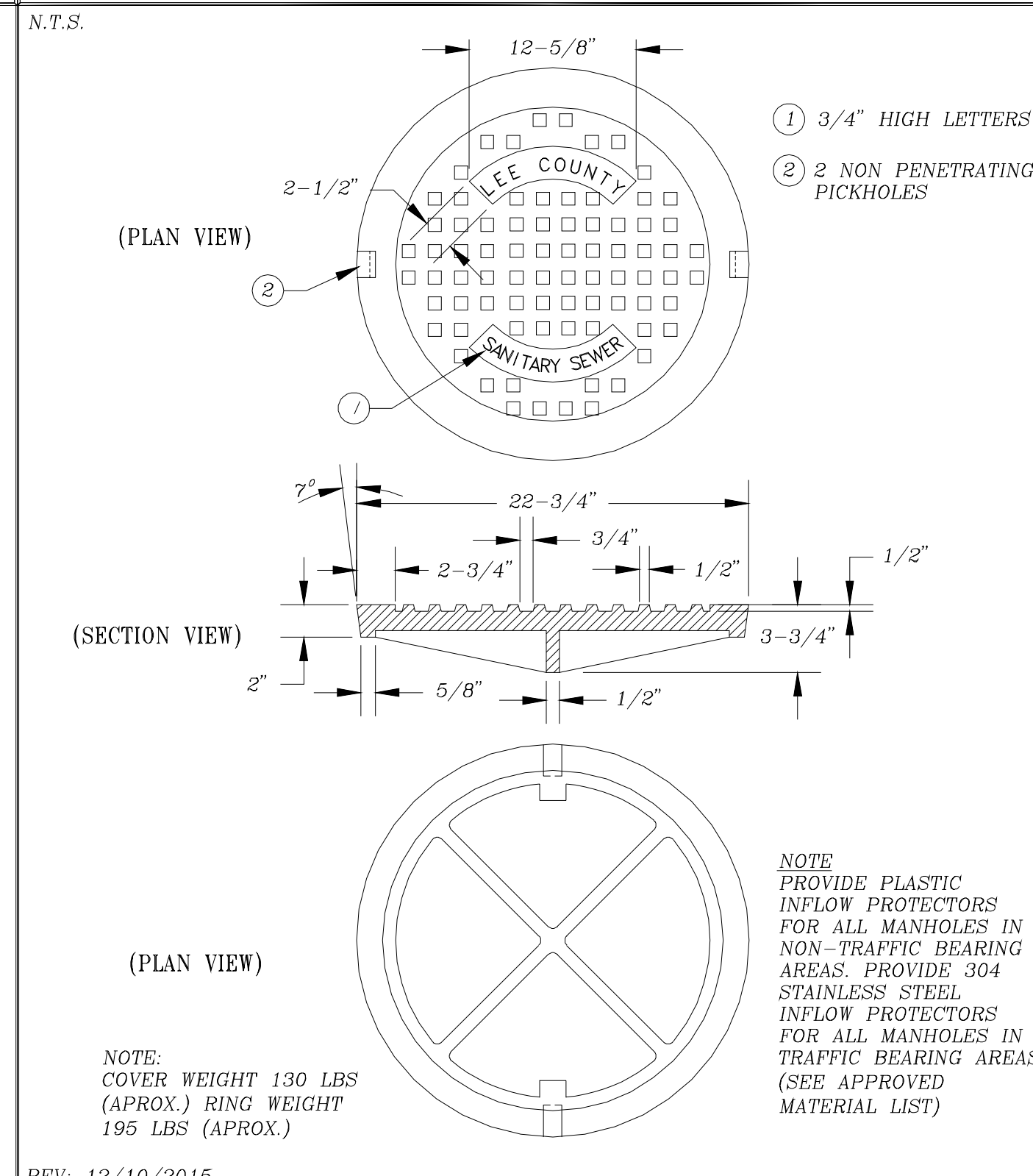
LEE COUNTY, FLORIDA

UTILITY DETAILS

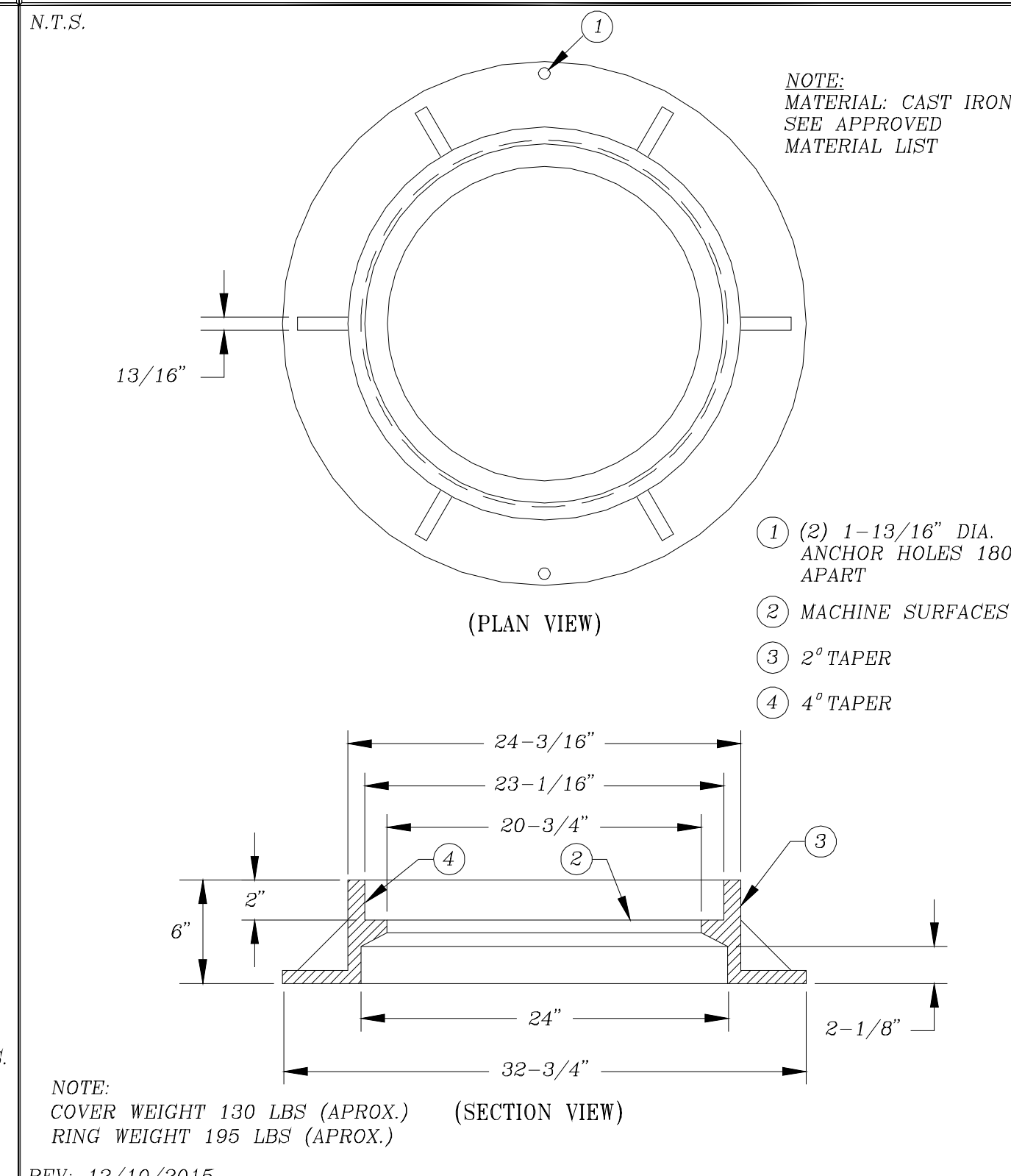
STANDARD DETAIL NO. 6.29  
LEE COUNTY UTILITIES  
MASTER MANHOLE FRAME AND COVER



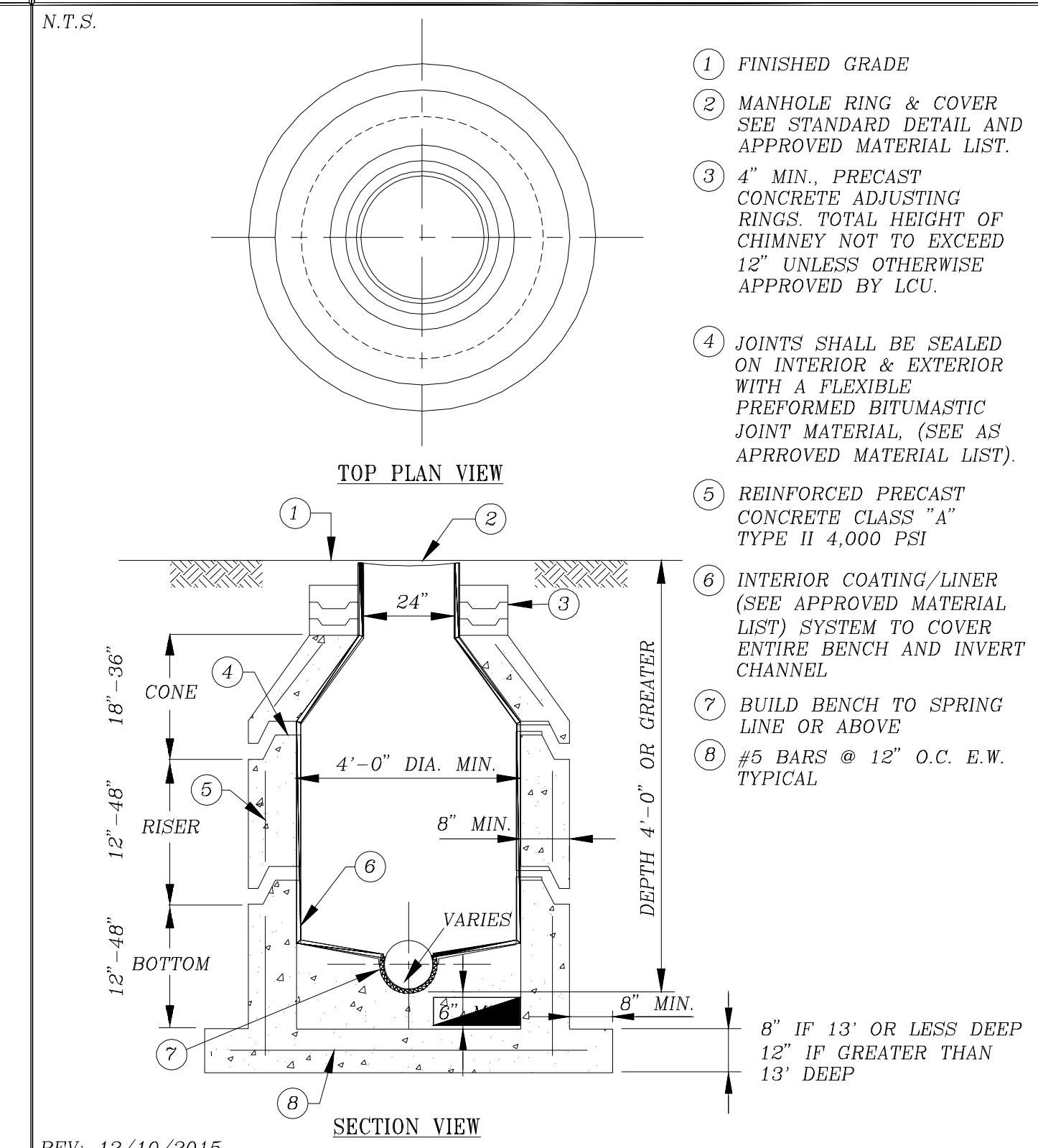
STANDARD DETAIL NO. 6.30  
LEE COUNTY UTILITIES  
MANHOLE FRAME COVER



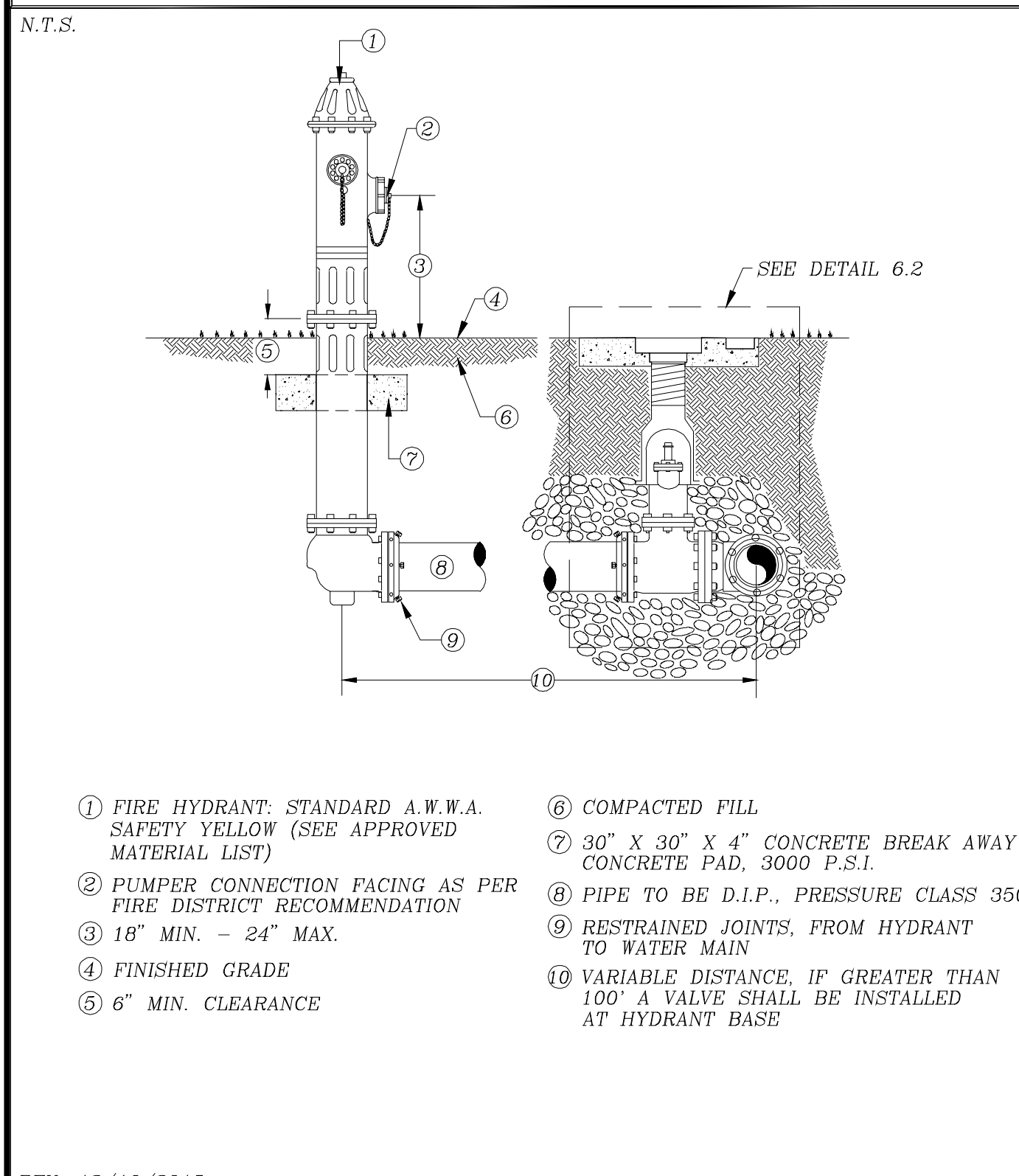
STANDARD DETAIL NO. 6.31  
LEE COUNTY UTILITIES  
MANHOLE FRAME RING



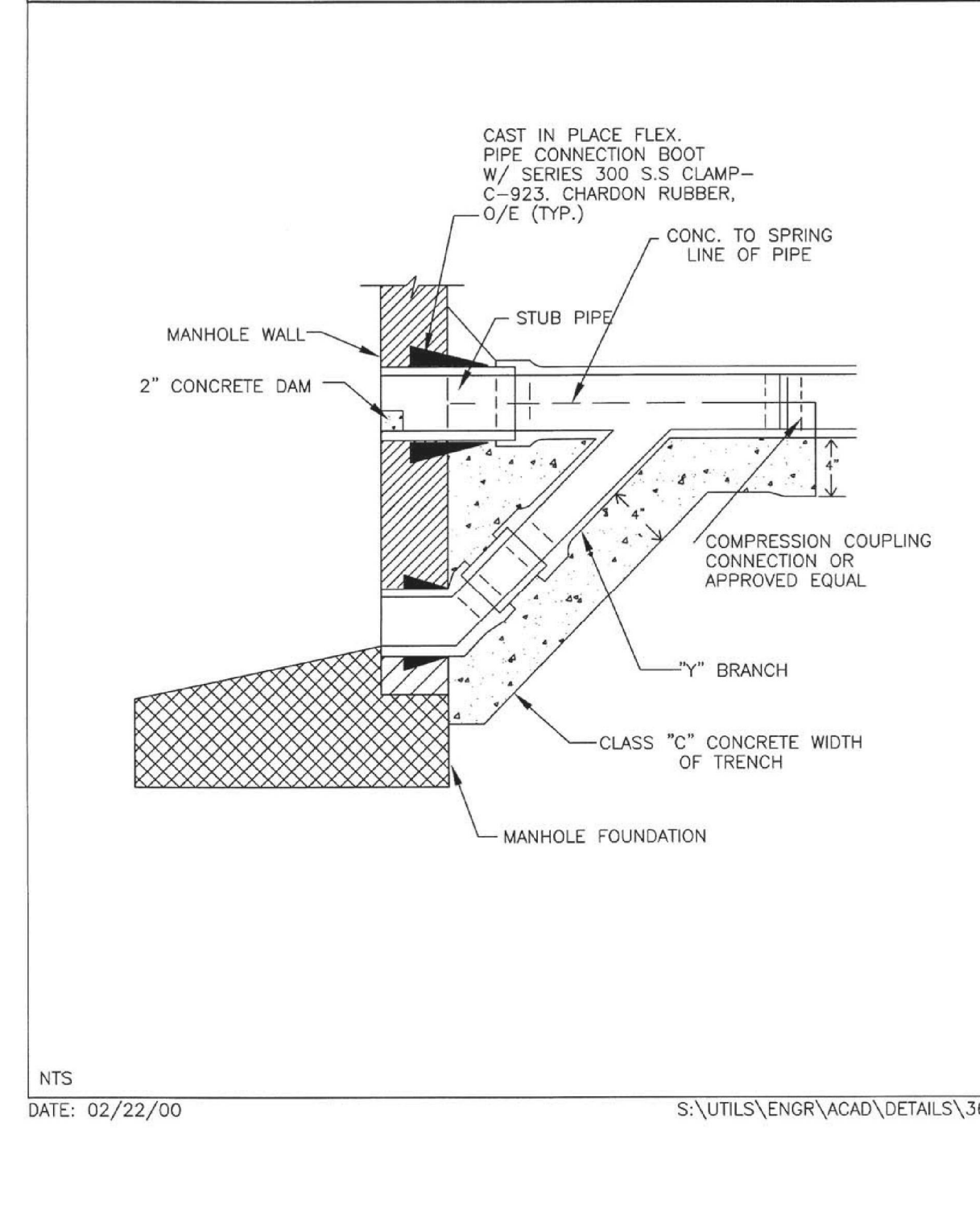
STANDARD DETAIL NO. 6.33  
LEE COUNTY UTILITIES  
PRECAST MANHOLE-CONCENTRIC



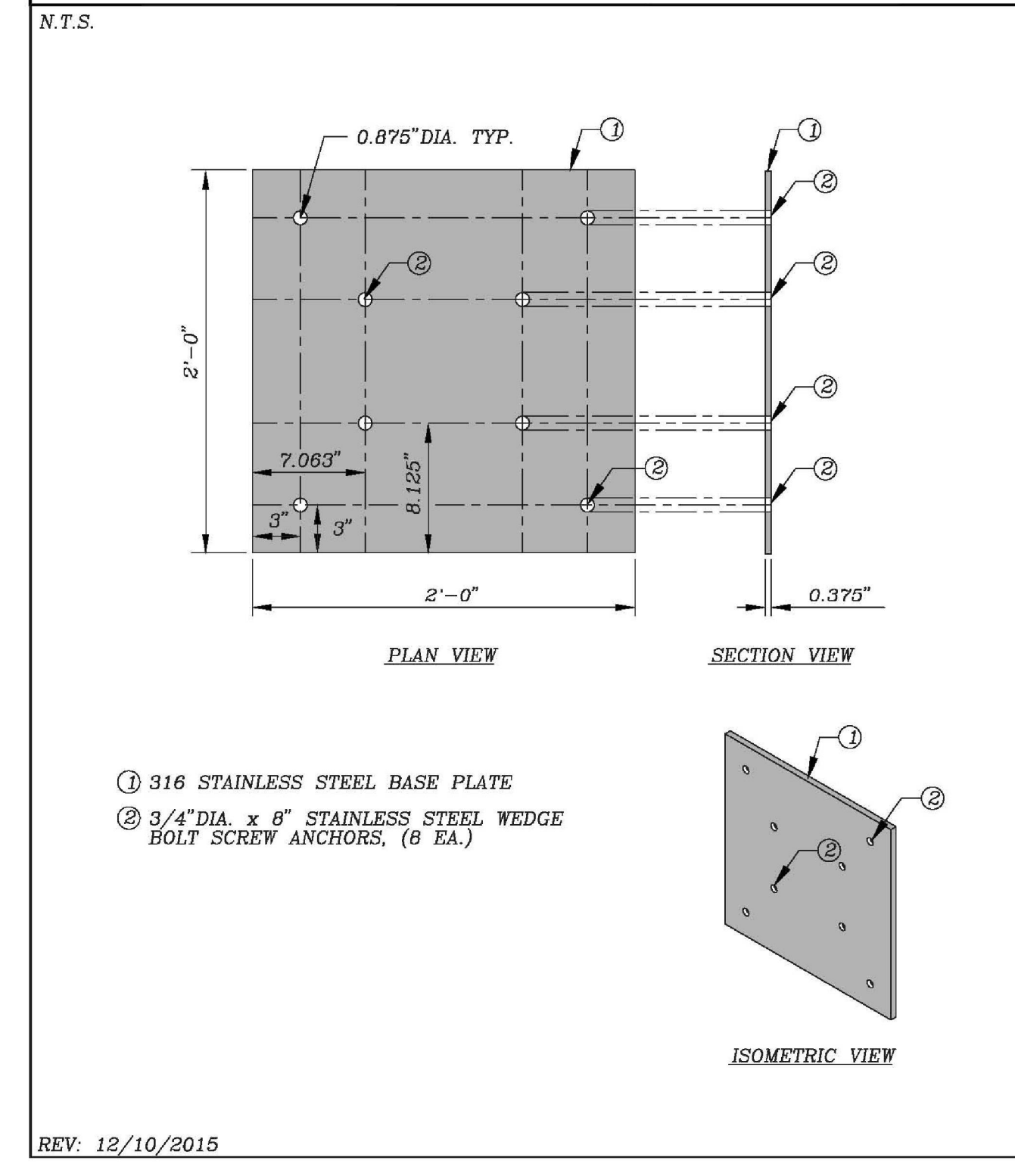
STANDARD DETAIL NO. 6.24  
LEE COUNTY UTILITIES  
FIRE HYDRANT ASSEMBLY



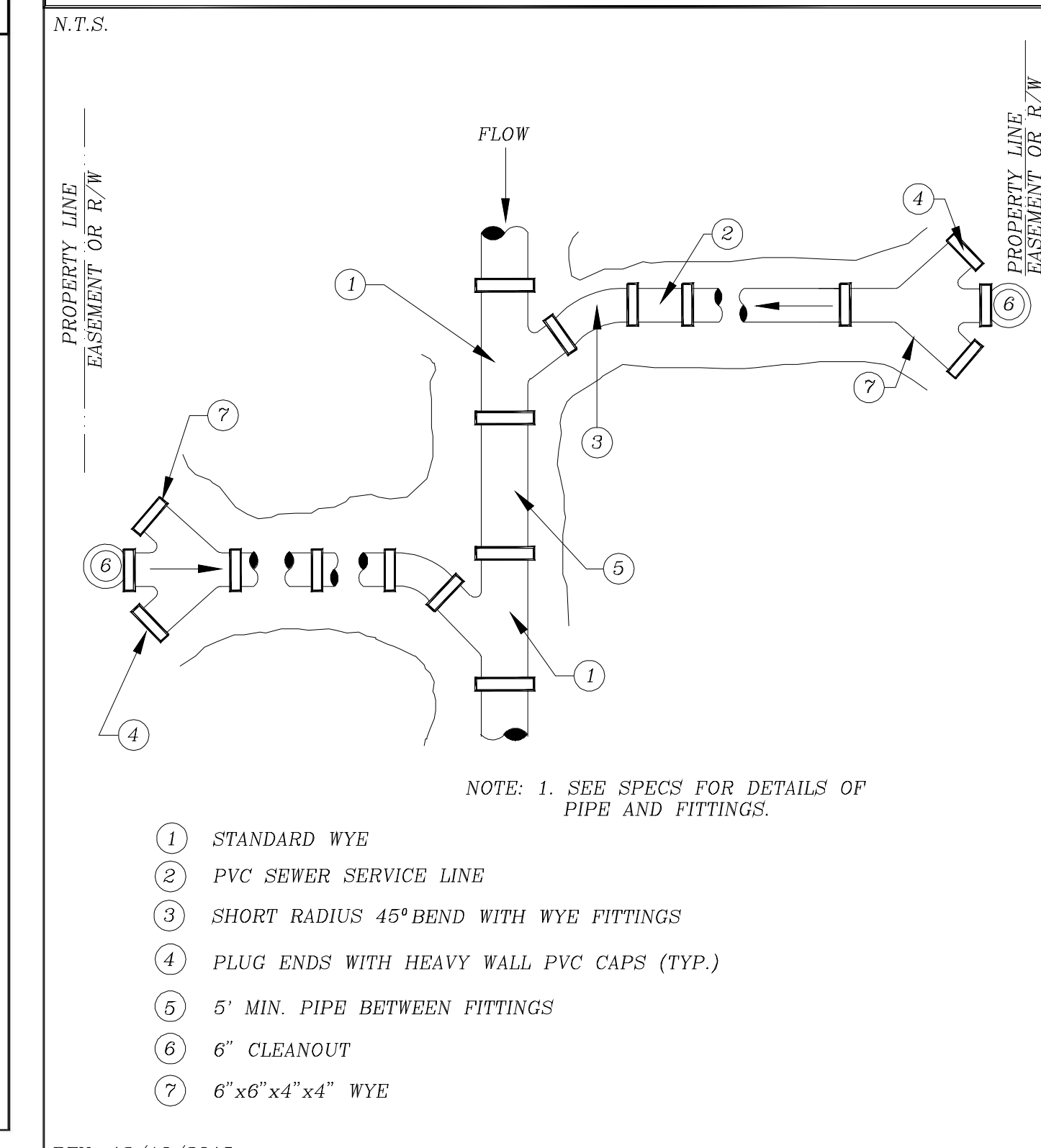
STANDARD DETAIL NO. 9.36  
LEE COUNTY UTILITIES  
OPTIONAL MANHOLE DROP 2' TO 4'



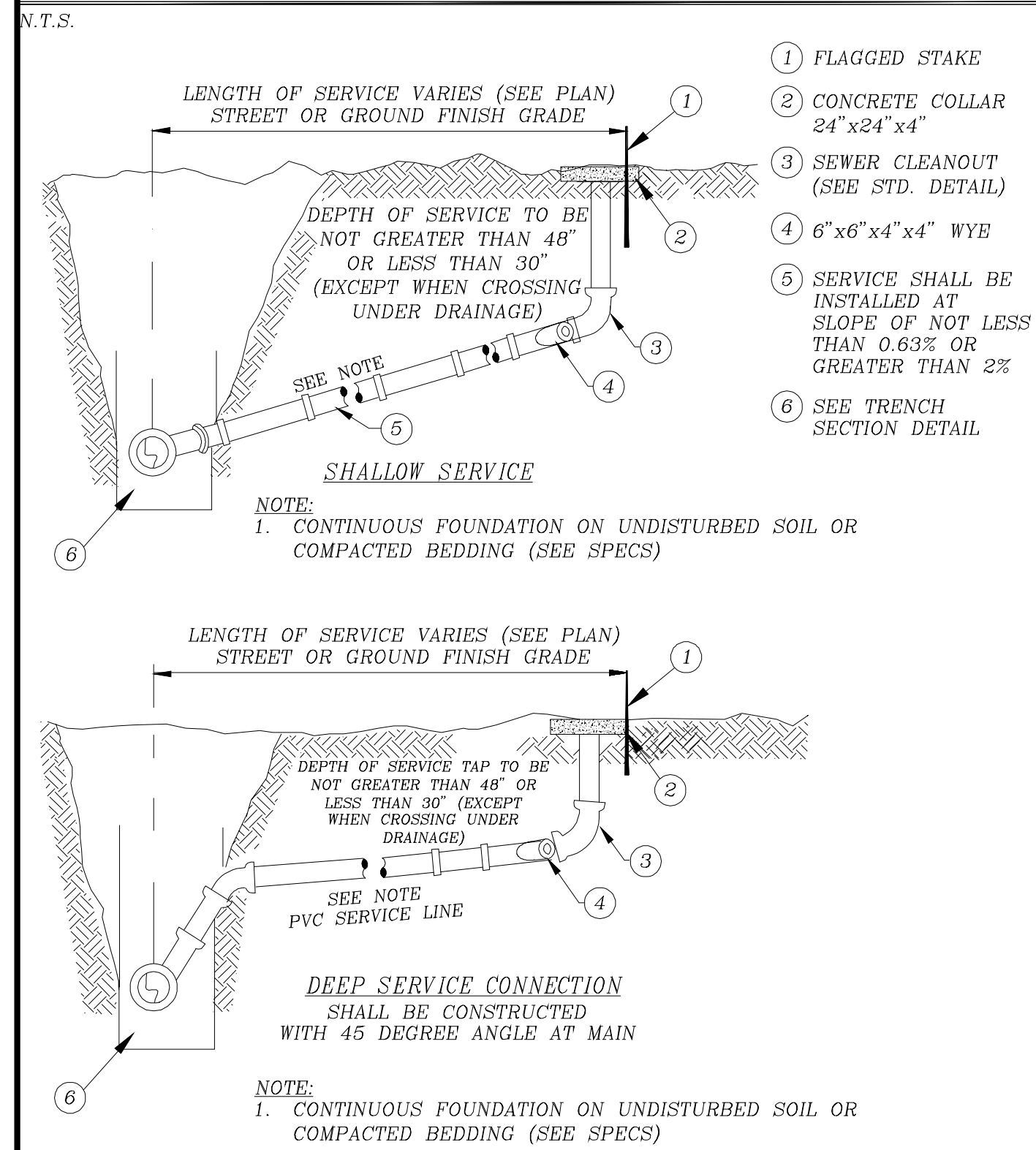
STANDARD DETAIL NO. 6.41  
LEE COUNTY UTILITIES  
4" DIAMETER PUMP DISCHARGE BASE PLATE



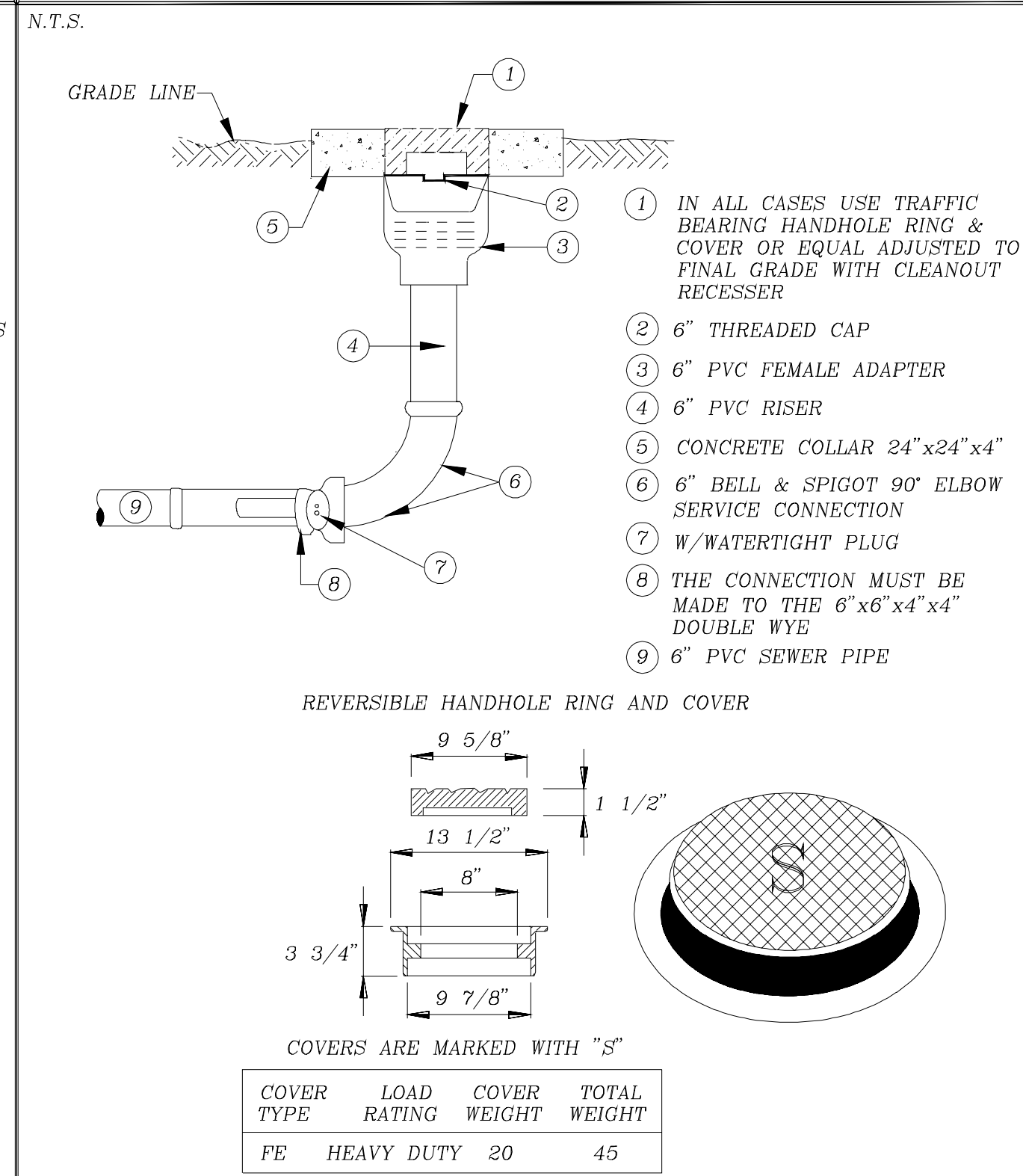
STANDARD DETAIL NO. 6.38  
LEE COUNTY UTILITIES  
STANDARD SEWER SERVICE LATERALS



STANDARD DETAIL NO. 6.39  
LEE COUNTY UTILITIES  
STANDARD SEWER SERVICE LATERAL



STANDARD DETAIL NO. 6.40  
LEE COUNTY UTILITIES  
6" SEWER CLEAN-OUT DETAIL



**Barraco**  
and Associates, Inc.

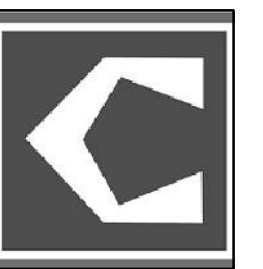
CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING

[www.barraco.net](http://www.barraco.net)

2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME J:\23647A70.DWG

LOCATION J:\23647\DWG\DO

PLOT DATE THU, 1-17-2019 - 4:21 PM

PLOT BY JAN BILDZUKEWICZ

CROSS REFERENCED DRAWINGS

PLAN REVISIONS

PLAN STATUS

BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

UTILITY DETAILS

PROJECT / FILE NO. SHEET NUMBER

23647

C19.3

PREPARED FOR



COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677

PHONE (305) 261-4330  
FAX (305) 261-4338

[WWW.COURTELIS.COM](http://WWW.COURTELIS.COM)

PROJECT DESCRIPTION

# MURANO AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD

CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARL.JR@BARRACO.NET

**LEE COUNTY  
SOUTHWEST FLORIDA  
ENGINEERING**  
 1500 Monroe St., Fort Myers, Florida 33901  
 Ph. (239) 533-8181 Fax. (239) 485-8365

**LEE COUNTY UTILITIES  
ENGINEERING**  
 23647A70.DWG  
 LOCATION J:\23647\DWG\DWG  
 PLOT DATE THU 1-17-2019 4:22 PM  
 PLOT BY JAN BILDZUKIEWICZ

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME J:\23647\DWG\DWG  
LOCATION J:\23647\DWG\DWG  
PLOT DATE THU 1-17-2019 4:22 PM  
PLOT BY JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

PLAN REVISIONS

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

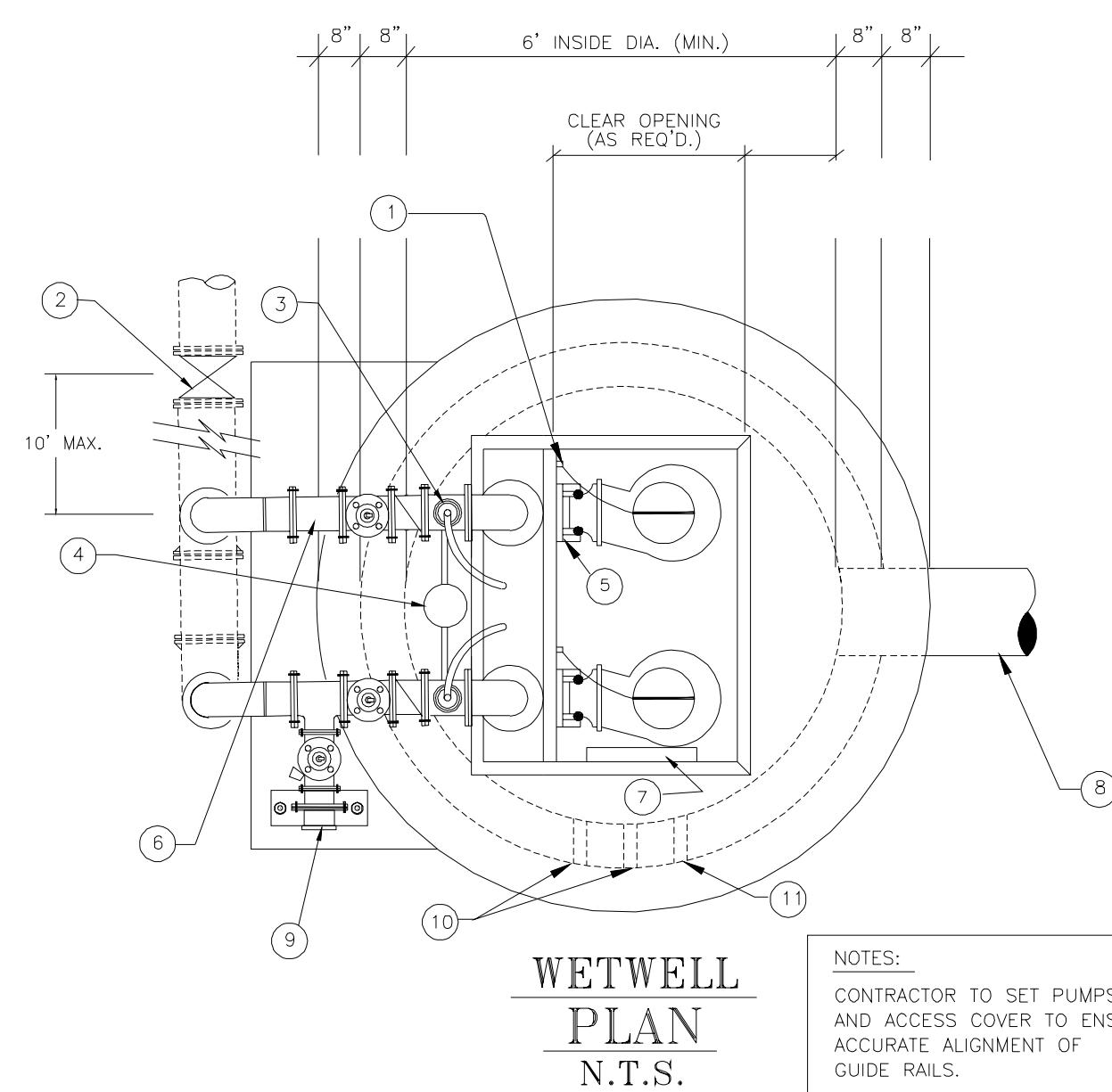
LS-7895 DETAILS

PROJECT / FILE NO. SHEET NUMBER

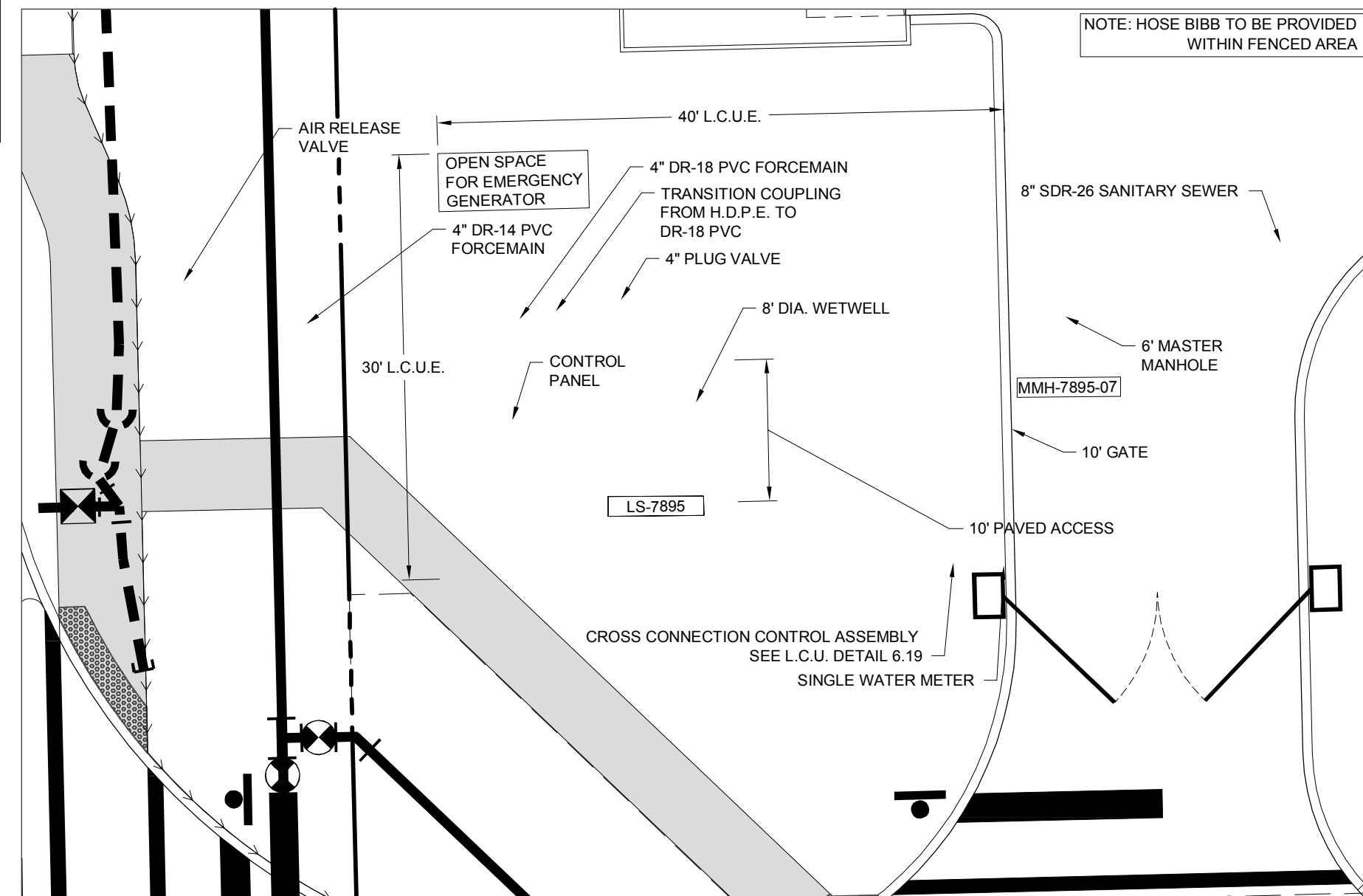
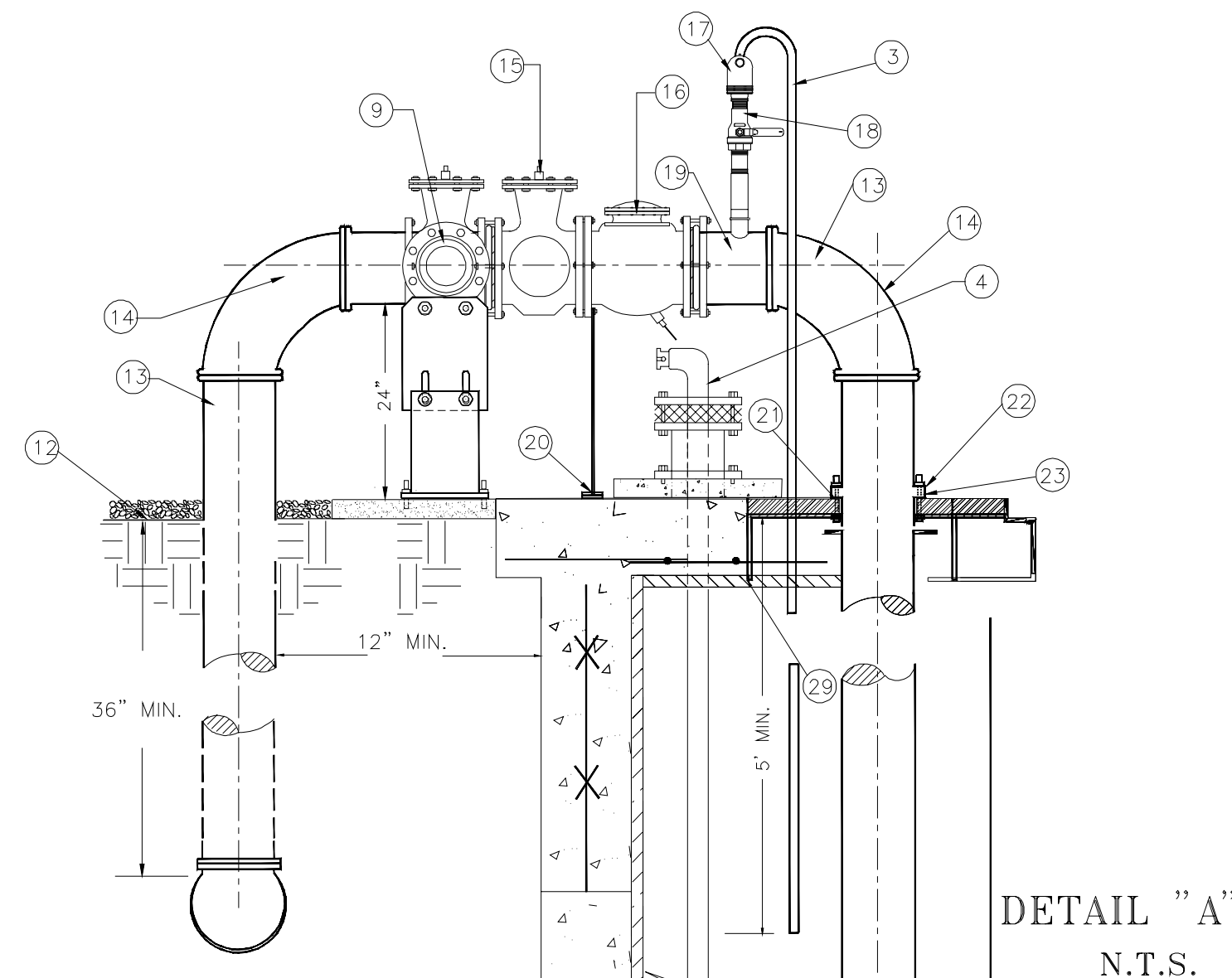
**23647 C19.4**

## GENERAL NOTES AND REQUIREMENTS

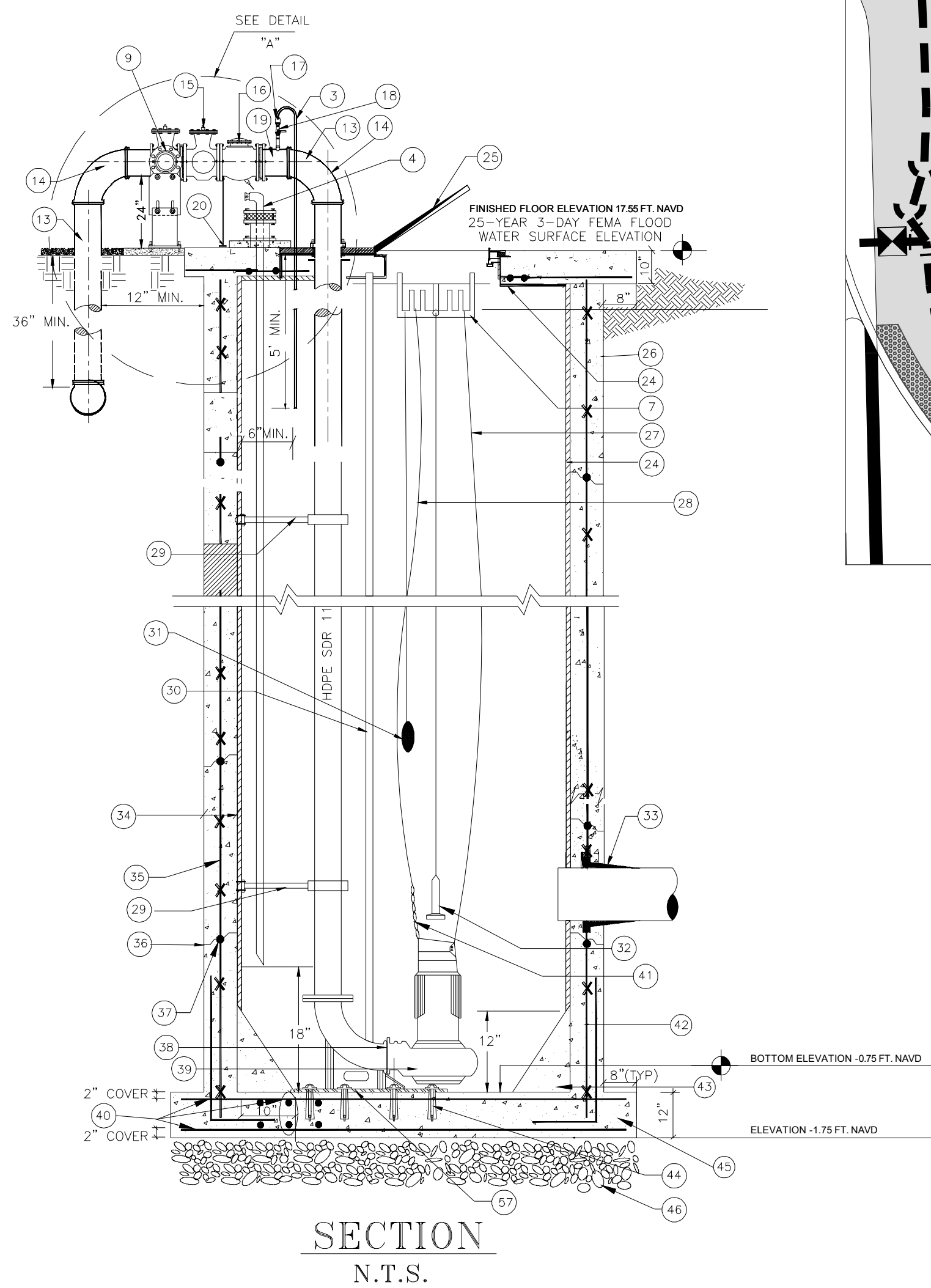
- 1 1/4" THK. SERIES 300 STAINLESS STEEL HOOKS FOR HOIST CABLES
- 2 PLUG VALVE
- 3 PVC DRAIN LINE FROM AIR RELEASE VALVE TO WET WELL
- 4 EMERGENCY PUMP OUT AND AIRVENT (SAME DIAMETER AS DISCHARGE PIPING) (SEE DETAIL "B")
- 5 GUIDE RAILS
- 6 SPOOL PIECE
- 7 STAINLESS STEEL FLOAT CABLE SUPPORT
- 8 INFLUENT PIPE INSTALLED RADIALLY FROM WETWELL CENTER
- 9 FEMALE QUICK CONNECT COUPLER WITH CAP AND PLUG VALVE
- 10 POWER CABLE
- 11 FLOAT CONTROLS
- 12 FILTER CLOTH WITH 4" OF COMPACTED #57 STONE
- 13 HDPE PIPE
- 14 LONG RADIUS 90° BEND
- 15 PLUG VALVE (PAINT BLACK)
- 16 SWING FLEX CHECK VALVE (PAINT BLACK)
- 17 2" AUTOMATIC AIR RELEASE VALVE, (SEE LCU APPROVED MATERIAL LIST) ON EACH DISCHARGE PIPE
- 18 2" STAINLESS STEEL BALL VALVE (SEE APPROVED MATERIAL LIST)
- 19 HDPE BRANCH SADDLE PE 3408 ASTM D3350 (BLACK) WITH FEMALE THREADED INSERT BRASS ALLOY STAINLESS COMPRESSION RING GRADE TYPE 304 OR 316
- 20 STAINLESS STEEL PIPE SUPPORT (SEE DETAIL "C")
- 21 NEOPRENE GASKET
- 22 STAINLESS STEEL FLANGE RING
- 23 HDPE RIM (FUSED TO HDPE PIPE)
- 24 LINER OR COATING (SEE LCU APPROVED MATERIAL LIST)
- 25 ALUMINUM HATCH (SEE DETAIL "D")
- 26 COAL TAR EPOXY (BELOW FINISHED GRADE)
- 27 SENSOR CABLE
- 28 SERIES 316 STAINLESS STEEL 1/4" CABLE
- 29 SERIES 316 STAINLESS STEEL PIPE SUPPORT
- 30 2" SERIES 316 STAINLESS STEEL GUIDE RAILS
- 31 HIGH WATER ALARM SIGNAL ON
- 32 SUBMERSIBLE LEVEL TRANSMITTER
- 33 CAST IN PLACE FLEXIBLE PIPE CONNECTION WITH SERIES 316 STAINLESS STEEL CLAMP, C-923, CHARDON RUBBER, O/E (TYP.)
- 34 WALL THICKNESS 8" MIN.
- 35 STEEL REINFORCEMENT
- 36 RAM-NEK BLANKET OUTER SIDE OF WET WELL
- 37 RAM-NEK OR EQUAL PREFORMED PLASTIC GASKET MATERIAL BETWEEN PRECAST UNITS (TYP.)
- 38 AUTOMATIC DISCHARGE CONNECTION TO SUIT PUMP
- 39 SUBMERSIBLE PUMPS
- 40 #5 AT 8" CENTER
- 41 SERIES 316 STAINLESS STEEL 3/8" CHAIN (1'-6" LONG)
- 42 #4 AT 8" CENTER
- 43 CONC. OR PORTLAND TYPE II & SAND MIX
- 44 3/4" DIA. x 8" STAINLESS STEEL WEDGE BOLT SCREW ANCHORS, 8 EA. REFER TO LCU STANDARD DETAIL
- 45 BASE SECTION TO BE A MONOLITHIC CASTING
- 46 12" MIN. COMPACTED #57 STONE
- 47 CAM LOCK COUPLING ON EMERGENCY PUMP OUT
- 48 STAINLESS STEEL BOLTS
- 49 BLIND FLANGE
- 50 STAINLESS STEEL CLAMP
- 51 STAINLESS STEEL SCREEN CLOTH
- 52 STAINLESS STEEL CONCRETE BOLTS
- 53 3/8" STAINLESS STEEL
- 54 4" THICK 3,000 P.S.I. CONCRETE SLAB
- 55 AIR VENT TO BE 2 PIPE SIZES LARGER THAN EMERGENCY PUMP OUT, THE ACTUAL LOCATION IS TO BE DETERMINED IN THE FIELD.
- 56 LCU PREFERS THE LIFT STATION FENCE TO HAVE DARK GREEN VINYL COATING, HOWEVER, BLACK VINYL IS ACCEPTABLE.
- 57 PUMP DISCHARGE BASE PLATE, REFER TO LCU STANDARD DETAIL



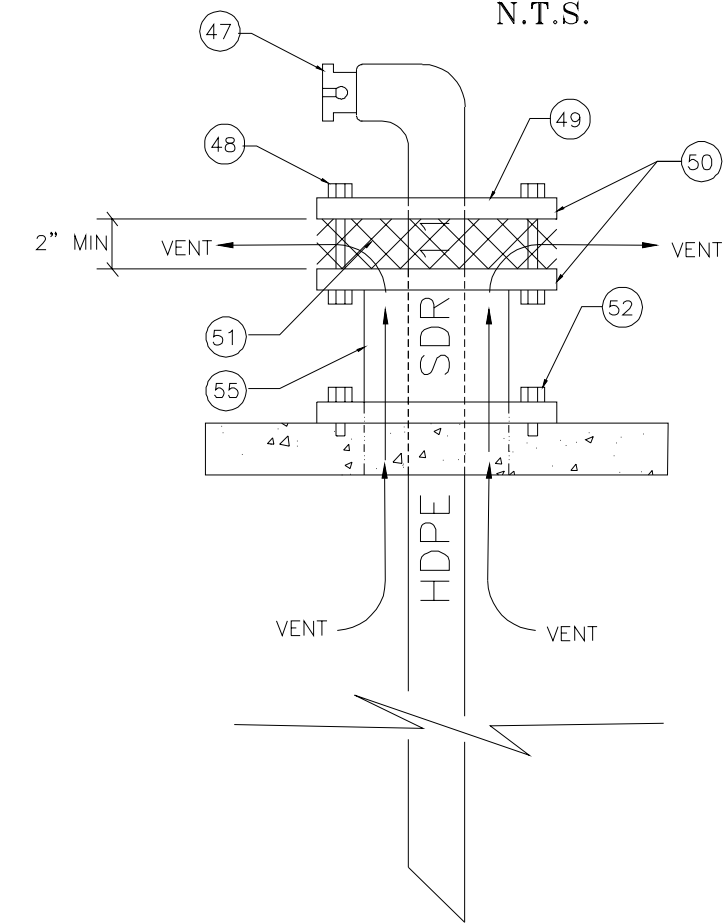
**NOTES:**  
CONTRACTOR TO SET PUMPS AND ACCESS COVER TO ENSURE ACCURATE ALIGNMENT OF GUIDE RAILS.  
CONDUIT FOR PUMP POWER CABLES & FLOAT SWITCH CABLES, PLACEMENT IS TO BE DETERMINED BY LOCATION OF CONTROL PANEL.



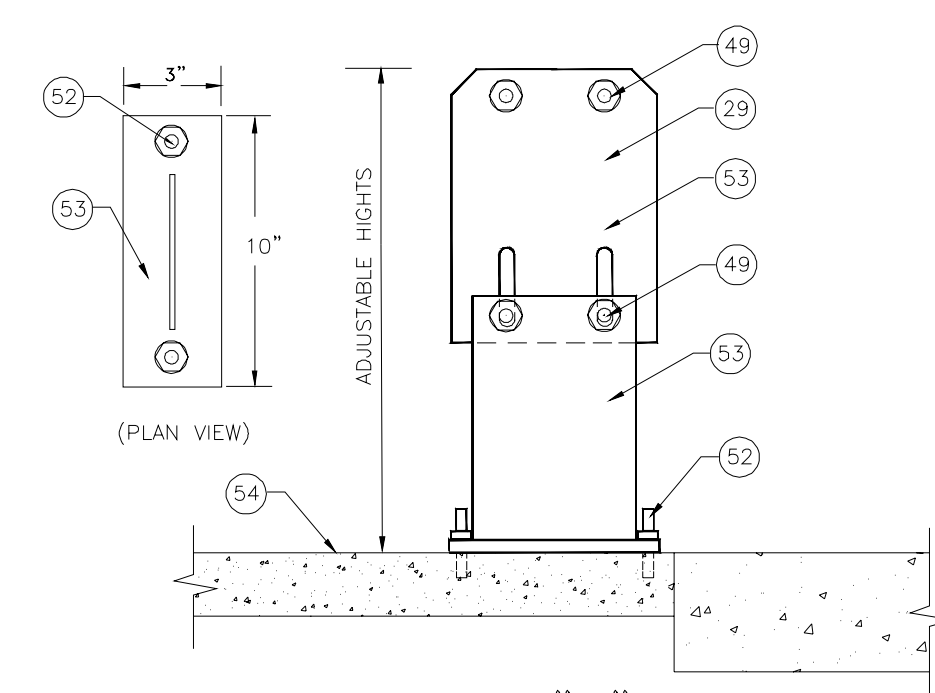
PUMP STATION #7875 (SEE P&P SHEET C10.21)  
N.T.S.



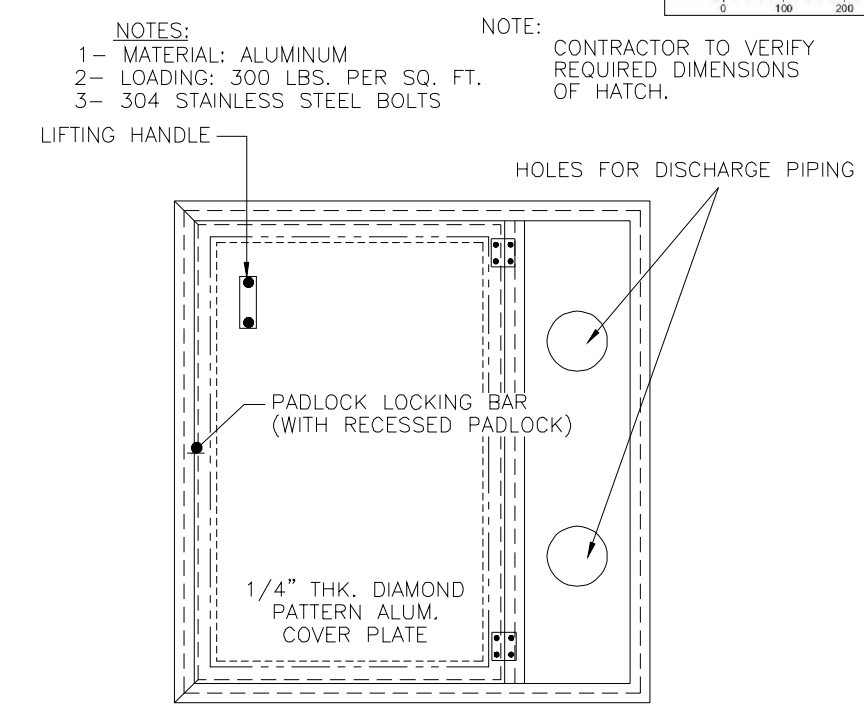
SECTION  
N.T.S.



DETAIL "B"  
N.T.S.



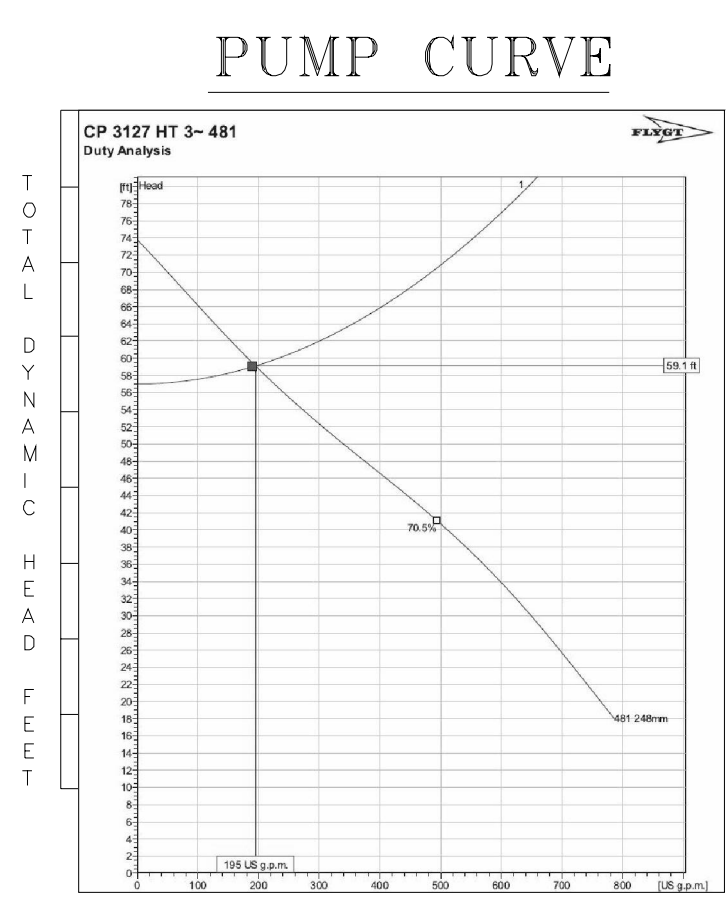
DETAIL "C"  
N.T.S.



DETAIL "D"  
WETWELL ACCESS HATCH  
N.T.S.

NUMBER OF PUMPS	# 1	# 2	# 3
PUMP MANUFACTURER	FLYGT	FLYGT	
PUMP MODEL NUMBER	CP 3127 HT	CP 3127 HT	
IMPELLER NUMBER	481	481	
TYPE OF PUMP	SUBMERSIBLE		
DESIGN CAPACITY PER PUMP	190	190	(GPM)
TOTAL DYNAMIC HEAD	59.1	59.1	(FEET)
SHUT-OFF HEAD	74	74	(FEET)
DESIGN SPEED	1800	1800	(PRM)
MIN. HORSEPOWER PER PUMP	7.9	7.9	(HP)
VOLTS	190	190	(VOLTS)
PHASE POWER	3	3	(PH)
PUMP DISCHARGE SIZE	4	4	(INCHES)
DIAMETER RISER PIPE	4	4	(INCHES)
PUMP ON ELEVATION	5.14	5.64	(FEET)
HIGH WATER ALARM		6.14	(FEET)
PUMP OFF ELEVATION		4.14	(FEET)
DIAMETER PIPE AFTER RISER		4	(INCHES)
DIAMETER WETWELL (I.D.)		8	(FEET)
TOP OF WETWELL ELEVATION		18.14	(FEET)
BOTTOM ELEVATION		2.14	(FEET)
INFLUENT GRAVITY PIPE ELEVATION		7.64	(FEET)

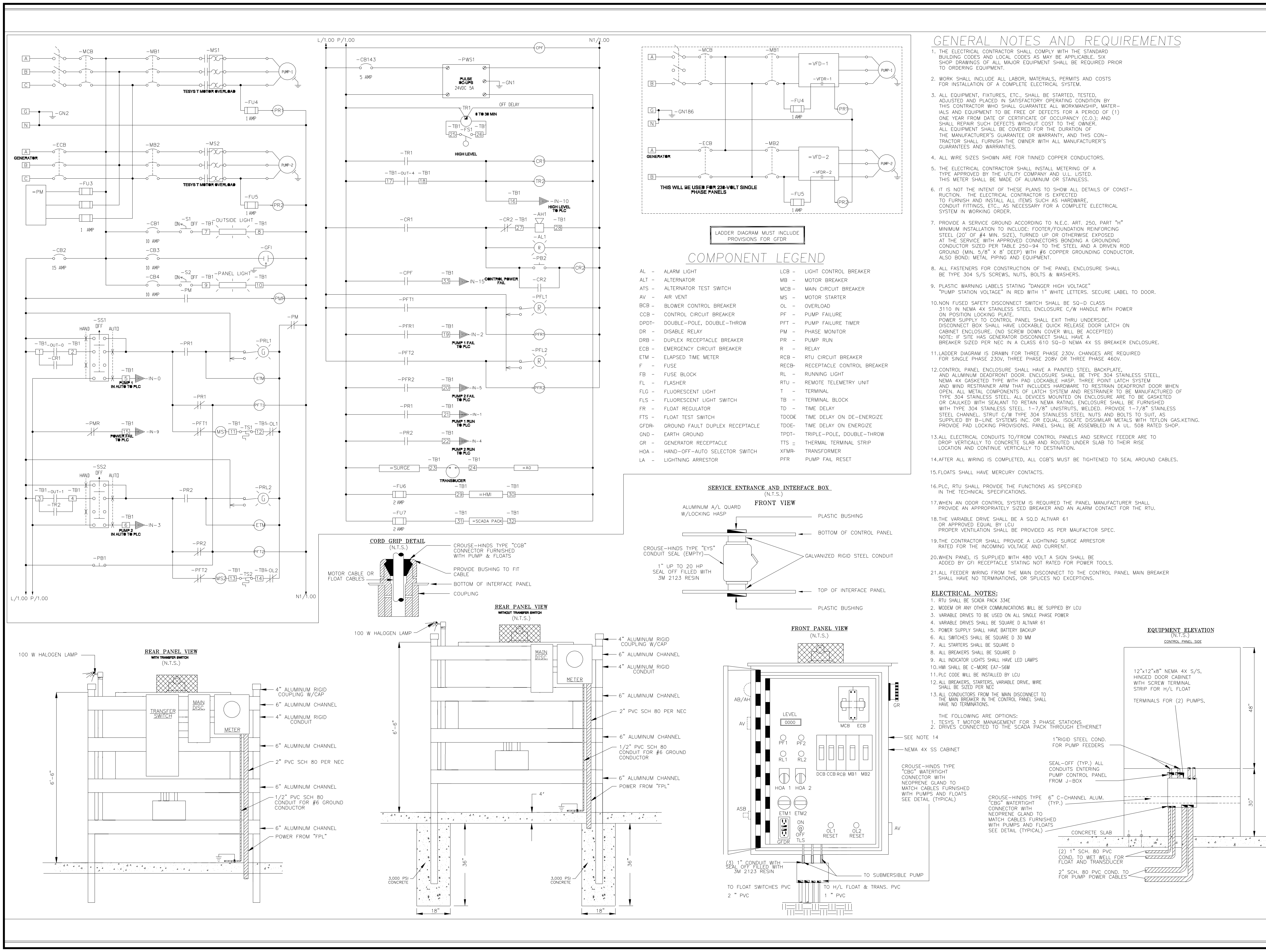
	BASIS OF DESIGN		
	ADF ( gpm)	PHF (gpm)	EDU (1 EDU=250 gpd)
EXISTING	-	-	-
INTERIM	-	-	-
FUTURE	27.26	95.40	157



FLOW US GPM

**NOTES:**  
1- MATERIAL: ALUMINUM  
2- LOADING: 300 LBS. PER SQ. FT.  
3- 304 STAINLESS STEEL BOLTS

**NOTE:** CONTRACTOR TO VERIFY REQUIRED DIMENSIONS OF HATCH.



**GENERAL NOTES AND REQUIREMENTS**

- THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH THE STANDARD BUILDING CODES AND LOCAL CODES AS MAY BE APPLICABLE. SIX SHOP DRAWINGS OF ALL MAJOR EQUIPMENT SHALL BE REQUIRED PRIOR TO ORDERING EQUIPMENT.
- WORK SHALL INCLUDE ALL LABOR, MATERIALS, PERMITS AND COSTS FOR INSTALLATION OF A COMPLETE ELECTRICAL SYSTEM.
- ALL EQUIPMENT, FIXTURES, ETC., SHALL BE STARTED, TESTED, ADJUSTED AND PLACED IN SATISFACTORY OPERATING CONDITION BY THIS CONTRACTOR WHO SHALL GUARANTEE ALL WORKMANSHIP, MATERIALS AND EQUIPMENT TO BE FREE OF DEFECTS FOR A PERIOD OF (1) ONE YEAR FROM DATE OF CERTIFICATE OF OCCUPANCY (C.O.); AND SHALL REPAIR SUCH DEFECTS WITHOUT COST TO THE OWNER. ALL EQUIPMENT SHALL BE COVERED FOR THE DURATION OF THE MANUFACTURER'S GUARANTEE OR WARRANTY, AND THIS CONTRACTOR SHALL FURNISH THE OWNER WITH ALL MANUFACTURER'S GUARANTEES AND WARRANTIES.
- ALL WIRE SIZES SHOWN ARE FOR TINNED COPPER CONDUCTORS.
- THE ELECTRICAL CONTRACTOR SHALL INSTALL METERING OF A TYPE APPROVED BY THE UTILITY COMPANY AND U.L. LISTED. THIS METER SHALL BE MADE OF ALUMINUM OR STAINLESS.
- IT IS NOT THE INTENT OF THESE PLANS TO SHOW ALL DETAILS OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS SUCH AS HARDWARE, CONDUIT FITTINGS, ETC., AS NECESSARY FOR A COMPLETE ELECTRICAL SYSTEM IN WORKING ORDER.
- PROVIDE A SERVICE GROUND ACCORDING TO N.E.C. ART. 250, PART 74" MINIMUM INSTALLATION TO INCLUDE: FOOTER/FOUNDATION REINFORCING STEEL (20" OF #4 MIN. SIZE), TURNED UP OR OTHERWISE EXPOSED AT THE SERVICE WITH APPROVED CONNECTORS BONDING A GROUNDING CONDUCTOR SIZED PER TABLE 250-94 TO THE STEEL AND A BROWN ROD GROUND (MIN. 5/8" X 8" DEEP) WITH #6 COPPER GROUNDING CONDUCTOR. ALSO BOND: METAL PIPING AND EQUIPMENT.
- ALL FASTENERS FOR CONSTRUCTION OF THE PANEL ENCLOSURE SHALL BE TYPE 304 S/S SCREWS, NUTS, BOLTS & WASHERS.
- PLASTIC WARNING LABELS STATING "DANGER HIGH VOLTAGE" "PUMP STATION VOLTAGE" IN RED WITH 1" WHITE LETTERS. SECURE LABEL TO DOOR.
- NON FUSED SAFETY DISCONNECT SWITCH SHALL BE 50-D CLASS 3110 IN NEMA 4X STAINLESS STEEL ENCLOSURE C/W HANDLE WITH POWER ON POSITION LOCKING PLATE. PUMP SUPPLY TO CONTROL PANEL SHALL EXIT THRU UNDERSIDE. DISCONNECT BOX SHALL HAVE LOCKABLE QUICK RELEASE DOOR LATCH ON CABINET ENCLOSURE (NO SCREW DOWN COVER WILL BE ACCEPTED) NOTE: IF SITE HAS GENERATOR DISCONNECT SHALL HAVE A BREAKER SIZED PER NEC IN A CLASS 610 50-D NEMA 4X SS BREAKER ENCLOSURE.
- LADDER DIAGRAM IS DRAWN FOR THREE PHASE 230V. CHANGES ARE REQUIRED FOR SINGLE PHASE 230V, THREE PHASE 208V OR THREE PHASE 460V.
- CONTROL PANEL ENCLOSURE SHALL HAVE A PAINTED STEEL BACKPLATE, AND ALUMINUM DEADFRONT DOOR ENCLOSURE SHALL BE TYPE 304 STAINLESS STEEL, NEMA 4X GASKETED TYPE WITH PAD LOCKABLE HASP, THREE POINT LATCH SYSTEM AND WIND RESTRAINER ARM THAT INCLUDES HARDWARE TO RESTRAIN DEADFRONT DOOR WHEN OPEN. ALL METAL COMPONENTS OF LATCH SYSTEM AND RESTRAINER TO BE MANUFACTURED OF TYPE 304 STAINLESS STEEL. ALL DEVICES MOUNTED ON ENCLOSURE ARE TO BE GASKETED OR CAULKED WITH SEALANT TO RETAIN NEMA RATING. ENCLOSURE SHALL BE FURNISHED WITH TYPE 304 STAINLESS STEEL 1-7/8" UNISTRUTS, WELDED. PROVIDE 1-7/8" STAINLESS STEEL CHANNEL, STRUT C/W TYPE 304 STAINLESS STEEL NUTS AND BOLTS TO SUIT, AS SUPPLIED BY B-LINE SYSTEMS INC. OR EQUAL. ISOLATE DISSIMILAR METALS WITH TEFLO GASKETING. PROVIDE PAD LOCKING PROVISIONS. PANEL SHALL BE ASSEMBLED IN A U.L. 508 RATED SHOP.
- ALL ELECTRICAL CONDUITS TO/FROM CONTROL PANELS AND SERVICE FEEDER ARE TO DROP VERTICALLY TO CONCRETE SLAB AND ROUTED UNDER SLAB TO THEIR RISE LOCATION AND CONTINUE VERTICALLY TO DESTINATION.
- AFTER ALL WIRING IS COMPLETED, ALL COB'S MUST BE TIGHTENED TO SEAL AROUND CABLES.
- FLOATS SHALL HAVE MERCURY CONTACTS.
- RTU SHALL PROVIDE THE FUNCTIONS AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS.
- WHEN AN ODOOR CONTROL SYSTEM IS REQUIRED THE PANEL MANUFACTURER SHALL PROVIDE AN APPROPRIATELY SIZED BREAKER AND AN ALARM CONTACT FOR THE RTU.
- THE VARIABLE DRIVE SHALL BE A S.O.D ALTIVAR 61 OR APPROVED EQUAL BY LCU. PROPER VENTILATION SHALL BE PROVIDED AS PER MAUFACTOR SPEC.
- THE CONTRACTOR SHALL PROVIDE A LIGHTNING SURGE ARRESTOR RATED FOR THE INCOMING VOLTAGE AND CURRENT.
- WHEN PANEL IS SUPPLIED WITH 480 VOLT A SIGN SHALL BE ADDED BY GF1 RECEPTACLE STATING NOT RATED FOR POWER TOOLS.
- ALL FEEDER WIRING FROM THE MAIN DISCONNECT TO THE CONTROL PANEL MAIN BREAKER SHALL HAVE NO TERMINATIONS, OR SPLICES NO EXCEPTIONS.

**ELECTRICAL NOTES:**

- RTU SHALL BE SCADA PACK 334E
- MODEM OR ANY OTHER COMMUNICATIONS WILL BE SUPPLIED BY LCU
- VARIABLE DRIVES TO BE USED ON ALL SINGLE PHASE POWER
- VARIABLE DRIVES SHALL BE SQUARE D ALTIVAR 61
- POWER SUPPLY SHALL HAVE BATTERY BACKUP
- ALL SWITCHES SHALL BE SQUARE D 30 MM
- ALL STARTERS SHALL BE SQUARE D
- ALL BREAKERS SHALL BE SQUARE D
- ALL INDICATOR LIGHTS SHALL HAVE LED LAMPS
- HMI SHALL BE C-MORE EA7-S6M
- PLC CODE WILL BE INSTALLED BY LCU
- ALL BREAKERS, STARTERS, VARIABLE DRIVE, WIRE SHALL BE SIZED PER NEC
- ALL CONDUCTORS FROM THE MAIN DISCONNECT TO THE CONTROL PANEL SHALL HAVE NO TERMINATIONS.

**THE FOLLOWING ARE OPTIONS:**

- TESYS T MOTOR MANAGEMENT FOR 3 PHASE STATIONS
- DRIVES CONNECTED TO THE SCADA PACK THROUGH ETHERNET

**Barraco**  
and Associates, Inc.  
CIVIL ENGINEERING - LAND SURVEYING  
LAND PLANNING  
[www.barraco.net](http://www.barraco.net)  
2271 MCGREGOR BLVD., SUITE 100  
POST OFFICE DRAWER 2800  
FORT MYERS, FLORIDA 33902-2800  
PHONE (239) 461-3170  
FAX (239) 461-3169

FLORIDA CERTIFICATES OF AUTHORIZATION  
ENGINEERING 7995 - SURVEYING LB-6940

PREPARED FOR  
  
COURTELIS COMPANY  
703 WATERFORD WAY  
SUITE 800  
MIAMI, FLORIDA 33126-4677  
PHONE (305) 261-4330  
FAX (305) 261-4338  
WWW.COURTELIS.COM

PROJECT DESCRIPTION  
**MURANO**  
AT THREE OAKS

LEE COUNTY, FLORIDA

ENGINEER OF RECORD  
CARL A. BARRACO, JR., P.E., FOR THE FIRM  
FLORIDA P.E. NO. 81259 - CARLJR@BARRACO.NET

DRAWING NOT VALID WITHOUT SEAL, SIGNATURE AND DATE  
© COPYRIGHT 2019, BARRACO AND ASSOCIATES, INC.  
REPRODUCTION, CHANGES OR ASSIGNMENTS ARE PROHIBITED

FILE NAME: J23647.DWG  
LOCATION: J23647.DWG/D01  
PLOT DATE: THU, 1-17-2019 - 4:22 PM  
PLOT BY: JAN BILDZUKIEWICZ

CROSS REFERENCED DRAWINGS

PLAN REVISIONS

PLAN STATUS  
BID PLANS  
2019-01-17  
NOT FOR CONSTRUCTION

LS-7895 DETAILS

PROJECT / FILE NO. **23647** SHEET NUMBER **C19.5**

LEE COUNTY UTILITIES  
ENGINEERING  
1500 Monroe St., Fort Myers, Florida 33901  
Ph. (239) 533-8181 Fax. (239) 465-6365

STANDARD DETAIL NO. 6.43  
ELECTRICAL DIAGRAM  
AND NOTES