

DEVELOPMENT TEAM INFORMATION

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LANDSCAPE ARCHITECT: Susan Hall Landscape Architecture 4425 Crooked Mile Rd. Merritt Island, FL 32952 Tel: 321-449-0790 www.hall-la.com	GENERAL CONTRACTOR: TBD

UTILITY PROVIDERS

Florida Power and Light Company 9001 Ellis Road Melbourne, Florida 32904 Tel: 321-383-7261	Spectrum 720 Magnolia Avenue Melbourne, Florida 32935 Tel: 321-757-6482
NUI City Gas Company of Florida 4180 South US 1 Rockledge, Florida 32955-5309 Tel: 321-638-3425	AT&T Southeast Network Geo Manager 712 Florida Avenue Cocoa, Florida 32922 Tel: 321-690-2071
City of Titusville Water Resources Ashleigh Smith P.O. Box 2806 Titusville, Florida 32781-2806 Tel: 321-567-3859 Ashleigh.Smith@Titusville.com	City of Titusville Public Works Department Kevin Cook P.O. Box 2806 Titusville, Florida 32781-2806 Tel: 321-567-3845 Kevin.Cook@Titusville.com

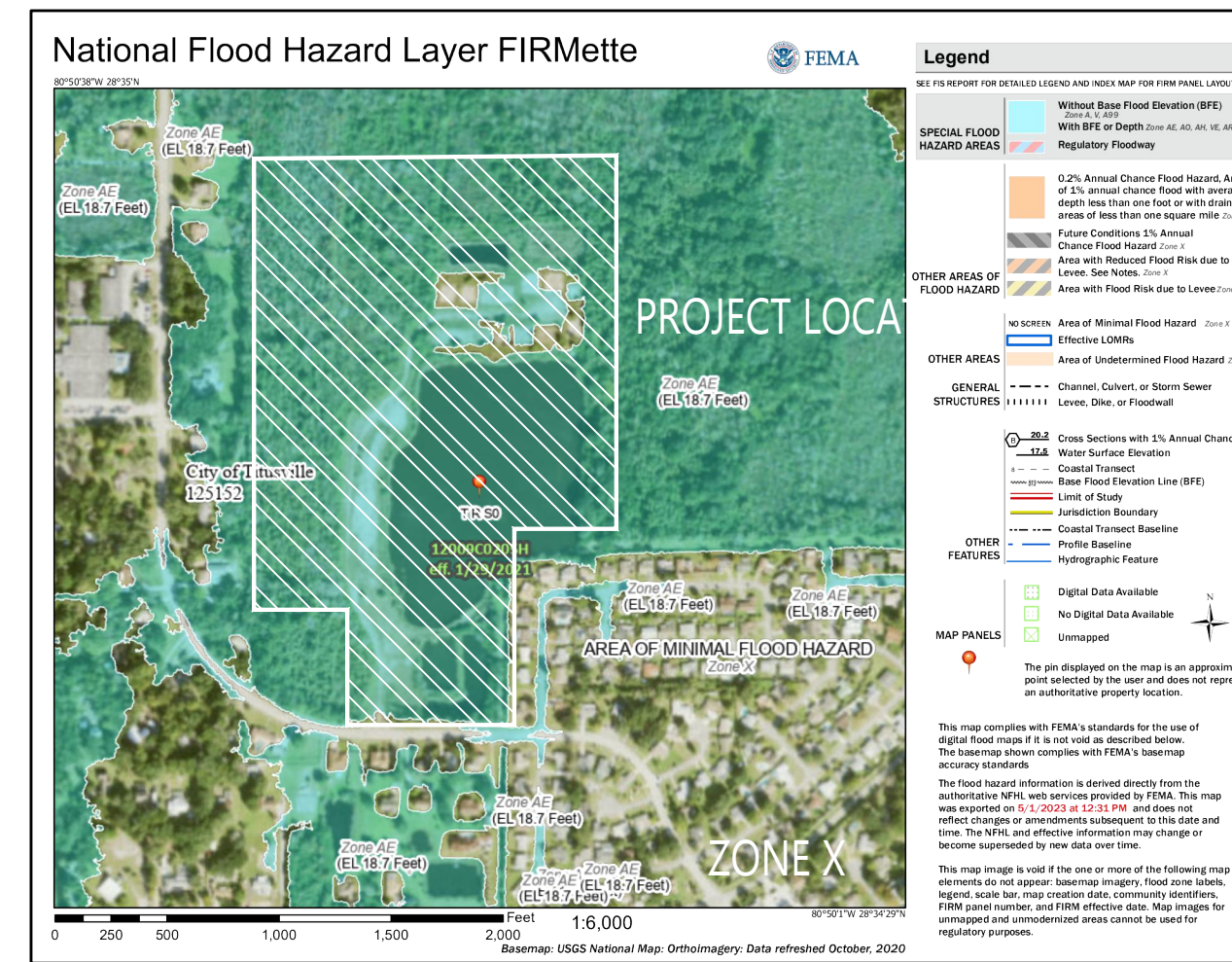
FALCON'S ROOST AT LAKE BELLA

PARCEL ID: 23-35-17-AV-*25
KNOX McRAE
TITUSVILLE, BREVARD COUNTY
FLORIDA



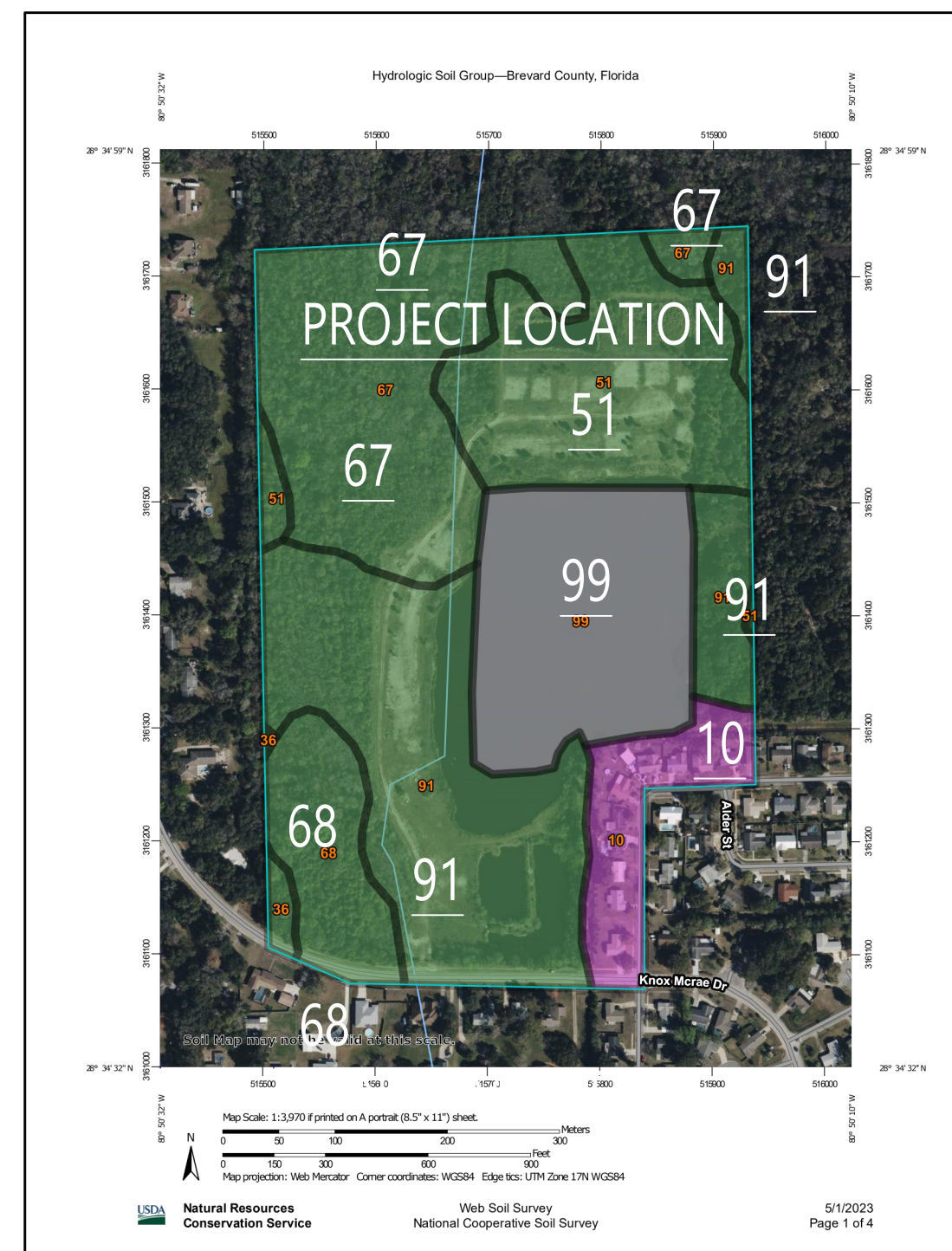
THIS SITE IS LOCATED ON THE NORTH SIDE OF KNOX McRAE DRIVE APPROXIMATELY 0.3 MILES SOUTH OF HARRISON STREET AND 0.2 MILES NORTH OF PARK AVENUE SOUTH.

VICINITY MAP



FLOOD MAP

ZONE X/ZONE AE



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PROJECT DESCRIPTION

THIS PROJECT PROPOSES THE LIMITED DEVELOPMENT WITHIN AN APPROXIMATELY 52+/- ACRE SITE AS DESCRIBED IN THE LEGAL DESCRIPTION. THIS DEVELOPMENT WAS APPROVED AND PERMITTED FOR CONSTRUCTION IN MAY OF 2007 AND CONSTRUCTION BEGAN AND WAS PAUSED LATER THAT YEAR. THE DESIGN REMAINS THE SAME TODAY WITH THE EXCEPTION OF MAKING THE PONDS LARGER THEREBY PROVIDED BETTER TREATMENT SYSTEM TO SERVE THE 28 LOTS AND THE PLANS UPDATED TO THE NAVD 88 VERTICAL DATUM. THE DEVELOPMENT OVERALL INCLUDES THE FOLLOWING:

2,393± LF OF ROAD AND 3,177± LF OF SIDEWALK. THE SUBDIVISION STREET SHALL CONNECT DIRECTLY TO KNOX McRAE DRIVE. THE SUBDIVISION SHALL BE UNDIVIDED ROADWAY WITH TWO 11' LANES AND A 2' CITY STANDARD CURB AND GUTTER. THE SUBDIVISION SHALL BE CONSTRUCTED WITHIN A PROPOSED 50' RIGHT-OF-WAY. UTILITIES SHALL BE CONSTRUCTED WITHIN THE RIGHT-OF-WAY. THESE SHALL INCLUDE:
 2,854 LF GRAVITY SANITARY SEWER WITHIN THE SUBDIVISION
 1,180 LF GRAVITY STORM SEWER
 1,230 LF SANITARY SEWER FORCE MAIN
 2,635 LF WATER MAINS & ALL ATTENDANT FACILITIES (FIRE HYDRANTS, VALVES, ETC.)

TWO (2) RETENTION/DETENTION PONDS SHALL BE USED TO ATTENUATE THE EXCESS RUNOFF. OFFSITE FLOW FROM THE NORTH AND SOUTH PONDS SHALL BE VIA A CONTROL STRUCTURE TO AN EXISTING LAKE LOCATED AT THE CENTER OF THE SITE.

ELECTRICAL SERVICE SHALL BE BROUGHT ONSITE BY THE APPROPRIATE AUTHORITY, NAMELY FLORIDA POWER AND LIGHT.

TELEPHONE SERVICE SHALL BE BROUGHT ONSITE BY THE SELECTED AUTHORITIES. THE CONTRACTOR SHALL COORDINATE HIS EFFORTS WITH THESE UTILITY PROVIDERS.

CONNECTION OF WATER AND SEWER SERVICES TO THE CITY OF TITUSVILLE SHALL BE COORDINATED WITH THE NECESSARY AUTHORITIES WITHIN THE WATER RESOURCES DEPARTMENT, CITY OF TITUSVILLE. THE SANITARY SEWER SYSTEM INCLUDING THE LIFT STATION SHALL BE PRIVATELY OWNED.

NO HOUSES ARE TO BE CONSTRUCTED AT THIS TIME. ALL HOUSES SHOWN ARE FOR INFORMATION PURPOSES ONLY. ALL HOUSE DESIGNS WILL BE SUBMITTED FOR PERMITTING UNDER SEPARATE CONTRACT.

BENCHMARKS

SITE BENCHMARK INFORMATION
 THE BEARING STRUCTURE SHOWN HEREON IS BASED ON ASSUMED BEARING OF 5 ON ASSUMED BEARING OF 5 00° 41' 33" E, AS SHOWN, ALONG MELROSE AVE.

PROJECT B.M. #1
 N.A.V. DATUM, 1988. ELEVATION=19.11
 TOP N. RIM (EAST SAN M.H.)

PROJECT B.M. #2
 N.A.V. DATUM, 1988. ELEVATION=19.80
 TOP N. RIM (WEST SAN M.H.)

City of Titusville Preliminary Concurrency Assessment			
Project Name:	Falcon's Roost	Date:	February 2, 2021
Project Description:	28-lot single-family residential subdivision		
Residential Density (dwelling units):	28	Non-Residential Intensity (1,000 s.f.):	
Potable Water			
Total Water Capacity*	5.409 MGD		
Less Current Demand**	4.425 MGD		
Less Future Commitments (FDEP/Water Supply Allocation permits)	0.367 MGD		
Remaining Capacity***	0.617 MGD		
Estimated Unit Based Water Demand****	28.00 ERU		0.0084 MGD
*12 Month Rolling Average **Remaining capacity subject to change without notice - This is neither a commitment nor a reservation of this capacity ***Based on 100 gallons/capita/day or 250 gallons/unit/day in accordance with City Code Section 30-4.12 Water is reserved for this project only upon issuance of a Water Supply Capacity Allocation Permit in accordance with City Code Section 21-50.			
Wastewater			
Total Wastewater Capacity*	6.750 MGD		
Less Current Demand**	4.261 MGD		
Less Future Commitments (FDEP Permits)	0.291 MGD		
Remaining Capacity***	2.298 MGD		
Estimated Unit Based Wastewater Demand****	28.00 ERU		0.0063 MGD
*12 Month Rolling Average **Remaining capacity subject to change without notice - This is neither a commitment nor a reservation of this capacity ***Based on 80 gallons/capita/day or 225 gallons/unit/day in accordance with City Code Section 30-4.12			
Traffic Circulation			
Primary Access			
Street Name:	Knox McRae Drive	Adopted Ios:	Max Capacity: 9,000 ADT
Roadway Segment:	Harrison Street to South Park Ave	2019 E+C Count:	3,330 ADT
		Volume/Count Ratio:	0.37
Future Conditions			
Roadway Segment:		Existing + New Count:	3,652 ADT
		Volume/Count Ratio:	0.41
Secondary Access			
Street Name:		Adopted Ios:	ADT
Roadway Segment:		2019 E+C Count:	ADT
		Volume/Count Ratio:	
Future Conditions			
Roadway Segment:		Existing + New Count:	ADT
		Volume/Count Ratio:	
Institute of Transportation Engineers (ITE) Index Number**:	210	Index	
Average Vehicle Trips per Unit on a Weekday:	9.57	ADT	
Total Average Vehicle Trips for this Development on a Weekday:	322	ADT	
*Institute of Transportation Engineers Trip Generation Sec. 63-133 LDR (or Latest Edition)			
Recreation/Open Space			
City Population:	47,845	Required Recreation/Open Space:	382.77 AC
Adopted LOS (acres/1,000 population):	8	Current Recreation/Open Space:	566.60 AC
		Existing Available Recreation/Open Space Capacity:	183.83 AC
Project Population:	62	Required Recreation/Open Space:	0.50 AC
		Remaining Recreation/Open Space Capacity:	183.33 AC
Staff Comments			
A traffic study is not required.			
Evaluated By:	N.F.	Evaluation Expiration Date:	8/1/2021

GOVERNING SPECIFICATIONS:

- FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION
- FDOT ROADWAY AND DESIGN STANDARDS, LATEST EDITION
- MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION
- CITY OF TITUSVILLE LATEST SPECIFICATIONS AND DETAILS

SITE DATA

ZONING:	R-1B
FUTURE LANDUSE:	OR/ R-1B
LOT AREA:	7,500 SF
LOT WIDTH, MIN. (FT.):	75
DENSITY MAX. (du/ac):	5.8
FLOOR AREA PER DWELLING UNIT, MINIMUM (SF):	1,200 SF
BUILDING COVERAGE, MAX (% OF LOT AREA):	35
LOT COVERAGE, MAX (% OF LOT AREA):	NA
BUILDING HEIGHT, MAX. (FT.):	35
BUILDING SETBACKS:	
FRONT YARD SETBACK, MIN. (FT.):	25
SIDE CORNER YARD SETBACK, MIN.(FT.):	20
INTERIOR SIDE YARD SETBACK, MIN.(FT.):	10
REAR YARD SETBACK, MIN. (FT.):	25
NUMBER OF RESIDENTIAL UNITS PROPOSED:	28
RESIDENTIAL DENSITY PROPOSED:	1 UNIT/ 1.89 ACRES
TOTAL SITE IMPERVIOUS AREA:	4.34 ACRES*
*TOTAL IMPERVIOUS AREA INCLUDES ANTICIPATED IMPERVIOUS AREA FOR THE INDIVIDUAL UNITS.	

LEGAL DESCRIPTION

THAT PART OF LOTS 87 AND 88 AS SHOWN ON PLAT OF TITUSVILLE FRUIT AND FARM LANDS COMPANY SUBDIVISION, RECORDED IN PLAT BOOK 2, PAGE 29, OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, LYING NORTH OF KNOX McRAE DRIVE TOGETHER WITH A PART OF LOTS 25,41,42 AND 43 AND ALL OF LOTS 40, 57, 56, 55, 54, 73, 74 AND 75, INCLUDING ALL ROAD RIGHTS OF WAY AS SHOWN ON SAID PLAT, ALL LYING IN SECTION 17, TOWNSHIP 22 SOUTH, RANGE 35 EAST, BREVARD COUNTY, FLORIDA, DESCRIBED AS FOLLOWS:

BEGINNING AT THE POINT OF INTERSECTION OF THE WEST BOUNDARY LINE OF OAKDALE SUBDIVISION, SECTION TWO, RECORDED IN PLAT BOOK 20, PAGE 22 OF SAID PUBLIC RECORDS WITH THE NORTH RIGHT OF WAY LINE OF KNOX McRAE DRIVE AND RUN THENCE N 0°41'33" W, ALONG SAID WEST LINE, 675.19 FEET TO THE NORTHWEST CORNER OF OAKDALE SECTION THREE, RECORDED IN PLAT BOOK 20, PAGE 23 AS RECORDED IN SAID PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, THENCE RUN N 87°20'40" E ALONG THE NORTH LINE THEREOF, 339.63 FEET TO A POINT OF INTERSECTION WITH THE WEST LINE OF PARCEL 26; THENCE N 0°05'44" W, ALONG THE WEST LINE OF SAID PARCEL 26, A DISTANCE OF 1336.31 FEET; THENCE S 89°03'16" W, ALONG THE SOUTH LINE OF PARCEL 6 AND PARCEL 21.03, A DISTANCE OF 1341.82 FEET; THENCE S 0°05'23" E, ALONG THE EAST LINES OF PARCELS 44.01, 53, 76, 76.01, 76.03, 76.02 AND 76.04; THENCE N 87°17'14" E, ALONG THE NORTH LINE OF PARCEL 85, A DISTANCE OF 327.52 FEET; THENCE S 01°06'44" E, ALONG THE EAST LINE OF THE AFORESAID PARCEL 85, A DISTANCE OF 514.38 FEET TO A POINT LYING ON THE NORTH RIGHT OF WAY LINE OF KNOX McRAE DRIVE; SAID POINT LYING ON THE ARC OF A CIRCULAR CURVE CONCAVED NORTHERLY, HAVING A RADIUS OF 765.00 FEET; THENCE RUN IN AN EASTERLY DIRECTION ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 10°35'53" AN ARC DISTANCE OF 141.50 FEET TO THE POINT OF TANGENCY OF SAID CURVE; THENCE N 89°19'37" E, ALONG THE NORTH RIGHT OF WAY LINE OF KNOX McRAE DRIVE, 531.72 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPT A 20' RIGHT OF WAY MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTH WEST CORNER OF OAKDALE SECTION THREE AS RECORDED IN PLAT BOOK 20, PAGE 23 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, THENCE RUN N 87°20'40" E, ALONG THE NORTH LINE OF AFOREMENTIONED OAKDALE SECTION THREE, A DISTANCE OF 10.00 FEET; THENCE RUN N 0°41'33" W TO THE SOUTHWEST CORNER OF PARCEL 6, A DISTANCE OF 1299.00 FEET TO THE POINT OF BEGINNING OF HEREON DESCRIBED 20' RIGHT OF WAY; THENCE RUN N 87°20'40" E TO A POINT ON THE WEST LINE OF PARCEL 26; THENCE RUN ALONG SAID WEST LINE OF PARCEL 26 N 0°05'44" W, A DISTANCE OF 20.00 FEET; THENCE RUN S 87°20'40" W, A DISTANCE OF 323.85 FEET; THENCE RUN S 0°41'33" E, A DISTANCE OF 20.00 FEET TO THE POINT OF BEGINNING, CONTAINING 647.00 SQUARE FEET, (0.148 ACRES) MORE OR LESS.

LESS AND EXCEPT A 20' RIGHT OF WAY MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTH WEST CORNER OF OAKDALE SECTION THREE AS RECORDED IN PLAT BOOK 20, PAGE 23 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, THENCE RUN N 87°20'40" E, ALONG THE NORTH LINE OF AFOREMENTIONED OAKDALE SECTION THREE, A DISTANCE OF 10.00 FEET; THENCE RUN N 0°41'33" W TO THE SOUTHWEST CORNER OF PARCEL 6, A DISTANCE OF 1299.00 FEET TO THE POINT OF BEGINNING OF HEREON DESCRIBED 20' RIGHT OF WAY; THENCE RUN N 87°20'40" E TO A POINT ON THE WEST LINE OF PARCEL 26; THENCE RUN ALONG SAID WEST LINE OF PARCEL 26 N 0°05'44" W, A DISTANCE OF 20.00 FEET; THENCE RUN S 87°20'40" W, A DISTANCE OF 323.85 FEET; THENCE RUN S 0°41'33" E, A DISTANCE OF 20.00 FEET TO THE POINT OF BEGINNING, CONTAINING 647.00 SQUARE FEET, (0.148 ACRES) MORE OR LESS.

APPROVAL SIGNATURES _____ DATE _____

ENGINEERING: _____
 PLANNING: _____
 FIRE DEPT: _____
 UTILITIES: _____
 EXPIRATION DATE: _____

CITY NOTES

- FDEP WATER AND SEWER PERMITS ARE REQUIRED PRIOR TO ANY CONSTRUCTION.
- A ST. JOHN'S RIVER WATER MANAGEMENT DISTRICT PERMIT IS REQUIRED PRIOR TO ANY CONSTRUCTION.
- CITY OF TITUSVILLE STREET CUT PERMITS ARE REQUIRED FOR ANY STREET CUTTING ACTIVITIES.
- A CITY OF TITUSVILLE UTILITY CONSTRUCTION PERMIT IS REQUIRED AND WILL BE ISSUED ONCE WATER RESOURCES HAS RECEIVED AND APPROVED THREE SETS OF SIGNED AND SEALED PLANS.
- BEFORE A CERTIFICATE OF OCCUPANCY IS ISSUED, THE FOLLOWING AGREEMENTS AND FORMS ARE REQUIRED:
 - A 2 YEAR MAINTENANCE BOND ON ALL UTILITIES THAT WILL BE MAINTAINED BY THE CITY.
 - BILL OF SALE ON ALL CITY-OWNED AND OUTSIDE UTILITIES.
 - LIFT STATION SITE DEED.
 - EASEMENTS FOR ALL CITY UTILITIES OUTSIDE PUBLIC RIGHTS OF WAY. WATER EASEMENT ARE TO INCLUDE FIRE HYDRANTS AND TO THE POINT OF METERING.
 - REPRODUCIBLE AS-BUILT DRAWINGS IN CONFORMANCE WITH THE REQUIREMENTS LISTED ON THE AS-BUILT CHECKLIST.
 - COUNTY ROAD DRAINAGE PERMITS IF ANY STORMWATER EXISTS THE SITE AND ENTERS COUNTY DRAINAGE SYSTEM.
 - BACKFLOW PREVENTOR TEST RESULTS BEFORE ISSUANCE OF THE UTILITY CONSTRUCTION PERMIT.
- A PRE-CONSTRUCTION MEETING IS REQUIRED BEFORE ISSUANCE OF THE UTILITY CONSTRUCTION PERMIT.
- THIS PROJECT REQUIRES A CITY R/W USE PERMIT AND PRE-CONSTRUCTION CONFERENCE PRIOR TO CONSTRUCTION.
- THE DEVELOPER SHALL CONSTRUCT ALL SIDEWALKS AS SHOWN ON THESE PLANS PRIOR TO ACCEPTANCE OF IMPROVEMENTS BY THE CITY OF TITUSVILLE.
- ALL ACCESS SHALL BE PROVIDED FROM THE LOTS WITHIN THE PROPOSED PROJECT ON TO KNOX McRAE DRIVE.
- ALL STRIPING SHALL BE THERMOPLASTIC STRIPING AS PER FDOT SPECIFICATIONS AND SHALL BE ACCORDANCE WITH MUTCD LATEST EDITION.
- ALL MANHOLES THAT ARE 18" OR GREATER IN DEPTH SHALL BE A MINIMUM OF 6' IN DIAMETER. PLEASE REFER TO THE CITY OF TITUSVILLE STANDARDS.
- THE MAXIMUM IMPERVIOUS AREA WITHIN EACH LOT SHALL NOT EXCEED 3,948 SF.
- SITE PLAN FINAL ACCEPTANCE SHALL BE REQUIRED PRIOR TO CONDUCTING FINAL INSPECTION(S) ASSOCIATED WITH THE BUILDING PERMIT. SITE PLAN FINAL ACCEPTANCE SHALL BE ADMINISTERED IN ACCORDANCE WITH DEVELOPMENT REVIEW PROCEDURES MANUAL SEC. 14.6.
- UPON SITE PLAN FINAL ACCEPTANCE, APPLICANT MAY REQUEST FINAL INSPECTION(S) ASSOCIATED WITH THE BUILDING PERMIT, AS REQUIRED BY SECTION 6-6.1, TITUSVILLE CODE OF ORDINANCES.
- UPON APPROVAL OF FINAL BUILDING PERMIT INSPECTION(S) AND SITE PLAN FINAL ACCEPTANCE, THE BUILDING OFFICIAL SHALL ISSUE A CERTIFICATE OF OCCUPANCY.
- NO CERTIFICATE OF OCCUPANCY WILL BE ISSUED FOR ANY STRUCTURE UNTIL COMPLIANCE WITH THE REQUIREMENTS OF SECTION 6-6.1, HAS BEEN MET AND ALL OUTSTANDING SITE DEVELOPMENT PERMIT REQUIREMENTS ARE COMPLETED AND APPROVED.

CLEARING AND GRUBBING NOTES

- INITIAL CLEARING SHALL BE LIMITED TO THE FOLLOWING:
- RIGHT-OF-WAY WIDTH AS DEFINED ON THE ATTACHED PLANS
 - THE LIMITS OF THE PROPOSED RETENTION PONDS
 - EXPANSION OF EXISTING POND
 - LIMITS OF THE PROPOSED LOTS

WAIVER NOTE

DRC #11-2021-WAIVER REQUEST FOR FALCON ROOST SUBDIVISION WAS APPROVED BY THE CITY DRC ON APRIL 27, 2021 WITH A CONDITION TO ADD A "T" TURN AROUND CONSISTING OF 16 FEET WIDE BY 40 DEEP ON ONE SIDE OF THE ROAD FROM THE EDGE OF PAVEMENT.

WAIVER APPROVAL

DRC #2-2023-WAIVER FOR FALCON ROOST SUBDIVISION WAS APPROVED BY THE CITY DRC ON JANUARY 25, 2023 FOR SECTION 9.6.4 " MAXIMUM CUL-DE-SAC LENGTH GREATER THAN 500 FEET."

GENERAL NOTES

- AFTER COMPLETION OF THE PROJECT, THE ADMINISTRATOR SHALL REQUIRE CERTIFIED AS-BUILT PLANS, SIGNED AND SEALED BY THE REGISTERED FLORIDA ENGINEER OR SURVEYOR OR A CERTIFIED PAPER COPY WITH ELECTRONIC COPY IN AUTOCAD FORMAT, PRIOR TO FINAL ACCEPTANCE.
- AS PART OF THE CLOSEOUT FOR THIS PERMIT AN AS-BUILT SURVEY OF ALL UTILITIES THAT REFLECT THE LOCATION AND THE NEW DEPTH OF THE CITY'S INFRASTRUCTURE WILL BE REQUIRED
- ALL DISTURBED AREA WITHIN THE CITY OF TITUSVILLE PROPERTY SHALL BE FILLED IN AND RESTORED TO THE SATISFACTION OF THE CITY.

PERMIT	NUMBER	DATE
SJRWMD (ORIGINAL SUBMITTAL) CITY OF TITUSVILLE	40-009100336-1	
FDEP WATER		
ACOE	SAJ-2005-7453 (IP-7453)	7-26-06

REVISIONS	DATE	BY
REVISED PER CITY COMMENTS	01/12/2021	SGH
REVISED PER CITY COMMENTS	01/14/2021	SGH
REVISED PER CITY COMMENTS	04/09/2021	SGH
REVISED PER CITY COMMENTS	12/07/2022	SGH
REVISED PER CITY COMMENTS	05/01/2023	SGH

PROJECT NAME:	FALCON'S ROOST AT LAKE BELLA
PROJECT NO:	200521
DESIGNED BY:	ZSC/PT/SGH
DATE:	7/21/2020

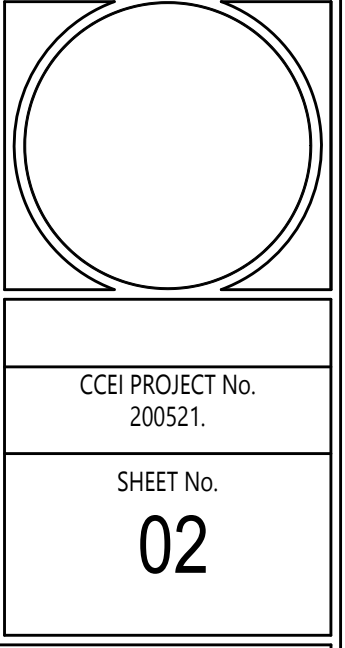
ENGINEER OF RECORD:	ZOHEIR S. CHEHAYEB, P.E. #38577
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PREPARED BY: CONSULTING CIVIL ENGINEERS, INC.

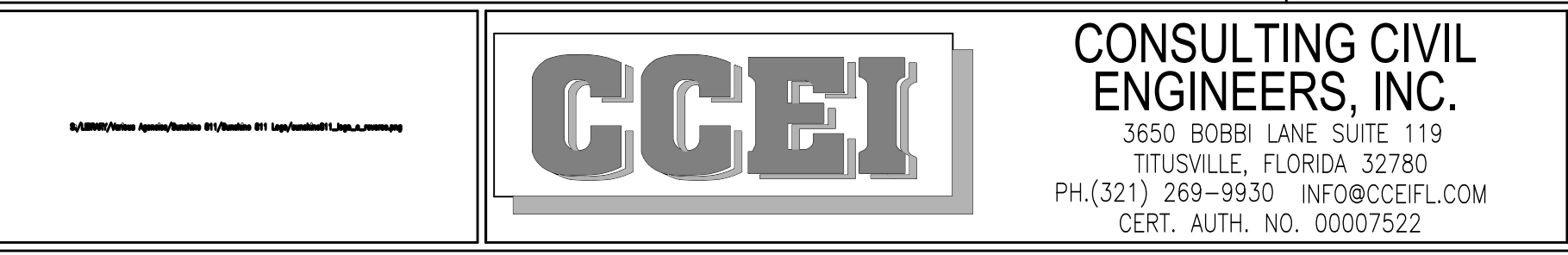
3650 BOBBI LANE, SUITE 119
 TITUSVILLE, FLORIDA 32780
 VOICE: (321) 269-9930
 E-MAIL: INFO@CCEIFF.COM

CERTIFICATE OF AUTHORIZATION NUMBER 00007522

FALCON

<p>PRIOR TO CONSTRUCTION:</p> <ol style="list-style-type: none"> ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTORS AT HIS EXPENSE UNLESS PREVIOUSLY OBTAINED BY THE OWNER. ALL PROPOSED CONSTRUCTION SHALL BE PURSUANT TO INFORMATION SHOWN ON THESE PLANS AND SPECIFICATIONS. ANY DEVIATION FROM THE PLANS SHALL BE APPROVED BY THE ENGINEER BEFORE ANY CHANGE IS MADE IN THE FIELD. CONTRACTOR TO CORRELATE PLANS AND POINT OUT CONFLICTS AND/OR DISCREPANCIES FOR THE OWNER/ENGINEER'S RESOLUTION PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL ARRANGE FOR, PROVIDE ALL REQUIRED DATA AND ATTEND ANY MUNICIPALITY REQUIRED PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES WITH FACILITIES IN THE AREA OF THE PROJECT BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE PUBLIC AGENCIES PRIOR TO COMMENCING WORK WITHIN THEIR JURISDICTIONS. FLORIDA STATUTE 553.851 (1979) REQUIRES A MINIMUM OF 2 BUSINESS DAYS AND A MAXIMUM OF 5 BUSINESS DAYS NOTICE BEFORE EXCAVATION. THESE CONSTRUCTION PLANS HAVE BEEN PREPARED TO CONFORM WITH STANDARDS OF SOUND ENGINEERING PRACTICE. HOWEVER, NO CONSTRUCTION SHOULD BE UNDERTAKEN UNTIL IT IS ASSURED THAT ALL REQUIRED AGENCY PERMITS HAVE BEEN OBTAINED AND THAT THESE PLANS CONFORM TO THE REQUIREMENTS OF SUCH PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND FOR NOTIFYING THE VARIOUS UTILITY COMPANIES TO MAKE THE NECESSARY PROVISIONS FOR ANY RELOCATION, TEMPORARY DISRUPTION OF SERVICE AND/OR CLARIFICATION OF CONSTRUCTION ACTIVITIES REGARDING THE SAID UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING ANY UNDERGROUND UTILITY, WHETHER SHOWN ON THESE PLANS OR FIELD LOCATED. ALL UTILITIES WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED BY THE RESPECTIVE COMPANIES AND THE CONTRACTOR SHALL COOPERATE WITH THEM DURING RELOCATION OPERATIONS. ANY DELAY OR INCONVENIENCE DUE TO THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION WILL BE ALLOWED. THE LOCATION OF ALL EXISTING UTILITIES, STORM DRAINAGE SYSTEMS AND TOPOGRAPHICAL FEATURES SHOWN ON THESE PLANS HAVE BEEN DETERMINED FROM THE BEST AVAILABLE INFORMATION AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY INACCURACY. SHOULD A DISCREPANCY ARISE BETWEEN THESE PLANS AND THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR WILL HALT CONSTRUCTION AND NOTIFY THE ENGINEER IMMEDIATELY. 	<p>GEOTECHNICAL:</p> <ol style="list-style-type: none"> IF UNSUITABLE MATERIALS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER FOR A RESOLUTION. AFTER THE PAVEMENT, SIDEWALK AND CURB AREAS HAVE BEEN CONSTRUCTED TO SUBGRADE, IT SHALL BE PROOF-ROLLED TO ASSURE THAT PROPER COMPACTION HAS BEEN ATTAINED. THE PROOF-ROLLING AND COMPACTING OPERATIONS SHALL BE INSPECTED AND TESTED BY A FLORIDA LICENSED GEOTECHNICAL ENGINEER TO ASSURE THAT THE SPECIFIED COMPACTING IS MAINTAINED AND ALL DELETERIOUS MATERIAL HAS BEEN REMOVED. REMEDIAL DEWATERING MAY BE NEEDED PRIOR TO EARTHWORK OPERATIONS OR FOR DRAINAGE/ UTILITY CONSTRUCTION. COMPACT THE PAVEMENT AND SIDEWALK SUBGRADE UNTIL A MINIMUM DENSITY OF 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) IS OBTAINED. TO A DEPTH OF TWO FEET BELOW THE BOTTOM OF THE BASE COURSE IN THE PAVEMENT AREAS. IN PAVED AREAS PERFORM COMPLIANCE TESTS ON THE STABILIZED SUBGRADE FOR A FULL DEPTH AT A FREQUENCY OF ONE TEST PER 10,000 SQUARE FEET OR AT A MINIMUM OF TWO TEST LOCATIONS, WHICHEVER IS GREATER. PLACE FILL MATERIAL AS REQUIRED. THE FILLS SHOULD CONSIST OF "CLEAN" FINE SANDS WITH LESS THAN 5 PERCENT SOIL FINES. FILL MATERIAL WITH SOIL FINES BETWEEN 5 AND 10 PERCENT MAY BE USED, BUT STRICT MOISTURE CONTROL MAY BE REQUIRED. PLACE FILLS AT UNIFORM 10 TO 12 INCH LOOSE LIFTS AND COMPACT EACH LIFT TO A MINIMUM DENSITY OF 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. THE ABOVE LIST OF REQUIREMENTS ARE OF A GENERAL NATURE. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SPECIFIC GEOTECHNICAL REPORT RECOMMENDATION FOR SITE WORK. 	<p>DEVELOPMENT NOTES</p> <ol style="list-style-type: none"> IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL REQUIRED PERMITS ARE OBTAINED AND IN-HAND BEFORE BEGINNING ANY CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND FOR NOTIFYING THE VARIOUS UTILITY COMPANIES TO MAKE THE NECESSARY PROVISIONS FOR ANY RELOCATION, TEMPORARY DISRUPTION OF SERVICE AND/OR CLARIFICATION OF CONSTRUCTION ACTIVITIES REGARDING THE SAID UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING ANY UNDERGROUND UTILITY, WHETHER SHOWN ON THESE PLANS OR FIELD LOCATED. ALL UTILITIES WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED BY THE RESPECTIVE COMPANIES AND THE CONTRACTOR SHALL COOPERATE WITH THEM DURING RELOCATION OPERATIONS. ANY DELAY OR INCONVENIENCE DUE TO THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION WILL BE ALLOWED. ANY DAMAGE TO THE EXISTING INFRASTRUCTURE, INCLUDING SIDEWALKS, BY THE CONTRACTOR MUST BE REPLACED PRIOR TO FINAL INSPECTION. SIDEWALK PATCHING IS NOT ACCEPTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL INSPECTION CRITERIA AND SCHEDULES, AND FOR SIGNING THE SAID INSPECTIONS. THE STORM WATER MANAGEMENT PLAN SHALL COMPLY WITH CITY AND/OR COUNTY REGULATIONS AND SHALL BE SUBJECT TO THE APPROVAL OF THE CITY AND/OR COUNTY AND AS PERMITTED BY THE THE CONTRACTOR SHALL NOT DISTURB ANY MATERIAL, STRUCTURE OR PART OF A STRUCTURE WHICH IS LOCATED OUTSIDE THE LINES, GRADES OR GRADING SECTIONS ESTABLISHED FOR THIS PROJECT, EXCEPT WHERE SUCH EXCAVATION OR REMOVAL IS PROVIDED FOR IN THE CONTRACT, PLANS, SPECIFICATIONS OR DIRECTED BY THE OWNER. ALL WORK AND ALL MATERIALS FURNISHED SHALL BE IN REASONABLE CLOSE CONFORMITY WITH THE LINES, GRADES, GRADING SECTIONS, CROSS-SECTIONS, DIMENSIONS, MATERIAL REQUIREMENTS AND TESTING REQUIREMENTS THAT ARE SPECIFIED IN THE CONTRACT, PLANS OR SPECIFICATIONS. THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL BARRICADES, WARNING SIGNS AND MARKINGS FOR HAZARDS AS NECESSARY TO PROTECT OTHERS IN OR NEAR THE CONSTRUCTION OPERATION. AFTER THE PAVEMENT, SIDEWALK AND CURB AREAS HAVE BEEN CONSTRUCTED TO SUBGRADE, IT SHALL BE PROOF-ROLLED TO ASSURE THAT PROPER COMPACTION HAS BEEN ATTAINED. THE PROOF-ROLLING AND COMPACTING OPERATIONS SHALL BE INSPECTED AND TESTED BY A FLORIDA LICENSED GEOTECHNICAL ENGINEER TO ASSURE THAT THE SPECIFIED COMPACTING IS MAINTAINED AND ALL DELETERIOUS MATERIAL HAS BEEN REMOVED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COPY OF THE GEOTECHNICAL ENGINEER'S REPORT FOR THIS PROJECT FROM THE OWNER OR ENGINEER AND MEET THE GEOTECHNICAL ENGINEER'S REQUIREMENTS FOR SOIL PREPARATION ON THE SITE. IF THE CONTRACTOR PROVIDES GEOTECHNICAL TESTING, THEIR GEOTECHNICAL ENGINEER SHALL CERTIFY SUBSTANTIAL COMPLETION FOR ALL COMPACTING, UNDER DRAINS AND PAVEMENT STRUCTURES. ALL EXCAVATIONS WITHIN 10 FEET OF THE TRAVELED ROADWAY MUST BE FILLED WITHIN 24 HRS. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND REPLACE ALL SURVEY MONUMENTATION WITHIN THE PROJECT BY A FLORIDA LICENSED SURVEYOR. ALL DISTURBED RIGHT-OF-WAY AND/OR IMPROVEMENTS THEREIN SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION. THE PROJECT SOILS ENGINEER SHALL INSPECT THE SUB-BASE CONDITIONS PRIOR TO PLACEMENT OF FILL MATERIAL AND PROVIDE A WRITTEN REPORT ON FINDINGS TO THE CITY AND/OR BREVARD COUNTY LAND DEVELOPMENT SECTION. 	<p>CITY OF TITUSVILLE GENERAL NOTES:</p> <ol style="list-style-type: none"> CONTRACTOR SHALL VERIFY EXISTING GRADES AND INTEGRITY OF STORMWATER AND SANITARY SEWER SYSTEM WITHIN LIMITS OF CONSTRUCTION PRIOR TO START OF CONSTRUCTION AND SHALL CONTACT ENGINEER OF RECORD IF DISCREPANCIES OCCUR. ALL PERSONS AND ENTITIES SHALL MAINTAIN PRIVATE STORMWATER MANAGEMENT SYSTEMS IN FULL COMPLIANCE WITH APPLICABLE CODES AND ORDINANCES. ANY PERSON OR ENTITY THAT FAILS TO MAINTAIN THE STORMWATER MANAGEMENT SYSTEMS SHALL BE CONSIDERED AS A VIOLATION OF THIS CODE AND ENFORCEMENT ACTION MAY BE INITIATED AND ENFORCED THROUGH THE MUNICIPAL CODE ENFORCEMENT BOARD. FINES AND LIENS MAY BE IMPOSED AS AUTHORIZED BY CHAPTER 162 FLORIDA STATUTES (AS AMENDED FROM TIME TO TIME) AND APPLICABLE CODES AND ORDINANCES. IF ANY ENTITY HAS BEEN DISSOLVED OR NO LONGER OWNS SAID PRIVATE STORMWATER MANAGEMENT SYSTEMS, THEN, IN THAT EVENT, THE PROPERTY OWNERS UTILIZING SAID STORMWATER MANAGEMENT SYSTEMS OR PROPERTIES THAT ARE BENEFITED BY SAID STORMWATER MANAGEMENT SYSTEMS SHALL BE FINANCIALLY RESPONSIBLE FOR THE UPKEEP AND MAINTENANCE OF SAID STORMWATER MANAGEMENT SYSTEMS. THE CITY OF TITUSVILLE MAY INITIATE AN ACTION THROUGH THE MUNICIPAL CODE ENFORCEMENT BOARD FOR SAID VIOLATION AND APPROPRIATE FINES AND LIENS MAY BE IMPOSED AND RECORDED AGAINST BENEFITED PROPERTIES. THE LIENS MAY BE FORECLOSED AND COLLECTED IN THE SAME MANNER AS CODE LIENS INCLUDING THE CITY'S COSTS AND A REASONABLE ATTORNEY'S FEES. 	
<p>CONTRACTOR RECORD KEEPING:</p> <ol style="list-style-type: none"> THE CONTRACTOR SHALL MAINTAIN COPIES OF ALL APPLICABLE PERMITS ON-SITE AND SHALL BE RESPONSIBLE TO ADHERE TO ALL PERMIT CONDITIONS DURING CONSTRUCTION. THE CONTRACTOR SHALL, ON A DAILY BASIS MAINTAIN ONE (1) SET OF PRINTS ON THE JOB SITE WHICH INDICATE THE AS-BUILT SIZE, LENGTH, ELEVATION, AND LOCATION OF ALL IMPROVEMENTS BEING MADE. THIS AS-BUILT INFORMATION SHALL BE KEPT ACCURATE, NEAT AND IN GOOD CONDITION. THESE MARKED PLANS SHALL BE MADE AVAILABLE TO THE OWNER AND ENGINEER AT THE JOB SITE UPON VERBAL REQUEST. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC FILE IN A DWG FORMAT ALONG WITH TWO (2) SETS OF AS-BUILT PRINTS TO THE ENGINEER AND OWNER FOR THEIR APPROVAL. 	<p>RESTORATION:</p> <ol style="list-style-type: none"> ALL PRIVATE AND PUBLIC PROPERTY, WHICH IS OFFSITE OR IN EASEMENTS ONSITE, THAT IS AFFECTED BY THIS WORK SHALL BE RESTORED TO THE CONDITION TO A CONDITION EQUAL TO OR BETTER THAN WHAT EXISTED BEFORE COMMENCING CONSTRUCTION WORK UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. IF EXISTING SIDEWALKS AND/OR CURBS ARE TO BE REMOVED BECAUSE OF CONSTRUCTION IT SHALL BE REPLACED IN KIND TO THE NEAREST JOINT. ALL EDGES SHALL BE NEAT AND SAW CUT, AS NECESSARY. 	<p>DEMOLITION NOTES</p> <ol style="list-style-type: none"> ALL DEMOLITION ACTIVITIES ARE TO CONFORM TO THE GOVERNING MUNICIPALITY'S STANDARDS & SPECIFICATIONS AND ANY APPLICABLE STATE & LOCAL REGULATIONS. THE CONTRACTOR IS RESPONSIBLE TO CONTACT AND COORDINATE WITH ALL UTILITY COMPANIES AND OTHER APPROPRIATE PARTIES FOR THE LOCATION OF EXISTING FACILITIES EITHER ONSITE AND ADJACENT TO THE SITE PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES. TREE PROTECTION, IF CALLED FOR, SHALL BE IN PLACE PRIOR TO ANY NEARBY DEMOLITION WORK. ALL DEBRIS FROM THE SITE DEMOLITION ACTIVITIES ARE TO BE REMOVED FROM THE SITE AND DISPOSED OF OFFSITE AT AN APPROVED DISPOSAL SITE. THE CONTRACTOR IS TO PROVIDE THE APPROPRIATE SEDIMENT & EROSION CONTROL MEASURES DURING SITE DEMOLITION ACTIVITIES INCLUDING PROTECTION OF THE DOWNSTREAM INLETS. AFTER SITE DEMOLITION ACTIVITIES ARE COMPLETE, THE SITE IS TO BE GRADED UNIFORMLY AND CONSISTENT WITH THE GRAY-OF-THE-LAND THAT EXISTED PRIOR TO SITE DEMOLITION UNLESS DIRECTED TO DO OTHERWISE BY THE OWNER OR ENGINEER. IF THE SITE REMAINS IDLE (NO CONSTRUCTION) FOR MORE THAN 3 BUSINESS DAYS AFTER DEMOLITION ACTIVITIES ARE COMPLETE, THEN ALL DISTURBED AREAS ARE TO BE SEEDED AND MULCHED, AND APPROPRIATE SEDIMENT & EROSION CONTROL MEASURES ARE TO REMAIN IN PLACE UNTIL THE AREA IS STABILIZED WITH A VEGETATIVE COVER. CONTRACTOR SHALL CONTROL DUST GENERATED BY THE DIRT DRIVE WITHIN 500 FEET OF ANY RESIDENCE. CONTRACTOR SHALL PROVIDE STREET SWEEPING OF THE CITY/COUNTY RIGHT OF WAY AFFECTED BY THE OPERATION TO THE SATISFACTION OF THE LAND DEVELOPMENT DEPARTMENT. IF APPLICABLE, CONTRACTOR SHALL MAINTAIN THE EXISTING SANITARY SEWER SYSTEM IN OPERATION AT ALL TIMES. IF APPLICABLE, THE CONSTRUCTION OF THE PROPOSED SYSTEM SHALL BE DONE PRIOR TO THE REMOVAL OF THE EXISTING SYSTEM. SUBMIT AS BUILT PLANS TO THE MUNICIPALITY AND UPON APPROVAL BY THEM TO THE FDEP FOR SEWER SERVICE CLEARANCE. 	<p>CITY OF TITUSVILLE EROSION CONTROL NOTES:</p> <p>AS PER THE CITY OF TITUSVILLE'S ENVIRONMENTAL PROTECTION TECHNICAL MANUAL, THE FOLLOWING APPLY:</p> <ol style="list-style-type: none"> THE CONTRACTOR, USING AS A BASE SHEET 16, SHALL PREPARE A PLAN FOR THE CONTROL OF EROSION AND SEDIMENTATION WHICH DESCRIBES IN DETAIL THE TYPE AND LOCATION OF CONTROL MEASURES, THE STAGE OF DEVELOPMENT AT WHICH THEY WILL BE PUT INTO PLACE OR USED, AND PROVISIONS FOR THEIR MAINTENANCE. FOR ANY HAZARDOUS MATERIALS BEING STORED ONSITE, THE CONTRACTOR SHALL PREPARE AND POST A CONTAINMENT AND EMERGENCY PROCEDURE PLAN IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL LAWS, WHERE APPLICABLE. THE AREA OF LAND DISTURBED BY THE DEVELOPMENT SHALL BE AS SMALL AS PRACTICAL. THOSE AREAS WHICH ARE NOT TO BE DISTURBED SHALL BE PROTECTED BY AN ADEQUATE BARRIER FROM ACTIVITY, WHENEVER POSSIBLE. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED. LAND WHICH HAS BEEN CLEARED FOR DEVELOPMENT UPON WHICH CONSTRUCTION WILL NOT BEGIN WITHIN THIRTY (30) DAYS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION BY APPROPRIATE MEANS. ALL SEDIMENT SHALL BE RETAINED ON THE DEVELOPMENT SITE. WETLANDS AND OTHER WATER BODIES SHALL NOT BE USED AS SEDIMENT TRAPS DURING DEVELOPMENT. EROSION AND SEDIMENTATIONS PLANS SHALL BE APPROVED BY THE CITY PRIOR TO ISSUANCE OF A SITE DEVELOPMENT PERMIT. EROSION AND SEDIMENTATION FACILITIES SHALL RECEIVE REGULAR MAINTENANCE TO ASSURE THAT THEY CONTINUE TO FUNCTION PROPERLY. 	
<p>GOVERNING SPECIFICATIONS:</p> <ol style="list-style-type: none"> ALL ROADWAY IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS SHOWN ON THESE PLANS. MATERIALS, EQUIPMENT, METHODS OF CONSTRUCTION AND WORKMANSHIP SHALL CONFORM TO FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION LATEST EDITION. ALL WORK WITHIN FDOT RIGHT-OF-WAY MUST CONFORM TO THE FDOT DESIGN STANDARDS AS WELL AS THE LISTED FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. ALL LOCAL, STATE, AND FEDERAL ORDINANCES, POLICIES, OR OTHER REGULATIONS REGARDING BARRICADES, LIGHTS, SIGNALS, ETC., SHALL BE COMPLIED WITH BY THE CONTRACTOR, AS WELL AS SAFE AND CONVENIENT MEANS OF ACCESS AND EGRESS TO ALL PARTS OF THE PROJECT AND SHALL BE MAINTAINED AT ALL TIMES. INSTALLATION, OPERATION AND MAINTENANCE OF ALL TRAFFIC CONTROL SIGNS, SIGNALS, DEVICES AND MARKINGS SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION'S "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES" AND THE FEDERAL HIGHWAY ADMINISTRATIONS' "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." CONTRACTOR IS RESPONSIBLE FOR BEING FAMILIAR AND COMPLY WITH THE FOLLOWING DOCUMENTS WHICH ARE USED AS PART OF THESE PLANS. <ol style="list-style-type: none"> FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. THE MUNICIPALITY'S LAND DEVELOPMENT CODE AND SPECIFICATIONS. FDOT DESIGN STANDARDS, LATEST EDITION. STANDARDS FOR WASTEWATER FACILITIES TO BE PER MUNICIPALITY'S SPECIFICATIONS AND FDEP STANDARDS, LATEST EDITION. STANDARDS FOR WATER TO BE PER THE MUNICIPALITY'S SPECIFICATIONS AND FDEP STANDARDS, LATEST EDITION. 	<p>GENERAL NOTES WITHIN RIGHT-OF-WAY</p> <ol style="list-style-type: none"> CONSTRUCT MITERED END SECTION PER FDOT ROADWAY AND TRAFFIC STANDARD PLANS INDEX No. 430-022. CONTRACTOR SHALL NOTIFY THE MUNICIPALITY 2 DAYS PRIOR TO WORK WITHIN R/W OR LANE CLOSURE. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE MAINTENANCE OF TRAFFIC PLAN. M.O.T. SET UP MUST BE SUPERVISED BY A M.O.T. CERTIFIED CONTRACTOR. WORK CONDUCTED WITHIN 2 FT. OF TURN LANE A M.O.T. PLAN SHALL BE PROVIDED IN ACCORDANCE WITH FDOT ROADWAY AND TRAFFIC STANDARDS PLANS INDEX NO. 102-613. FOR A NON LANE CLOSURE OR INTERRUPTION OF TRAFFIC LANES A M.O.T. PLAN SHALL BE PROVIDED IN ACCORDANCE WITH FDOT ROADWAY AND TRAFFIC STANDARD PLANS INDEX 102-612. CONTRACTORS WORKING IN OR NEAR A FDOT RIGHT-OF-WAY SHALL BE FAMILIAR WITH INDEX 102-600. "GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES" CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AS-BUILT PLANS MEETING CITY/ENGINEER REQUIREMENTS. SEE CONTRACTOR RECORD KEEPING NOTES. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION. ALL PIPE JOINTS ARE TO BE WRAPPED WITH FILTER FABRIC AND SECURING DEVICE PER LATEST FDOT STANDARD PLAN, INDEX NO. 430-001. ALL STRIPING WITHIN THE RIGHT-OF-WAY SHALL BE THERMOPLASTIC PER THE LATEST FDOT STANDARD PLANS, INDEX NO. 711-001 AND SECTION 711 OF THE FDOT STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION LATEST EDITION. ALL CONSTRUCTION WITHIN THE RIGHT-OF-WAY MUST BE IN ACCORDANCE WITH MUNICIPALITY'S STANDARDS AND SPECIFICATIONS. ALL AFFECTED SIDEWALKS AND RAMPS SHALL WILL BE BUILT AND INSPECTED TO MEET CURRENT ADA REQUIREMENTS. GRAVITY WALLS, IF CALLED FOR ON PLANS, SHALL BE CONSTRUCTED TO THE LINES AND GRADES SHOWN ON THE PLANS IN ACCORDANCE TO FDOT INDEX 400-001. ALL UTILITY ADJUSTMENTS THRU EXISTING PAVEMENT WITHIN THE RIGHT-OF-WAY SHALL CONFORM TO INDEX 125-001. 	<p>STORMWATER:</p> <ol style="list-style-type: none"> PIPE LENGTHS SHOWN ON PLANS ARE FROM INSIDE OF STRUCTURE TO INSIDE OF STRUCTURE ROUNDED TO THE NEXT FOOT. THE LOCATION OF STRUCTURES SHALL GOVERN. EXISTING DRAINAGE PIPES AND STRUCTURE REMOVED DURING CONSTRUCTION ARE TO BE DISPOSED OF BY THE CONTRACTOR UNLESS DIRECTED BY OWNER TO BE SALVAGED. ALL SALVAGEABLE MATERIAL REMOVED IS TO BE STOCKPILED AT THE SITE AT A LOCATION SPECIFIED BY THE OWNER. DRAINAGE PIPES SHALL BE REINFORCED CONCRETE CLASS III, UNLESS OTHERWISE SHOWN ON THE PLANS. INSTALLATION SHALL CONFORM TO FLORIDA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS SECTION 941 AND 942. THE LOCATION OF ALL EXISTING UTILITIES, AS SHOWN ON THESE PLANS, HAVE BEEN TAKEN FROM THE BEST INFORMATION AVAILABLE, AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND FIELD VERIFYING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND SHALL COORDINATE ALL NECESSARY LOCATIONS WITH THE PROPER UTILITY COMPANY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND REPAIRING ANY DAMAGE TO UTILITIES DURING CONSTRUCTION WITH NO ADDITIONAL COMPENSATION. MANHOLE AND INLET TOP ELEVATIONS SHALL BE SET AND ADJUSTED TO MATCH FINISHED GRADE. ALL INLETS ARE TO BE FOOT TYPE WITH RETICULATION GRATES. TRAFFIC-BEARING GRATES ARE TO BE USED IN PARKING AND DRIVEWAY AREAS. MINIMUM COVER OVER ANY STORM DRAIN PIPE TO BE CONSISTENT WITH FDOT STANDARDS AND SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS. 	<p>CITY OF TITUSVILLE FIRE SAFETY NOTES:</p> <ol style="list-style-type: none"> FIRE HYDRANTS SHALL BE INSTALLED AND OPERATIONAL PRIOR TO THE ISSUANCE OF A BUILDING PERMIT FOR THE CONSTRUCTION OF A BUILDING FOR ALL DEVELOPMENT, INCLUDING SINGLE-FAMILY SUBDIVISIONS. THIS REQUIREMENT SHALL BE DEEMED TO BE SATISFIED WHEN AN OPERATIONAL FIRE HYDRANT CAPABLE OF DELIVERING THE NECESSARY FLOW IS LOCATED WITHIN THE PRESCRIBED DISTANCE MEASURED ALONG A PAVED RIGHT-OF-WAY OR INSPECTED AND APPROVED PRIVATE ROAD OR DRIVEWAY. THE PRESCRIBED DISTANCE FOR FIRE HYDRANT SPACING IS NOT MORE THAN FIVE HUNDRED (500) FEET IN DETACHED SINGLE-FAMILY DISTRICT. MAXIMUM DEAD-END DISTANCE SHALL NOT EXCEED TWO HUNDRED (200) FEET. NFPA 118.2.3.4.1.1 FIRE DEPARTMENT ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NO LESS THAN 20 FT. NFPA 118.2.3.4.1.2 FIRE DEPARTMENT ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED VERTICAL CLEARANCE OF NOT LESS THAN 13 FT. 6 IN. SAFEGUARDS FOR CONSTRUCTION SHALL BE IN PLACE IN ACCORDANCE WITH NFPA 1 AND NFPA 241 (2013 EDITION), STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION, AND DEMOLITION OPERATIONS. ENSURE CERTIFIED FIRE EXTINGUISHERS ARE PROPERLY LOCATED THROUGHOUT BUILDING DURING CONSTRUCTION AND NO SMOKING TAKES PLACE INSIDE THE BUILDING. NFPA 1: 16.1.1. ALL MOTORIZED GATES SHALL INCLUDE A KEYPAD FOR ENTRY CODE, A KNOX KEY SWITCH (ORDER KEY SWITCH AT WWW.KNOXBOX.COM), AND AN SOS (SIREN OPERATED SYSTEM) THAT ACTIVATES GATE OPENER UPON ACTIVATION OF EMERGENCY VEHICLE SIREN. AUTOMATIC OPENERS SHALL OPEN TO FULLY OPEN POSITION IN THE EVENT OF POWER FAILURE. 	
<p>INSPECTIONS AND TESTING:</p> <ol style="list-style-type: none"> IF ANY WORK IS COVERED PRIOR TO THE REQUIRED INSPECTIONS, IT WILL BE UNCOVERED FOR INSPECTION AND REPLACED AT THE CONTRACTORS EXPENSE IF SUCH ACTION IS DEEMED NECESSARY BY THE ENGINEER OR OTHER INSPECTION AUTHORITY. THE CONTRACTOR SHALL HIRE WITH THE OWNER'S CONSENT A PROFESSIONAL TESTING LABORATORY AS NECESSARY TO PERFORM ALL TESTS REQUIRED BY THIS CONSTRUCTION. THE CONTRACTOR SHALL BEAR THE EXPENSE OF ALL TESTING. THE CONTRACTOR SHALL PROVIDE SAFE, SUFFICIENT AND PROPER FACILITIES AT ALL TIMES FOR THE INSPECTION OF THE WORK BY THE OWNER, ENGINEER AND ALL APPROPRIATE GOVERNMENTAL AND REGULATORY AGENCIES. ALL REGULATORY AND GOVERNMENTAL AGENCIES WHICH REQUIRE FINAL INSPECTIONS SHALL BE NOTIFIED TO INSPECT AND APPROVE THE PROJECT. UPON WRITTEN NOTICE FROM THE CONTRACTOR THAT THE PROJECT IS COMPLETE, THE OWNER AND ENGINEER SHALL MAKE A FINAL INSPECTION AND WILL NOTIFY THE CONTRACTOR AND OWNER OF ALL INCOMPLETE AND/OR DEFECTIVE WORK. THE CONTRACTOR SHALL CORRECT SUCH ITEMS TO THE SATISFACTION OF THE OWNER AND ENGINEER BEFORE THE SCHEDULED FINAL COMPLETION DATE, AND FINAL ACCEPTANCE OF THE PROJECT. 	<p>GENERAL NOTES</p> <ol style="list-style-type: none"> THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL INSPECTION CRITERIA AND SCHEDULES, AND FOR SIGNING THE SAID INSPECTIONS. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ROADWAY, RIGHT-OF-WAY, AND UTILITIES AS A DIRECT RESULT OF CONSTRUCTION. CONTRACTOR IS CAUTIONED TO REVIEW ALL PERMITS PRIOR TO ANY CONSTRUCTION. 	<p>GRADING AND DRAINAGE NOTES:</p> <ol style="list-style-type: none"> THE PROPOSED GRADING CONTOURS ARE SHOWN FOR GRAPHICAL PURPOSES AND ARE INTENDED TO GIVE THE CONTRACTOR AN IDEA OF THE DESIRED GRADING AND DRAINAGE SCHEME FOR THE PROJECT. THE CONTRACTOR IS TO MAINTAIN POSITIVE GRADING AROUND ALL PROPOSED FACILITIES ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY REMAINING UNPAVED ARE TO BE SODDED. ALL OTHER DISTURBED AREAS ARE TO BE SEEDED AND MULCHED. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE APPLICABLE STORMWATER PERMITS AND ADHERE TO ALL CONDITIONS OF THE PERMITS AS THEY RELATE TO SITE CONSTRUCTION. ONSITE STORM DRAINAGE SYSTEM SHALL BE CONSISTENT WITH THE WATER MANAGEMENT DISTRICT'S REQUIREMENTS AND/OR PERMIT. CONTRACTOR IS CAUTIONED TO REVIEW SAID PERMIT PRIOR TO ANY CONSTRUCTION. ALL SLOPES STEEPER THAN 4:1 MUST BE SODDED. SITE DRAINAGE AND CONSTRUCTION IMPROVEMENTS SHALL NOT ADVERSELY IMPACT ADJOINING PROPERTIES OR ROADWAYS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING PUBLIC ROADWAYS, DRAINAGE SYSTEMS, SIDEWALK, CURBS OR UTILITIES AS A DIRECT RESULT OF NEW CONSTRUCTION. ALL PROPOSED INLETS SHALL BE PER FDOT INDEX 425-052 TYPE "C" AND TYPE "D" UNLESS OTHERWISE NOTED. CONTRACTOR TO MATCH THE SURROUNDING EXISTING TOPOGRAPHY TWO (2) FEET INSIDE SUBJECT PROPERTY LINE. CONTRACTOR SHALL VERIFY EXISTING GRADES WITHIN LIMITS OF CONSTRUCTION PRIOR TO START OF CONSTRUCTION AND SHALL CONTACT ENGINEER OF RECORD IF DISCREPANCIES OCCUR. ALL PORTIONS OF RIGHT-OF-WAY THAT ARE DISTURBED MUST BE SODDED WHERE A GOOD STAND OF GRASS EXISTED, INCLUDING EROSION PRONE AREA. ALL EXCAVATION WITHIN TEN FEET OF THE TRAVELED WAY MUST BE FILLED BY THE END OF THE WORKING DAY. ALL UNDERGROUND UTILITIES, ETC., SHALL BE IN PLACE PRIOR TO SUBGRADE COMPACTION AND ROADWAY CONSTRUCTION. ELEVATIONS ARE BASED ON BENCH MARKS PROVIDED ON SURVEY. 	<p>CITY OF TITUSVILLE TREE REMOVAL NOTE:</p> <ol style="list-style-type: none"> DURING TREE REMOVAL, SHREDDING, CHIPPING AND/OR OFF-SITE WOOD LOGGING ARE DESIRABLE ALTERNATIVES TO BURNING PER SEC. 30-40. 	
<p>GENERAL NOTES:</p> <ol style="list-style-type: none"> THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL INSPECTION CRITERIA AND SCHEDULES, AND FOR SIGNING THE SAID INSPECTIONS. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ROADWAY, RIGHT-OF-WAY, AND UTILITIES AS A DIRECT RESULT OF CONSTRUCTION. CONTRACTOR IS CAUTIONED TO REVIEW ALL PERMITS PRIOR TO ANY CONSTRUCTION. 	<p>SURVEYS:</p> <ol style="list-style-type: none"> THE LAND SURVEYOR FOR THIS PROJECT IS IDENTIFIED ON THE COVER SHEET. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE AS SHOWN ON PLANS. LOCATION OF UNDERGROUND UTILITIES ARE NOT GUARANTEED AND SHALL BE INVESTIGATED AND VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING WORK. EXCAVATION IN THE VICINITY OF EXISTING STRUCTURES AND UTILITIES SHALL BE CAREFULLY PERFORMED, BY HAND IF NECESSARY. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES TO, AND FOR PROPER MAINTENANCE AND PROTECTION OF, EXISTING UTILITIES AND STRUCTURES DURING THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SURVEYS, INCLUDING ROADWAY AND UTILITY LAYOUTS AS SHOWN ON THE PLANS. ANY DEVIATION FROM THESE PLANS MUST BE APPROVED BY THE ENGINEER. THE ENGINEER WILL PROVIDE BASE HORIZONTAL AND VERTICAL CONTROL. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL OTHER LAYOUT AND CONSTRUCTION. THE CONTRACTOR SHALL REFERENCE AND RESTORE PROPERTY CORNERS AND LANDMARKS DISTURBED DURING CONSTRUCTION. THIS SHOULD BE ACCOMPLISHED UNDER THE DIRECTION OF A FLORIDA REGISTERED LAND SURVEYOR. CONTRACTOR SHALL SECURE BENCH MARK DATA FROM PROJECT SURVEYOR. 	<p>UTILITY NOTES:</p> <ol style="list-style-type: none"> ALL DIRECTIONAL BORES SHALL BE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 555. DIRECTIONAL BORES AND THE FDOT UTILITIES ACCOMMODATION MANUAL. ANY DIRECTIONAL BORING OF THE PROPOSED WATER LINE WITHIN THE COUNTY/ CITY RIGHT-OF-WAY SHALL HAVE A MAXIMUM DEPTH OF 48 INCHES. AND MEET FDOT (UAM SECTION 4.3.5 AND/OR 4.3.11) REQUIREMENTS. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD IMMEDIATELY OF ANY CONFLICTS WHICH REQUIRED A DIRECTIONAL BORE OF THE WATER LINE GREATER THAN 48" DEEP. LANDSCAPING, OR ANY OTHER OBSTRUCTION SHALL NOT BE LOCATED WITHIN 7.5 FEET TO THE FRONT AND SIDES OR 4.5 FEET TO THE REAR OF ANY FIRE HYDRANT OR FIRE DEPARTMENT CONNECTION. WATER FOR FIREFIGHTING PURPOSES SHALL BE INDICATED WITH A BLUE ROADWAY REFLECTOR PLACED ON THE CENTER LINE OF THE TRAFFIC LANE NEAREST TO THE FIRE HYDRANT. THIS INCLUDES NEW AND EXISTING SOURCES. WATER FOR FIREFIGHTING PURPOSES SHALL BE AVAILABLE AT THE TIME COMBUSTIBLES OR BROUGHT ONTO THE SITE. NEW FIRE HYDRANTS SHALL BE POSITIONED NOT MORE THAN EIGHT (8) FEET NOR LESS THAN THREE (3) FEET OFF EDGE OF THE PAVEMENT. THE CENTER LINE OF THE STEAMER CONNECTION (4 1/2") SHALL BE READILY ACCESSIBLE WITHOUT THE NEED TO TRAVERSE SWALES, DITCHES, ETC.. EXISTING UTILITIES (ELECTRIC, TELEPHONE, ETC.) SHALL BE COORDINATED WITH THE RESPECTIVE UTILITY COMPANIES AND EASEMENTS WILL BE PROVIDED FOR THE EXISTING AND PROPOSED UTILITIES BEFORE THE FINAL CERTIFICATE OF OCCUPANCY (C.O.). A WATER ALLOCATION PERMIT APPLICATION AND ASSOCIATED FEES WILL BE REQUIRED PRIOR TO SUBMITTING FDEP PERMIT APPLICATIONS. PERMANENT ACCESS SHALL BE PROVIDED BY AN UNOBSTRUCTED, 20 FOOT WIDE, ALL WEATHER DRIVING SURFACE CAPABLE OF SUPPORTING A 32-TON EMERGENCY VEHICLE. THE DRIVING SURFACE SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION. STABILIZED ROADWAYS AND FIRE PROTECTION SHALL BE IN PLACE PRIOR TO ISSUANCE OF ANY BUILDING PERMIT. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED ON SITE UNTIL FIRE PROTECTION IS IN PLACE. 		
<p>WORK WITHIN OR ADJACENT TO PUBLIC RIGHT-OF-WAY:</p> <ol style="list-style-type: none"> IF CONSTRUCTION, RECONSTRUCTION, REPAIR AND MAINTENANCE ACTIVITY NECESSITATES THE CLOSING OF ONE OR MORE TRAVEL LANES OF ANY ROAD ON THE STATE PRIMARY, COUNTY ROAD OR CITY STREET SYSTEM, THE PARTY PERFORMING SUCH WORK WILL BE RESPONSIBLE TO GIVE NOTICE TO THE APPROPRIATE LOCAL LAW ENFORCEMENT AGENCY WHICH HAS THE JURISDICTION WHERE SUCH ROAD IS LOCATED PRIOR TO COMMENCING WORK ON THIS PROJECT (355.15 F.S.7/86; 336.07 F.S. 7/87). 	<p>GENERAL NOTES</p> <ol style="list-style-type: none"> THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL INSPECTION CRITERIA AND SCHEDULES, AND FOR SIGNING THE SAID INSPECTIONS. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ROADWAY, RIGHT-OF-WAY, AND UTILITIES AS A DIRECT RESULT OF CONSTRUCTION. CONTRACTOR IS CAUTIONED TO REVIEW ALL PERMITS PRIOR TO ANY CONSTRUCTION. 	<p>GRADING AND DRAINAGE NOTES:</p> <ol style="list-style-type: none"> THE PROPOSED GRADING CONTOURS ARE SHOWN FOR GRAPHICAL PURPOSES AND ARE INTENDED TO GIVE THE CONTRACTOR AN IDEA OF THE DESIRED GRADING AND DRAINAGE SCHEME FOR THE PROJECT. THE CONTRACTOR IS TO MAINTAIN POSITIVE GRADING AROUND ALL PROPOSED FACILITIES ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY REMAINING UNPAVED ARE TO BE SODDED. ALL OTHER DISTURBED AREAS ARE TO BE SEEDED AND MULCHED. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE APPLICABLE STORMWATER PERMITS AND ADHERE TO ALL CONDITIONS OF THE PERMITS AS THEY RELATE TO SITE CONSTRUCTION. ONSITE STORM DRAINAGE SYSTEM SHALL BE CONSISTENT WITH THE WATER MANAGEMENT DISTRICT'S REQUIREMENTS AND/OR PERMIT. CONTRACTOR IS CAUTIONED TO REVIEW SAID PERMIT PRIOR TO ANY CONSTRUCTION. ALL SLOPES STEEPER THAN 4:1 MUST BE SODDED. SITE DRAINAGE AND CONSTRUCTION IMPROVEMENTS SHALL NOT ADVERSELY IMPACT ADJOINING PROPERTIES OR ROADWAYS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING PUBLIC ROADWAYS, DRAINAGE SYSTEMS, SIDEWALK, CURBS OR UTILITIES AS A DIRECT RESULT OF NEW CONSTRUCTION. ALL PROPOSED INLETS SHALL BE PER FDOT INDEX 425-052 TYPE "C" AND TYPE "D" UNLESS OTHERWISE NOTED. CONTRACTOR TO MATCH THE SURROUNDING EXISTING TOPOGRAPHY TWO (2) FEET INSIDE SUBJECT PROPERTY LINE. CONTRACTOR SHALL VERIFY EXISTING GRADES WITHIN LIMITS OF CONSTRUCTION PRIOR TO START OF CONSTRUCTION AND SHALL CONTACT ENGINEER OF RECORD IF DISCREPANCIES OCCUR. ALL PORTIONS OF RIGHT-OF-WAY THAT ARE DISTURBED MUST BE SODDED WHERE A GOOD STAND OF GRASS EXISTED, INCLUDING EROSION PRONE AREA. ALL EXCAVATION WITHIN TEN FEET OF THE TRAVELED WAY MUST BE FILLED BY THE END OF THE WORKING DAY. ALL UNDERGROUND UTILITIES, ETC., SHALL BE IN PLACE PRIOR TO SUBGRADE COMPACTION AND ROADWAY CONSTRUCTION. ELEVATIONS ARE BASED ON BENCH MARKS PROVIDED ON SURVEY. 	<p>CITY OF TITUSVILLE WATER SERVICE NOTES:</p> <ol style="list-style-type: none"> WATER SERVICES ARE TO BE ONE (1) FOOT PAST THE SIDEWALK AND A MINIMUM OF TWO (2) FEET FROM EDGE OF APRON, PER THE CITY DETAIL. 	

FILE PATH: C:\Users\engineer1\OneDrive\Projects\200521\Projects\200521\Falcons Roost (Lake Bella)\01_Drawings\10_Borders (x-ref)\200521 rys-brd\24.dwg, May 01, 2023 - 12:55pm



CLIENT:
A F A B BUSINESS GROUP INC.
4700 OLD COLONY ROAD
NEW SMYRNA, FL. 32168

PROJECT NAME:
**FALCON'S ROOST
AT LAKE BELLA**

DRAWING TITLE:
GENERAL NOTES

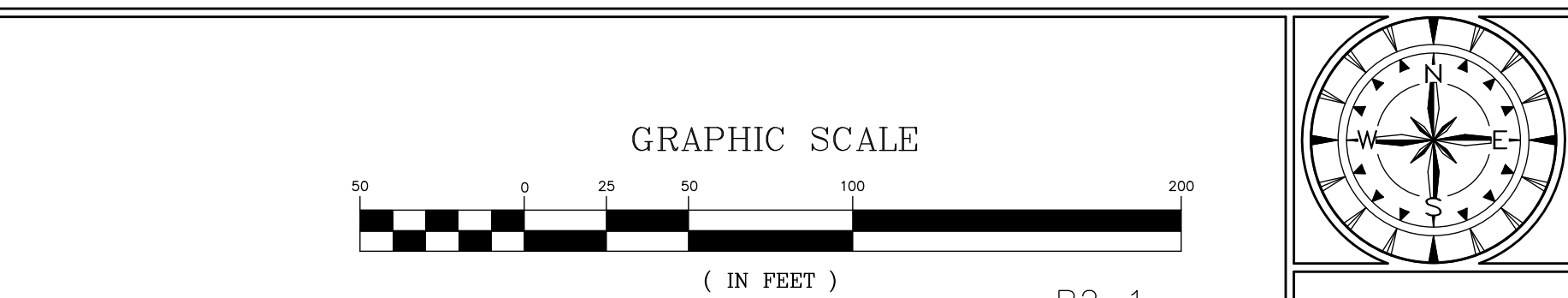
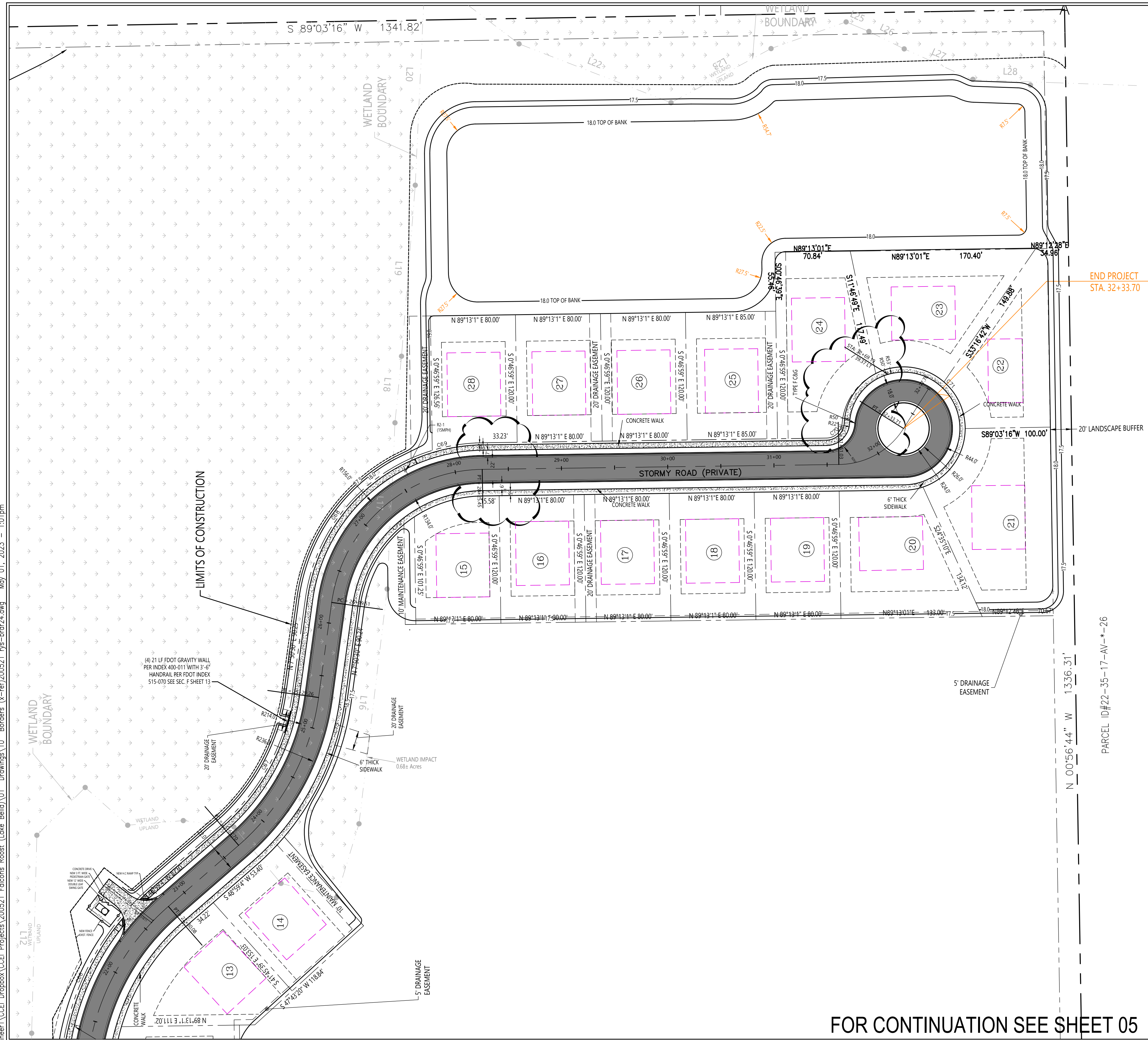
REVISION TABLE		
DATE	BY	DESCRIPTION
01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
01-14-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
04-09-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
12-07-22	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
01-12-23	SGH	ADDED ELEVATION OF EXISTATION AND DRAINAGE
02-24-23	SGH	REVISED WATER LINE PROFILE AT FN CROSSING ALONG KNOX MCRAE DR.
05-01-23	SGH	REVISED PER CITY COMMENTS

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 ZOHEIR S. CHEHAYEB, PE
 USING A SHA-1 AUTHENTICATION CODE.
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DATE:
DESIGNED BY: ZSC DRAWN BY: PT

ZOHEIR S. CHEHAYEB, P.E. #38577

FILE PATH: C:\Users\Engineer1\OneDrive\Projects\200521\Falcons Roost (Lake Bella)\01_Drawings\10_Borders (x-ref)\200521_rys-brdr25.dwg May 01, 2023 - 1:01pm



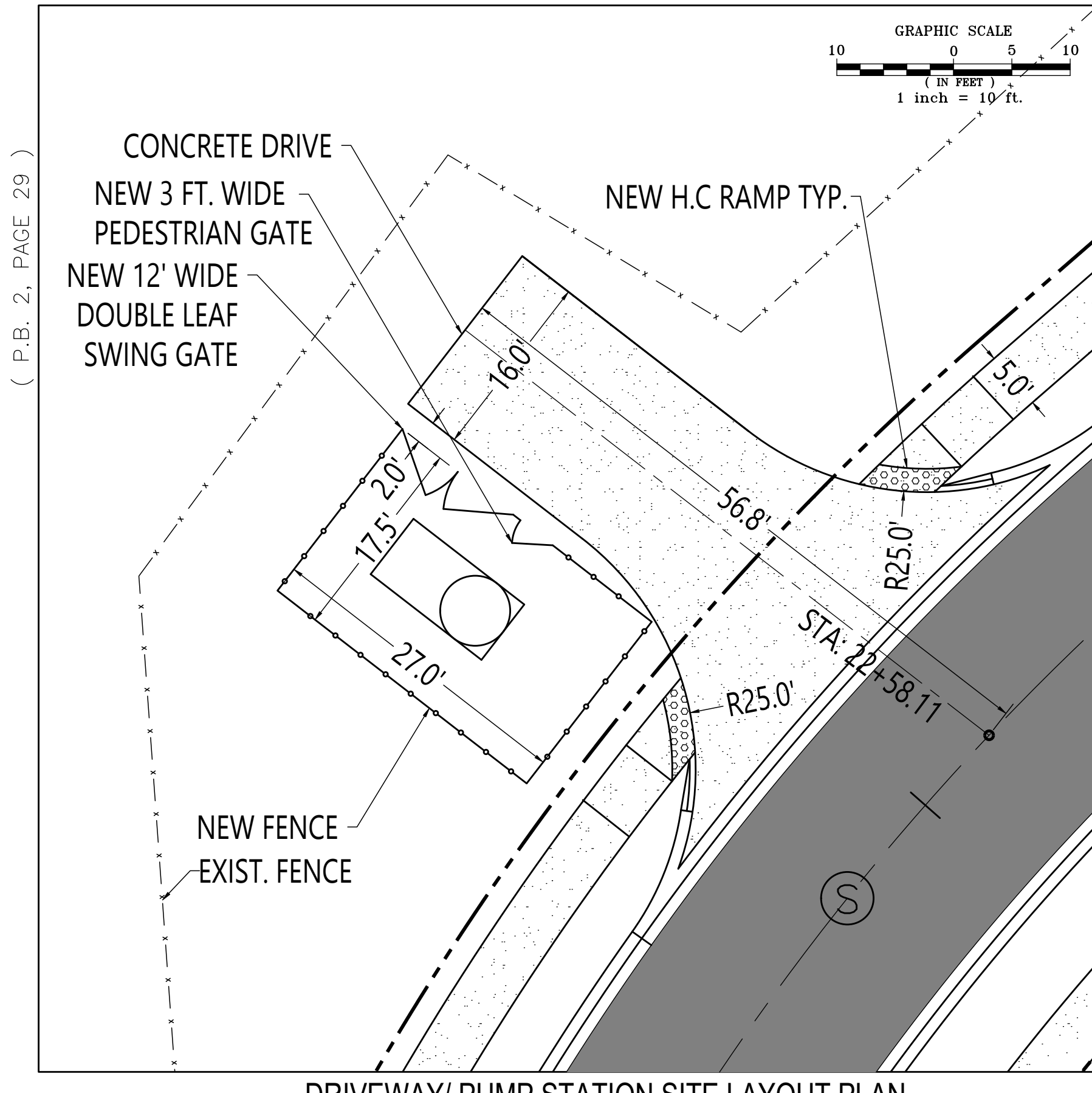
GENERAL NOTES:

1. ALL SIGNS USED SHALL UTILIZE HIGH INTENSITY FACES. ALL STREET NAME FACES SHALL BE 9" WIDE AND USE 5" CHARACTERS WITH CITY COLORS (GREEN BACKGROUND WITH WHITE LETTERING).
2. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
3. HANDICAP RAMPS WITH TRUNCATED DOMES PER FDOT AND ADA REQUIREMENTS. THEY SHALL BE "BRICK RED" IN COLOR PER CITY CRITERIA.

R2-1
SPEED LIMIT 15

CCEI PROJECT No. 200521.
SHEET No. 06

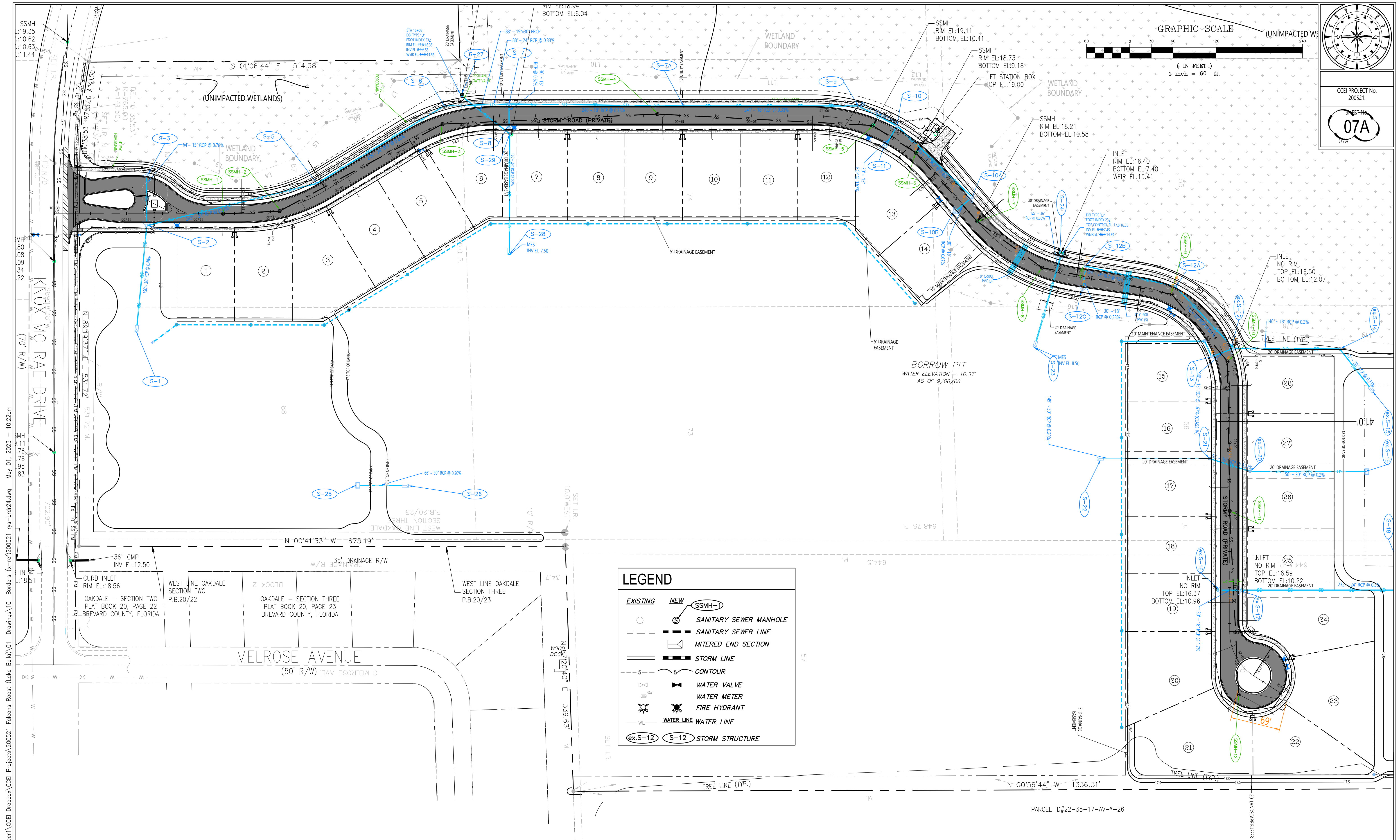
CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	DIRECTION
C60	59.14	35.00	96°48'33"	39.43	52.35	N43°17'01"E
C62	63.92	84.00	43°36'04"	33.60	62.39	S21°01'04"W
C63	46.42	61.00	43°36'04"	24.40	45.31	N21°01'04"E
C64	109.39	200.00	31°20'13"	56.10	108.03	N16°27'05"W
C65	136.73	250.00	31°20'13"	70.12	135.04	S16°27'05"E
C66	217.15	250.00	49°46'02"	115.96	210.39	S24°06'03"W
C67	143.62	200.00	41°08'34"	75.06	140.55	N28°24'47"E
C68	168.60	170.00	56°49'29"	91.96	161.77	S36°15'14"W
C69	72.85	170.00	24°33'08"	36.99	72.29	S76°56'27"W
C70	22.12	15.00	84°29'35"	13.62	20.17	N46°58'14"E
C71	268.54	58.00	265°16'34"	62.99	85.34	N42°38'17"W
C72	170.43	120.00	81°22'32"	103.17	156.46	S48°31'46"W
C73	52.17	250.00	11°57'19"	26.18	52.07	N13°49'10"E
C74	127.35	249.94	29°11'40"	65.09	125.98	N34°23'26"E
C75	173.72	200.00	49°46'02"	92.77	168.31	S24°06'03"W
C76	109.39	200.00	31°20'13"	56.10	108.03	S16°27'05"E
C77	136.73	250.00	31°20'13"	70.12	135.04	N16°27'05"W
C78	54.91	35.00	89°53'24"	34.93	49.45	S45°43'41"E



FOR CONTINUATION SEE SHEET 05

DRIVEWAY/ PUMP STATION SITE LAYOUT PLAN

<p>CONSULTING CIVIL ENGINEERS, INC. 3650 BOBBI LANE SUITE 119 TITUSVILLE, FLORIDA 32780 PH. (321) 269-9930 INFO@CCEIFL.COM CERT. AUTH. NO. 00007522</p>	<p>CLIENT: A F A B BUSINESS GROUP INC. 4700 OLD COLONY ROAD NEW SMYRNA, FL. 32168</p>	<p>PROJECT NAME: FALCON'S ROOST AT LAKE BELLA</p>	<p>DRAWING TITLE: SITE AND GEOMETRY PLAN (SHEET 2 OF 2)</p>	<p>REVISION TABLE</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td>01-12-21</td><td>SGH</td><td>REVISED PER CITY OF TITUSVILLE COMMENTS</td></tr> <tr><td>01-14-21</td><td>SGH</td><td>REVISED PER CITY OF TITUSVILLE COMMENTS</td></tr> <tr><td>04-09-21</td><td>SGH</td><td>REVISED PER CITY OF TITUSVILLE COMMENTS</td></tr> <tr><td>12-07-22</td><td>SGH</td><td>REVISED PER CITY OF TITUSVILLE COMMENTS</td></tr> <tr><td>01-12-23</td><td>SGH</td><td>ADDED GEOMETRY OF UTILIZATION AND DRIVEWAY</td></tr> <tr><td>02-24-23</td><td>SGH</td><td>REVISED WATER LINE PROFILE AT FN CROSSING ALONG KNOX MCRAE DR.</td></tr> <tr><td>05-01-23</td><td>SGH</td><td>REVISED PER CITY COMMENTS</td></tr> </tbody> </table>	DATE	BY	DESCRIPTION	01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	01-14-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	04-09-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	12-07-22	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	01-12-23	SGH	ADDED GEOMETRY OF UTILIZATION AND DRIVEWAY	02-24-23	SGH	REVISED WATER LINE PROFILE AT FN CROSSING ALONG KNOX MCRAE DR.	05-01-23	SGH	REVISED PER CITY COMMENTS	<p>ZOHEIR S. CHEHAHEB, P.E. #38577</p> <p>DATE: DESIGNED BY: ZSC DRAWN BY: PT</p>
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GRAPHIC SCALE (UNIMPACTED W)

(IN FEET)
1 inch = 60 ft.

CCEI PROJECT No. 200521.

SHEET 07A

LEGEND

		SSMH-1
		SANITARY SEWER MANHOLE
		SANITARY SEWER LINE
		MITERED END SECTION
		STORM LINE
		CONTOUR
		WATER VALVE
		WATER METER
		FIRE HYDRANT
		WATER LINE WATER LINE
		STORM STRUCTURE

CCEI

CONSULTING CIVIL ENGINEERS, INC.
 3650 BOBBY LANE SUITE 119
 TITUSVILLE, FLORIDA 32780
 PH.(321) 269-9930 INFO@CCEIFL.COM
 CERT. AUTH. NO. 00007522

CLIENT:
 A F A B BUSINESS GROUP INC.
 4700 OLD COLONY ROAD
 NEW SMYRNA, FL. 32168

PROJECT NAME:
**FALCON'S ROOST
 AT LAKE BELLA**

DRAWING TITLE:
OVERALL UTILITY PLAN

REVISION TABLE

DATE	BY	DESCRIPTION
01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
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05-01-23	SGH	REVISED PER CITY COMMENTS

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 DRAWN BY: PT

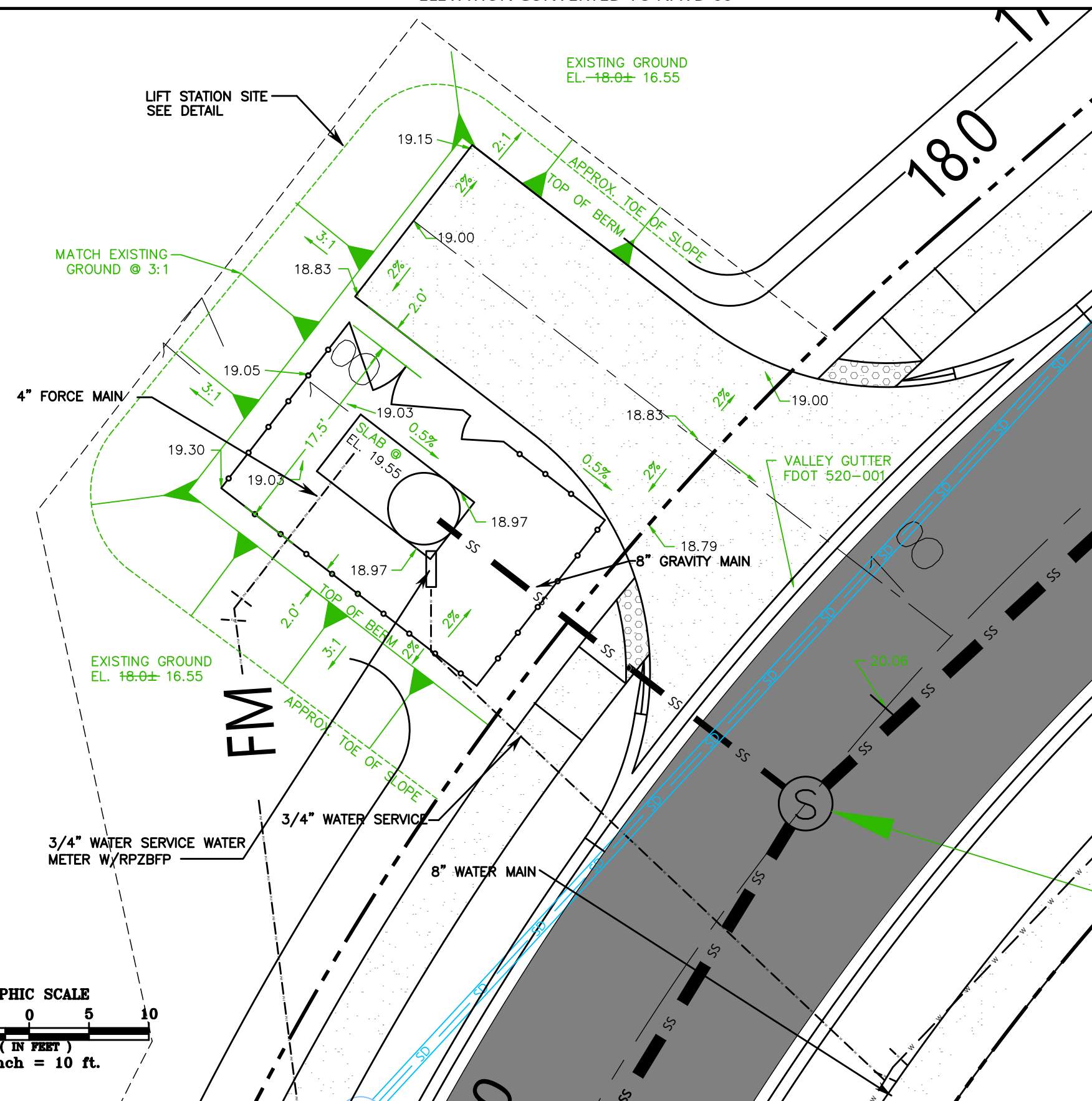
DATE: _____

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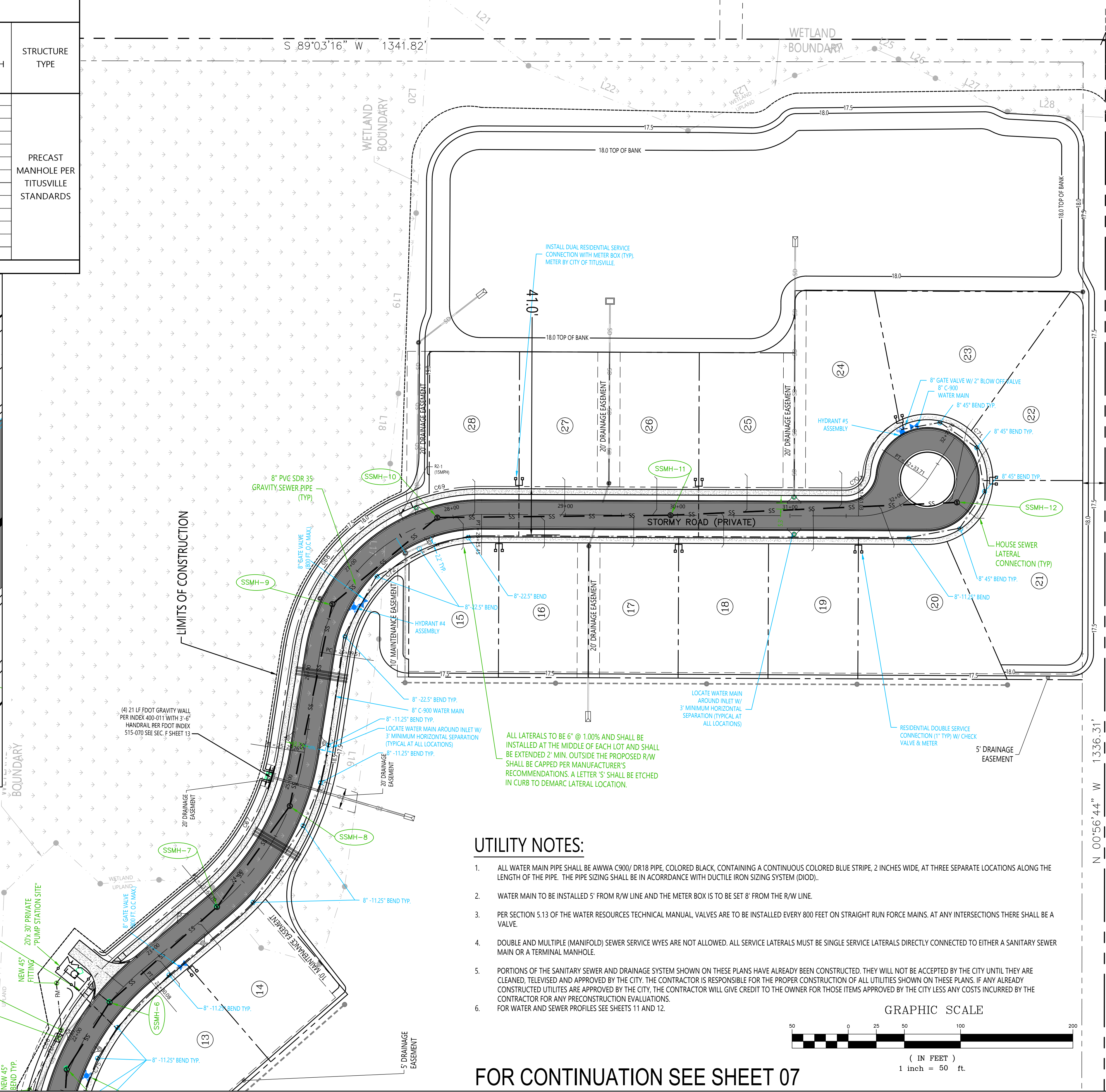
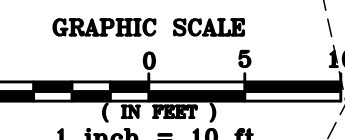
SANITARY SEWER STRUCTURE SCHEDULE

STRUCTURE NUMBER	TOP ELEVATION (1929)	ADJUSTED TOP ELEVATION (1988)	STRUCTURE STATION	STRUCTURE OFFSET	PIPE DIA & TYPE	PIPE INVERTS (1929)		ADJUSTED PIPE INVERTS (1988)		FROM-TO	PIPE LENGTH	STRUCTURE TYPE
						IN	OUT	IN	OUT			
SSMH-1	20.72	19.27	12+34.22	C/L	8" PVC SDR 35		16.02	14.57	1-2	78	PRECAST MANHOLE PER TITUSVILLE STANDARDS	
SSMH-2	21.25	19.58	13+12.44	2.50 R		15.70	15.60	14.25	14.15	2-3		257
SSMH-3	20.50	19.01	15+69.53	C/L		14.55	14.45	13.10	13.00	3-4		299
SSMH-4	21.00	19.62	18+68.53	2.55 L		13.25	13.15	11.80	11.70	4-5		300
SSMH-5	21.11	19.59	21+68.85	3.27 L		11.95	11.85	10.50	10.40	5-6		71
SSMH-6	20.71	19.31	22+39.57	C/L		11.47	10.54	10.02	9.09			
SSMH-7	20.35	18.95	23+67.68	C/L		12.08	11.98	10.63	10.53	6-7		128
SSMH-8	19.35	19.06	24+79.61	C/L		12.63	12.53	11.18	11.08	7-8		112
SSMH-9	19.57	19.25	26+63.16	2.50 L		13.47	13.37	12.02	11.92	8-9		184
SSMH-10	20.09	18.69	27+85.82	2.50 L		14.06	13.96	12.61	12.51	9-10		123
SSMH-11	20.50	19.08	29+93.68	C/L		14.99	14.89	13.54	13.44	10-11		208
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ELEVATION CONVERTED TO NAVD 88

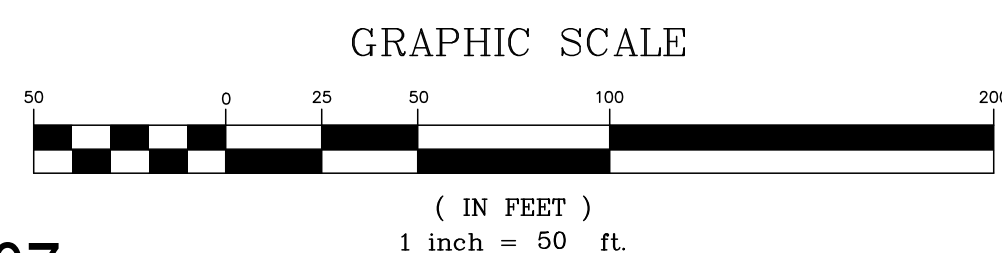


SANITARY SEWER PUMP STATION SITE LAYOUT PLAN



UTILITY NOTES:

- ALL WATER MAIN PIPE SHALL BE AWWA C900/ DR18 PIPE, COLORED BLACK, CONTAINING A CONTINUOUS COLORED BLUE STRIPE, 2 INCHES WIDE, AT THREE SEPARATE LOCATIONS ALONG THE LENGTH OF THE PIPE. THE PIPE SIZING SHALL BE IN ACCORDANCE WITH DUCTILE IRON SIZING SYSTEM (DIOS).
- WATER MAIN TO BE INSTALLED 5' FROM R/W LINE AND THE METER BOX IS TO BE SET 8' FROM THE R/W LINE.
- PER SECTION 5.13 OF THE WATER RESOURCES TECHNICAL MANUAL, VALVES ARE TO BE INSTALLED EVERY 800 FEET ON STRAIGHT RUN FORCE MAINS. AT ANY INTERSECTIONS THERE SHALL BE A VALVE.
- DOUBLE AND MULTIPLE (MANIFOLD) SEWER SERVICE WYES ARE NOT ALLOWED. ALL SERVICE LATERALS MUST BE SINGLE SERVICE LATERALS DIRECTLY CONNECTED TO EITHER A SANITARY SEWER MAIN OR A TERMINAL MANHOLE.
- PORTIONS OF THE SANITARY SEWER AND DRAINAGE SYSTEM SHOWN ON THESE PLANS HAVE ALREADY BEEN CONSTRUCTED. THEY WILL NOT BE ACCEPTED BY THE CITY UNTIL THEY ARE CLEANED, TELEVIEWED AND APPROVED BY THE CITY. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER CONSTRUCTION OF ALL UTILITIES SHOWN ON THESE PLANS. IF ANY ALREADY CONSTRUCTED UTILITIES ARE APPROVED BY THE CITY, THE CONTRACTOR WILL GIVE CREDIT TO THE OWNER FOR THOSE ITEMS APPROVED BY THE CITY LESS ANY COSTS INCURRED BY THE CONTRACTOR FOR ANY PRECONSTRUCTION EVALUATIONS.
- FOR WATER AND SEWER PROFILES SEE SHEETS 11 AND 12.



FOR CONTINUATION SEE SHEET 07



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 CERT. AUTH. NO. 00007522

CLIENT:
A F A B BUSINESS GROUP INC.
 4700 OLD COLONY ROAD
 NEW SMYRNA, FL. 32168

PROJECT NAME:
FALCON'S ROOST AT LAKE BELLA

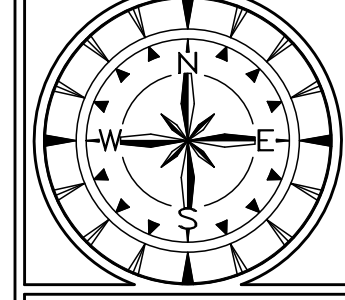
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UTILITY PLAN (SHEET 2 OF 2)

DATE	BY	DESCRIPTION
01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
01-14-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
04-09-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
12-07-22	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
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02-24-23	SGH	REVISED WATER LINE PROFILE AT FM CROSSING ALONG KNOX MCRAE DR.
05-01-23	SGH	REVISED PER CITY COMMENTS

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY ZOHEIR S. CHEHAYEB, PE USING A SHA-1 AUTHENTICATION CODE. PRINTED COPIES OF THIS DOCUMENT ARE NOT TO BE CONSIDERED SIGNED AND SEALED AND THE SHA-1 CODE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

DATE: DESIGNED BY: ZSC DRAWN BY: PT

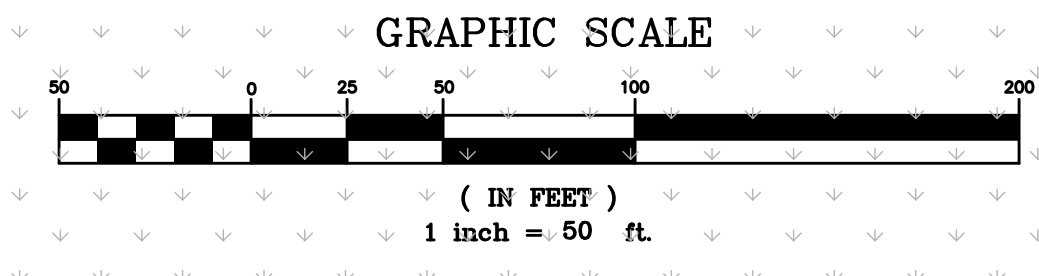
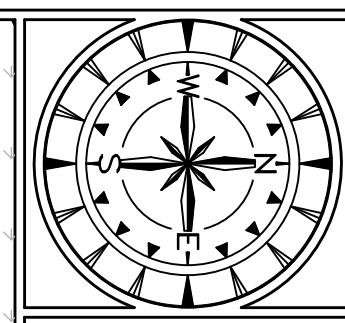
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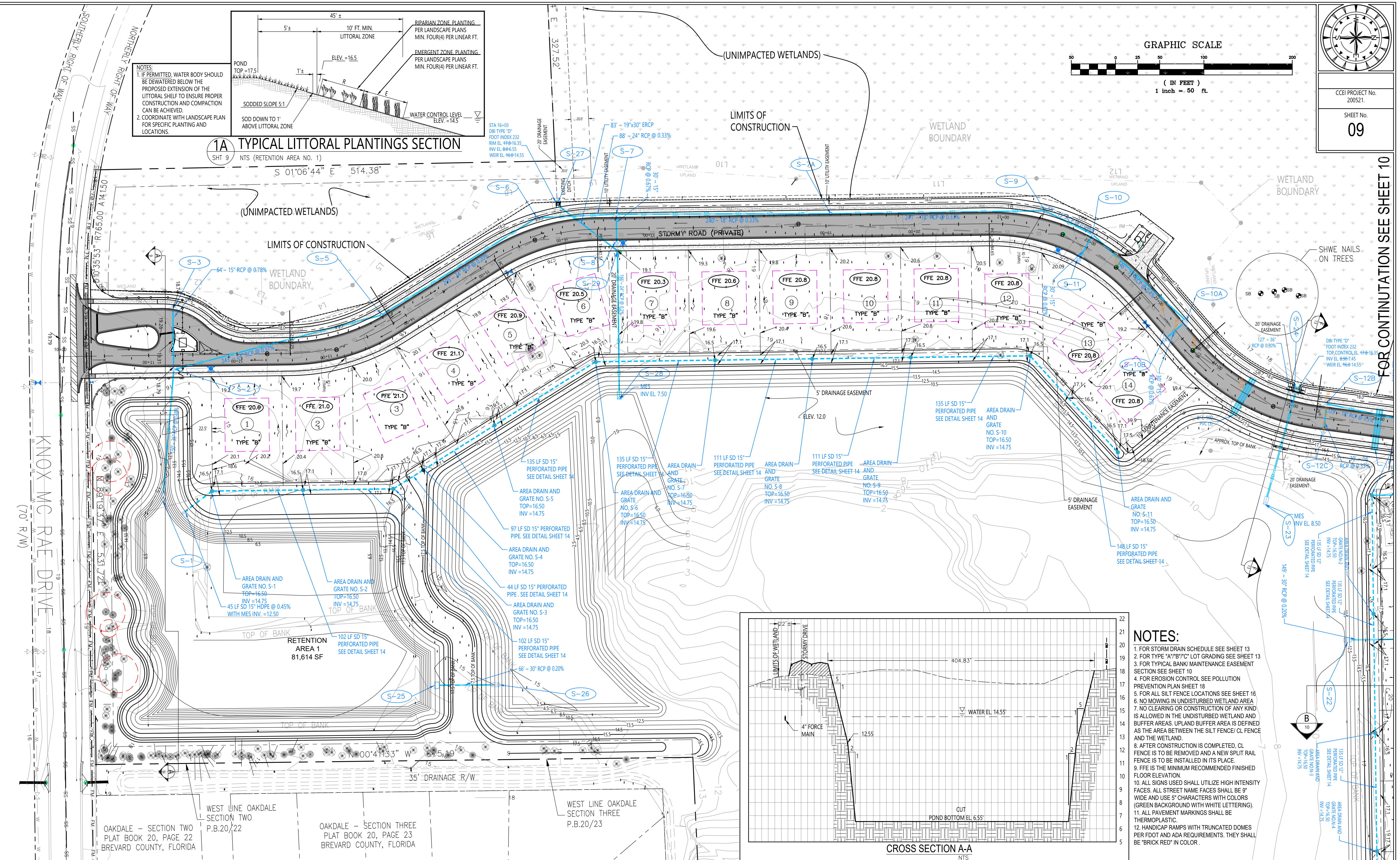
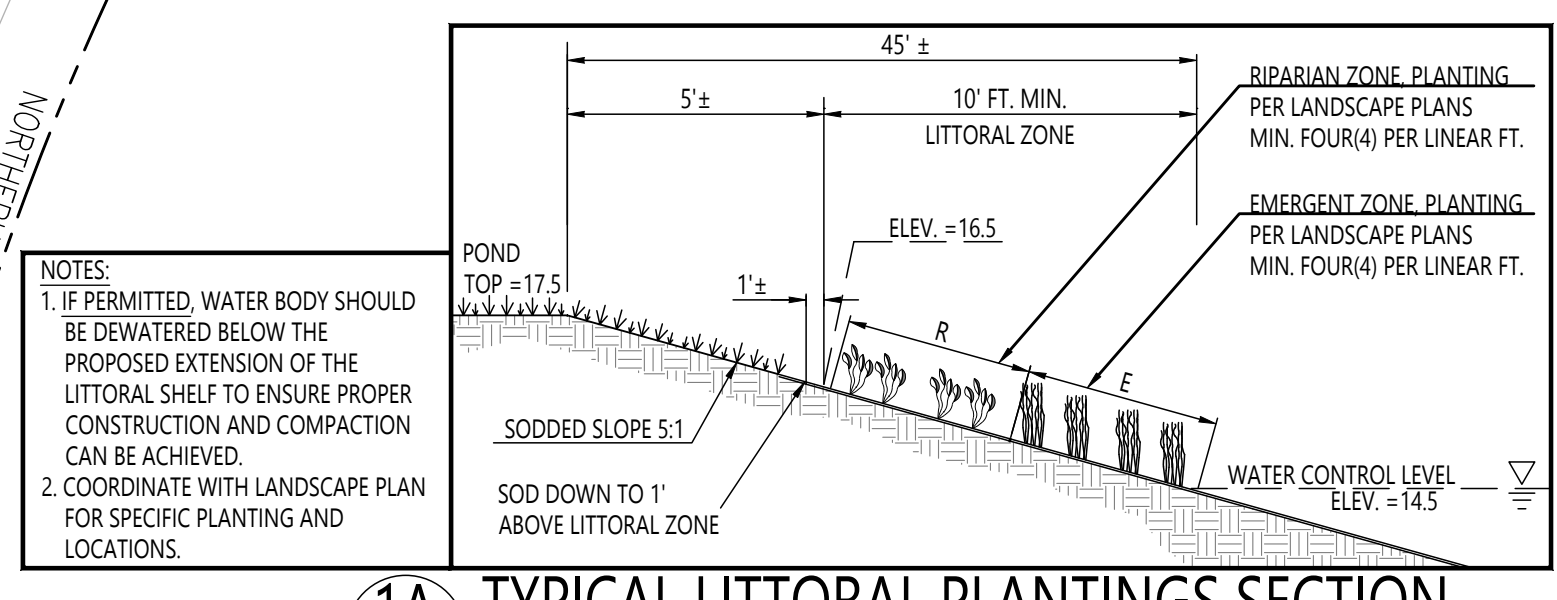
CCEI PROJECT No. 200521.
 SHEET No. 08

PARCEL ID#22-35-17-AV*-26

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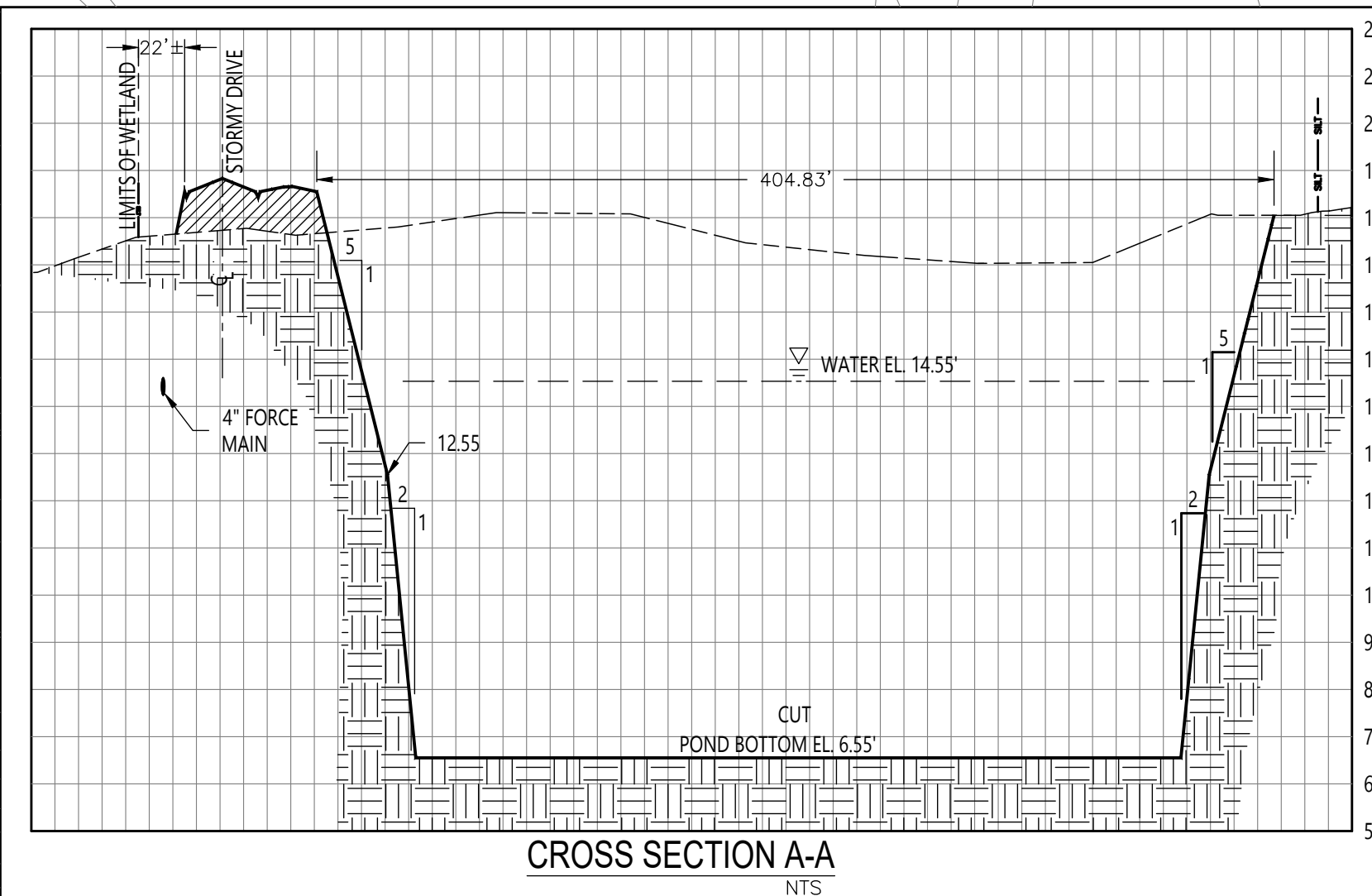


CCEI PROJECT No. 200521.
SHEET No. 09



NOTES:

- FOR STORM DRAIN SCHEDULE SEE SHEET 13
- FOR TYPE "A"/"B"/"C" LOT GRADING SEE SHEET 13
- FOR TYPICAL BANK/ MAINTENANCE EASEMENT SECTION SEE SHEET 10
- FOR EROSION CONTROL SEE POLLUTION PREVENTION PLAN SHEET 18
- FOR ALL SILT FENCE LOCATIONS SEE SHEET 16
- NO MOWING IN UNDISTURBED WETLAND AREA
- NO CLEARING OR CONSTRUCTION OF ANY KIND IS ALLOWED IN THE UNDISTURBED WETLAND AND BUFFER AREAS. UPLAND BUFFER AREA IS DEFINED AS THE AREA BETWEEN THE SILT FENCE/ CL FENCE AND THE WETLAND.
- AFTER CONSTRUCTION IS COMPLETED, CL FENCE IS TO BE REMOVED AND A NEW SPLIT RAIL FENCE IS TO BE INSTALLED IN ITS PLACE.
- FFE IS THE MINIMUM RECOMMENDED FINISHED FLOOR ELEVATION.
- ALL SIGNS USED SHALL UTILIZE HIGH INTENSITY FACES. ALL STREET NAME FACES SHALL BE 9" WIDE AND USE 5" CHARACTERS WITH COLORS (GREEN BACKGROUND WITH WHITE LETTERING).
- ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
- HANDICAP RAMPS WITH TRUNCATED DOMES PER FDOT AND ADA REQUIREMENTS. THEY SHALL BE "BRICK RED" IN COLOR.



KNOX MCRAE DRIVE (70' R/W)

OAKDALE - SECTION TWO PLAT BOOK 20, PAGE 22 BREVARD COUNTY, FLORIDA

WEST LINE OAKDALE SECTION TWO P.B.20/22

OAKDALE - SECTION THREE PLAT BOOK 20, PAGE 23 BREVARD COUNTY, FLORIDA

WEST LINE OAKDALE SECTION THREE P.B.20/23



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CERT. AUTH. NO. 00007522

CLIENT:
A F A B BUSINESS GROUP INC.
4700 OLD COLONY ROAD
NEW SMYRNA, FL. 32168

PROJECT NAME:
FALCON'S ROOST AT LAKE BELLA

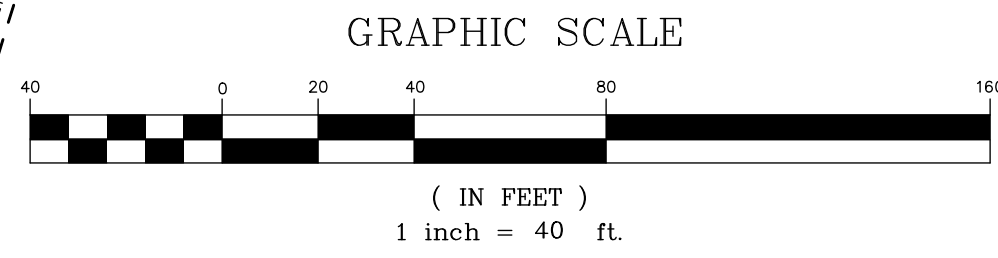
DRAWING TITLE:
PAVING, GRADING & DRAINAGE PLAN (SHEET 1 OF 2)

DATE	BY	DESCRIPTION
01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
01-14-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
04-09-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
12-07-22	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
01-12-23	SGH	ADDED GEOMETRY OF LITERATION AND DRIVEWAY
02-24-23	SGH	REVISED WATER LINE PROFILE AT FM CROSSING ALONG KNOX MCRAE DR.
05-01-23	SGH	REVISED PER CITY COMMENTS

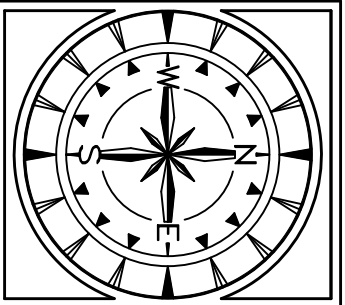
DESIGNED BY: ZSC
DRAWN BY: PT
DATE:
ZOHIER S. CHEHAYEB, P.E. #38577

FILE PATH: C:\Users\Engineer\OneDrive\Projects\200521\Drawings\10_Borders (x-ref)\200521_rvs-brdr2s.dwg May 01, 2023 - 1:04pm

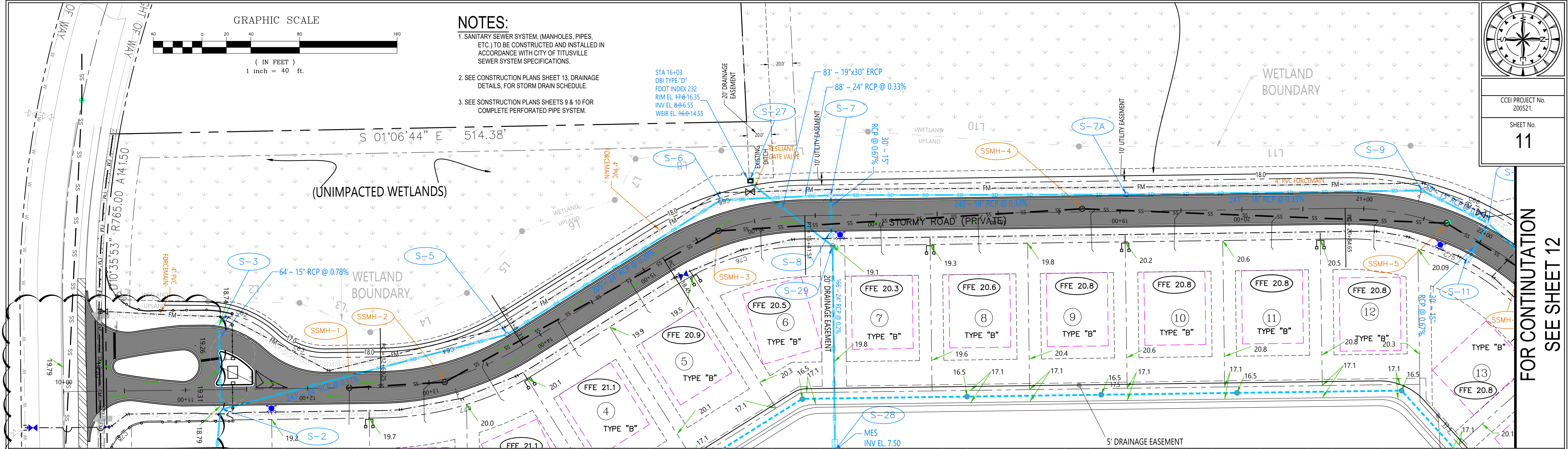
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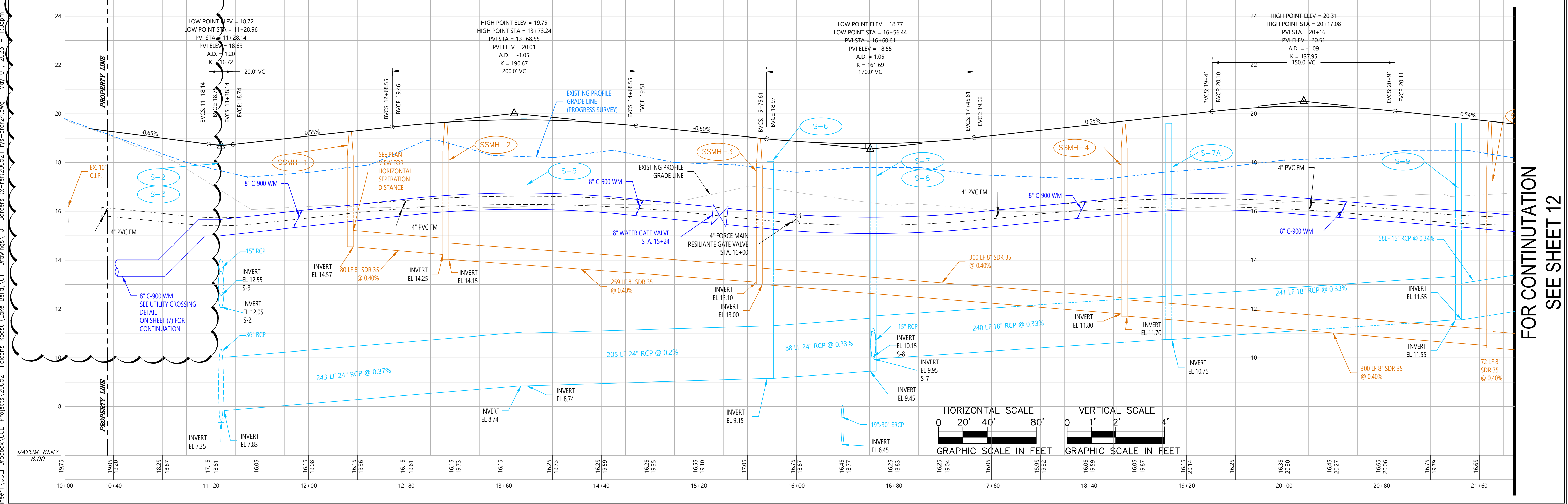
- NOTES:**
- SANITARY SEWER SYSTEM, (MANHOLES, PIPES, ETC.) TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CITY OF TITUSVILLE SEWER SYSTEM SPECIFICATIONS.
 - SEE CONSTRUCTION PLANS SHEET 13, DRAINAGE DETAILS, FOR STORM DRAIN SCHEDULE.
 - SEE CONSTRUCTION PLANS SHEETS 9 & 10 FOR COMPLETE PERFORATED PIPE SYSTEM.



CCEI PROJECT No.
200521.
SHEET No.
11



FOR CONTINUATION
SEE SHEET 12

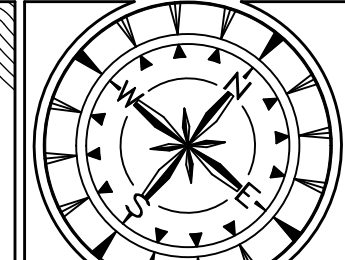
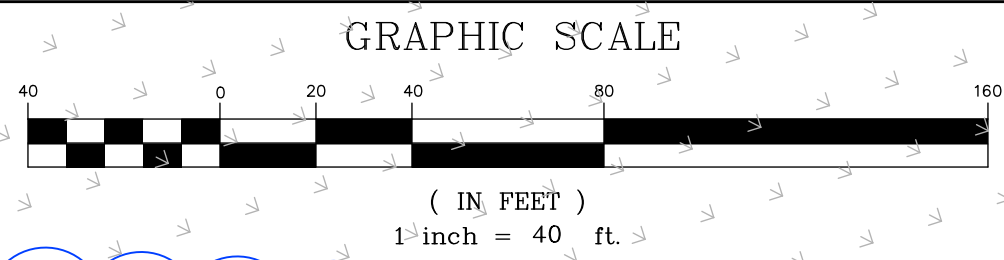


FOR CONTINUATION
SEE SHEET 12

<p>CONSULTING CIVIL ENGINEERS, INC. 3650 BOBBI LANE SUITE 119 TITUSVILLE, FLORIDA 32780 PH. (321) 269-9930 INFO@CCEIFL.COM CERT. AUTH. NO. 00007522</p>	<p>CLIENT: A F A B BUSINESS GROUP INC. 4700 OLD COLONY ROAD NEW SMYRNA, FL. 32168</p>	<p>PROJECT NAME: FALCON'S ROOST AT LAKE BELLA</p>	<p>DRAWING TITLE: PLAN & PROFILE (STA. 10+00 - 21+40)</p>	<p>REVISION TABLE</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>01-12-21</td> <td>SGH</td> <td>REVISED PER CITY OF TITUSVILLE COMMENTS</td> </tr> <tr> <td>01-14-21</td> <td>SGH</td> <td>REVISED PER CITY OF TITUSVILLE COMMENTS</td> </tr> <tr> <td>04-09-21</td> <td>SGH</td> <td>REVISED PER CITY OF TITUSVILLE COMMENTS</td> </tr> <tr> <td>12-07-22</td> <td>SGH</td> <td>REVISED PER CITY OF TITUSVILLE COMMENTS</td> </tr> <tr> <td>01-12-23</td> <td>SGH</td> <td>ADDED GEOMETRY OF UTILIZATION AND DRIVEWAY</td> </tr> <tr> <td>02-24-23</td> <td>SGH</td> <td>REVISED WATER LINE PROFILE AT FM CROSSING ALONG KNOX McRAE DR.</td> </tr> <tr> <td>05-01-23</td> <td>SGH</td> <td>REVISED PER CITY COMMENTS</td> </tr> </tbody> </table>	DATE	BY	DESCRIPTION	01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	01-14-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	04-09-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	12-07-22	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	01-12-23	SGH	ADDED GEOMETRY OF UTILIZATION AND DRIVEWAY	02-24-23	SGH	REVISED WATER LINE PROFILE AT FM CROSSING ALONG KNOX McRAE DR.	05-01-23	SGH	REVISED PER CITY COMMENTS	<p>20HEIR S. CHEHAYEB, P.E. #38577</p> <p>DATE: DESIGNED BY: ZSC DRAWN BY: PT</p>
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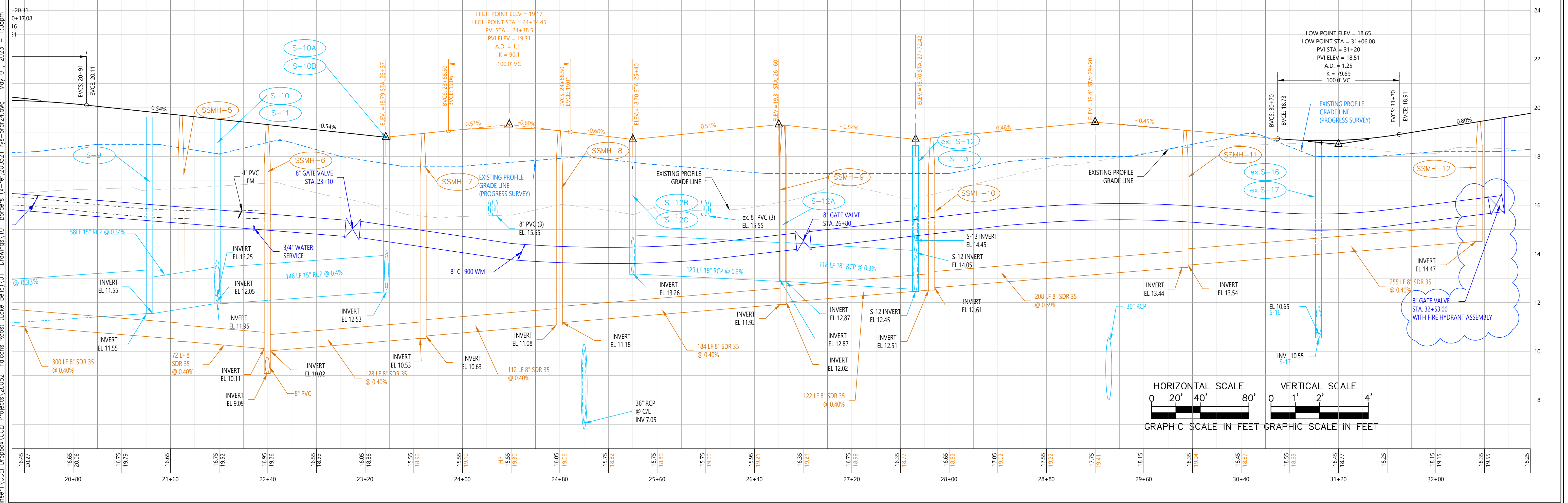
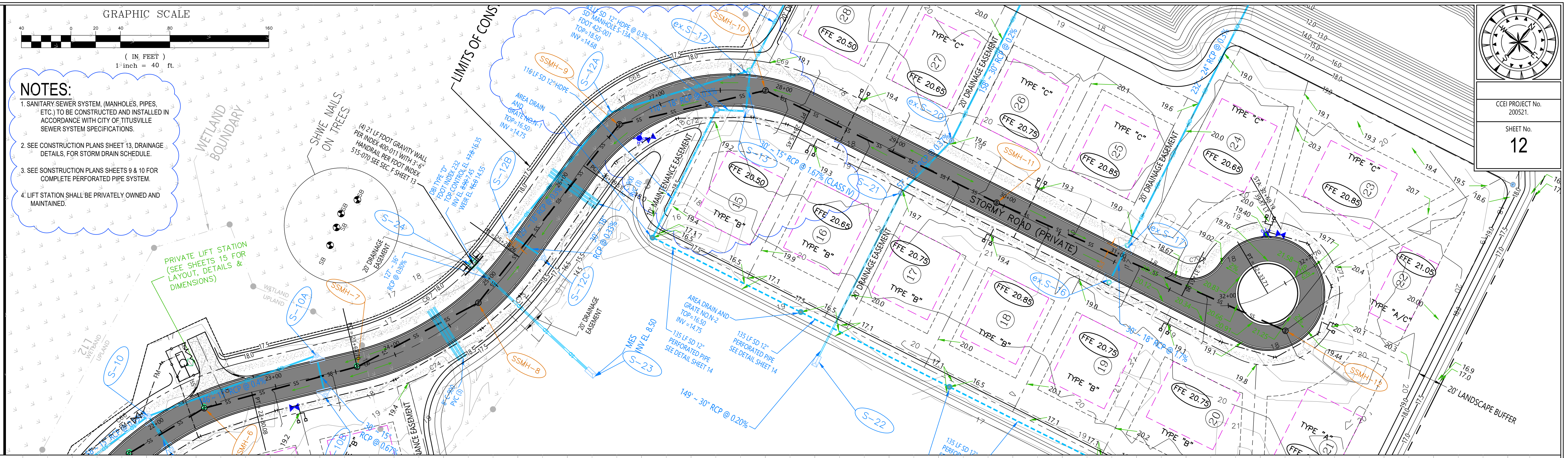


CCEI PROJECT No. 200521
SHEET No. 12

NOTES:

1. SANITARY SEWER SYSTEM, (MANHOLES, PIPES, ETC.) TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CITY OF TITUSVILLE SEWER SYSTEM SPECIFICATIONS.
2. SEE CONSTRUCTION PLANS SHEET 13, DRAINAGE DETAILS, FOR STORM DRAIN SCHEDULE.
3. SEE CONSTRUCTION PLANS SHEETS 9 & 10 FOR COMPLETE PERFORATED PIPE SYSTEM.
4. LIFT STATION SHALL BE PRIVATELY OWNED AND MAINTAINED.

FOR CONTINUATION SEE SHEET 11



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CCEI
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CERT. AUTH. NO. 00007522

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A F A B BUSINESS GROUP INC.
4700 OLD COLONY ROAD
NEW SMYRNA, FL. 32168

PROJECT NAME:
**FALCON'S ROOST
AT LAKE BELLA**

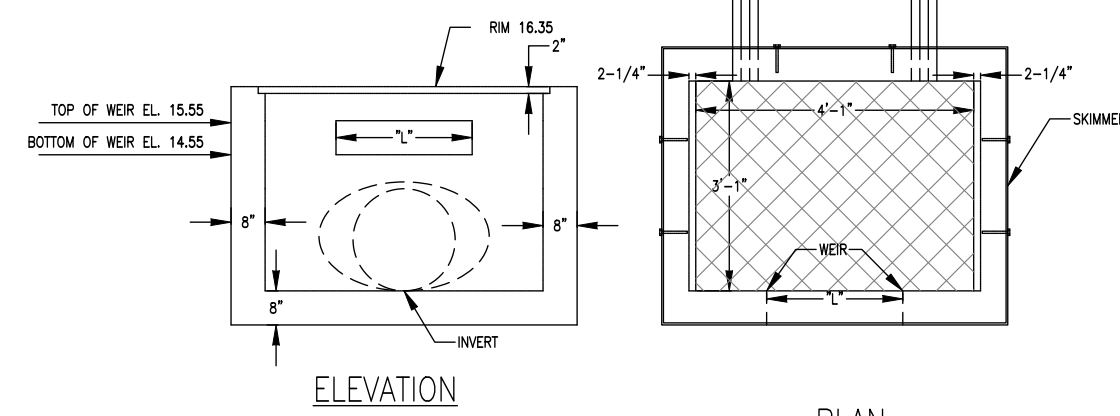
DRAWING TITLE:
**PLAN & PROFILE
(STA. 21+40 - 33+93.22)**

DATE	BY	DESCRIPTION
01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
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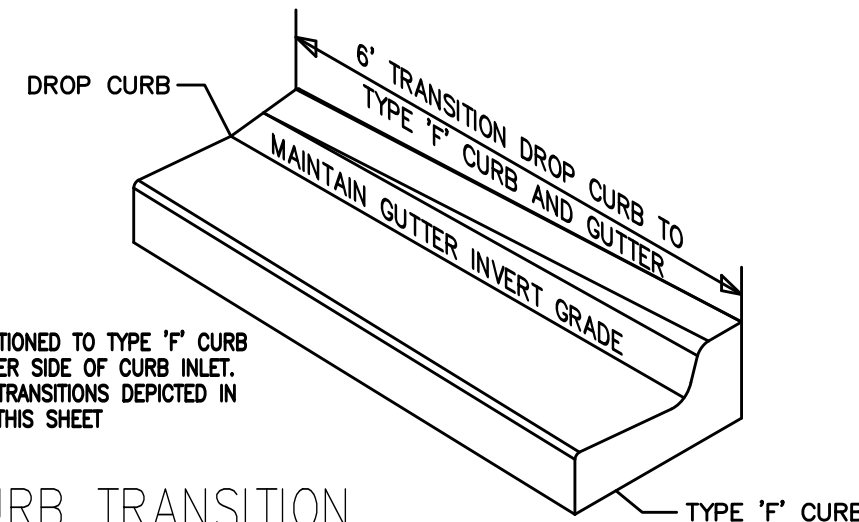
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DATE: DESIGNED BY: ZSC DRAWN BY: PT

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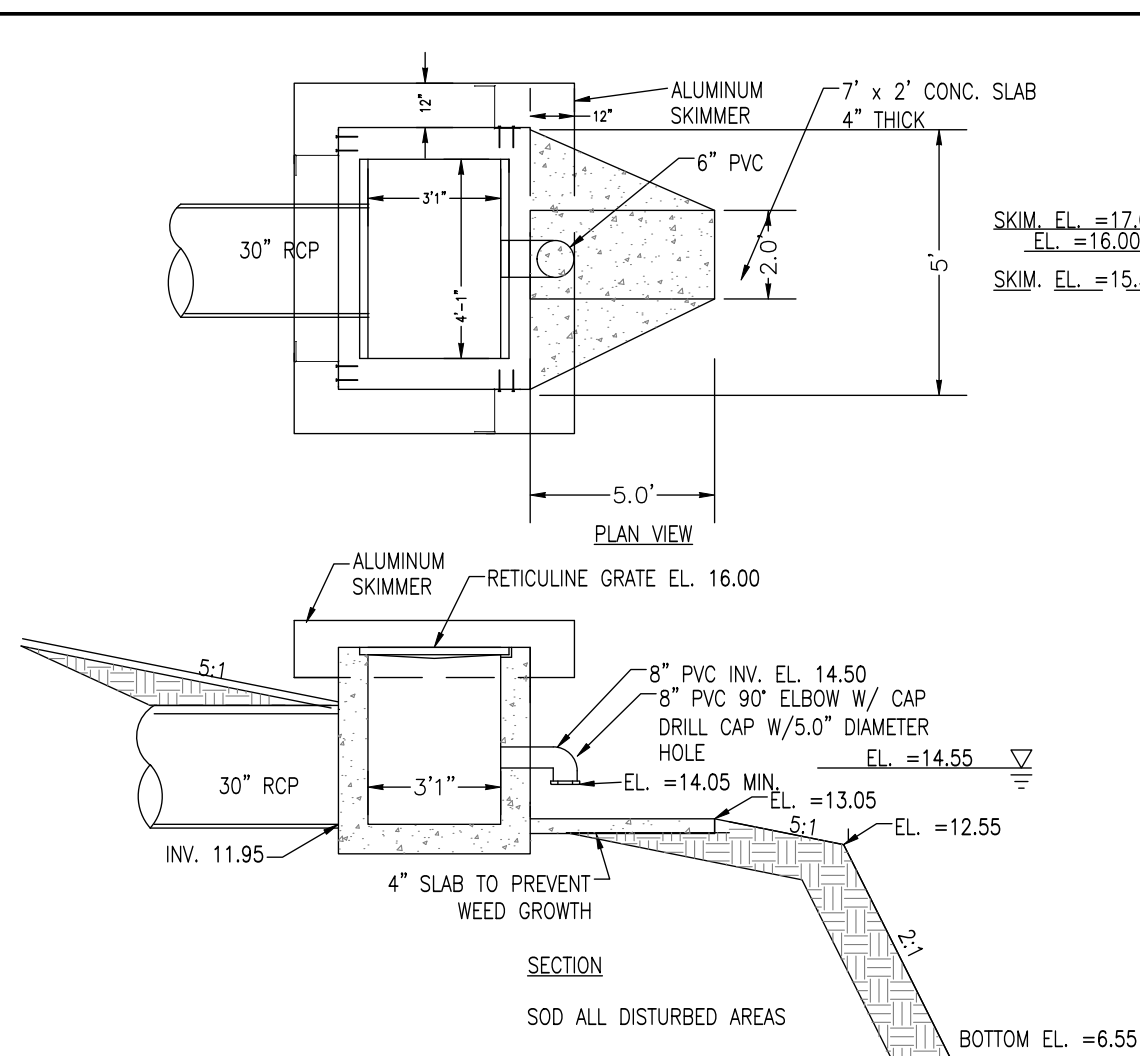
STRUCTURE S-27	STRUCTURE S-24
1'-6"	2'-6"
13.0	8.90
19" x 30" RCP	36" RCP



TYPE "D" DITCH BOTTOM INLET MODIFIED
STRUCTURE S-24 & S-27
NTS

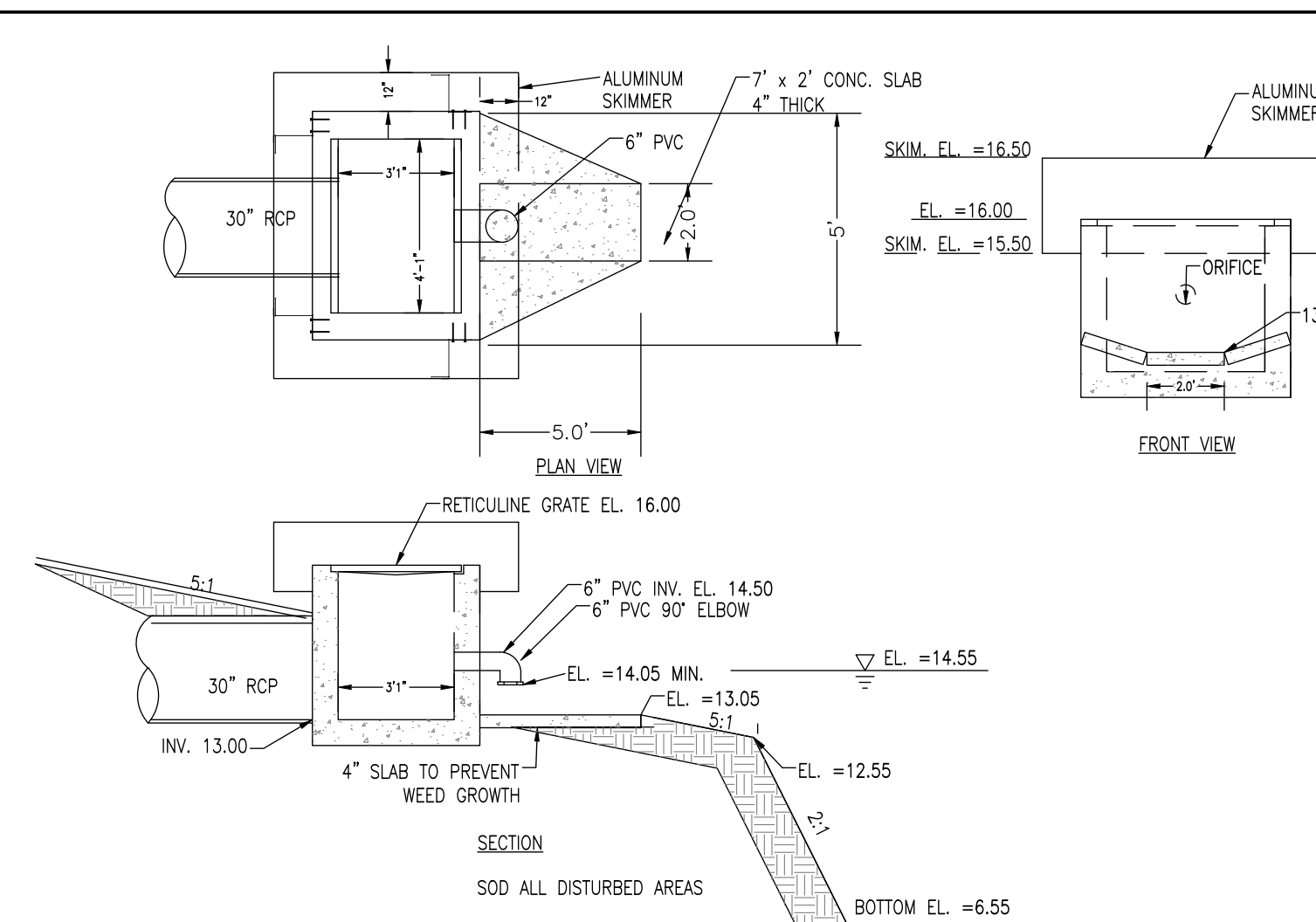


CURB TRANSITION
NTS



DETAIL (STRUCTURE S-19)
NORTH POND OUTFALL CONTROL STRUCTURE FDOT TYPE "D"
DBI MOD. W/ FRAME & GRATE

NOT TO SCALE
SEE FDOT INDEX #425-052 FOR ADDITIONAL DETAILS OF TYPE "D" INLET



DETAIL (STRUCTURE S-25)
SOUTH POND OUTFALL CONTROL STRUCTURE FDOT TYPE "D"
DBI MOD. W/ FRAME & GRATE

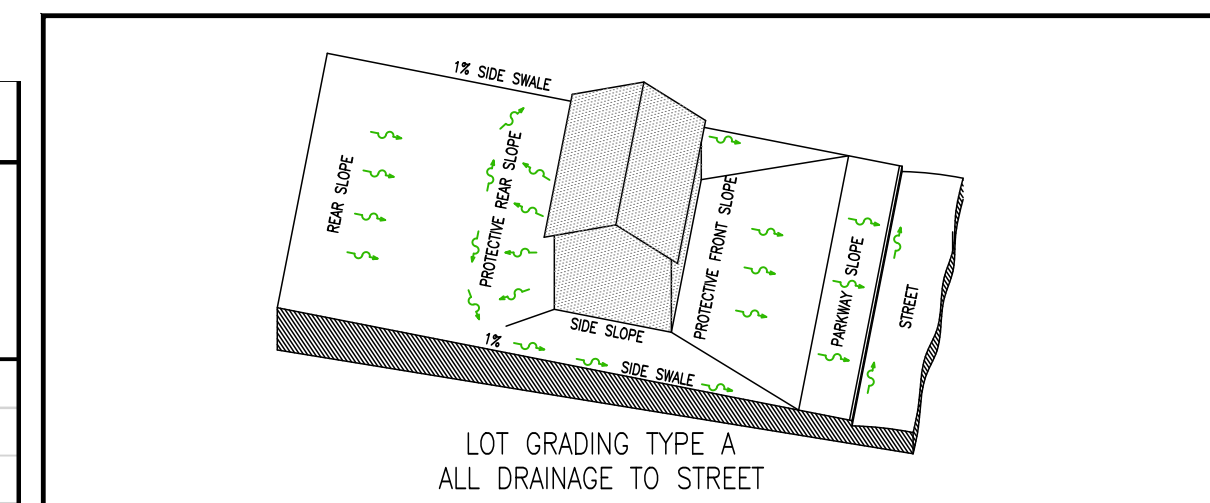
NOT TO SCALE
SEE FDOT INDEX #425-052 FOR ADDITIONAL DETAILS OF TYPE "D" INLET

- * DISTANCE FROM CENTERLINE OF ROADWAY TO CENTERLINE OF M.H. OR INLET STRUCTURE OR DISTANCE FROM CENTERLINE OF ROADWAY TO END OF MES.
- ** EDGE OF PAVEMENT ELEVATION IS 4.5" ~ 0.375' BELOW "TOP ELEVATION" OF CURB INLETS, SEE DIMENSIONAL SECTION THIS SHEET.

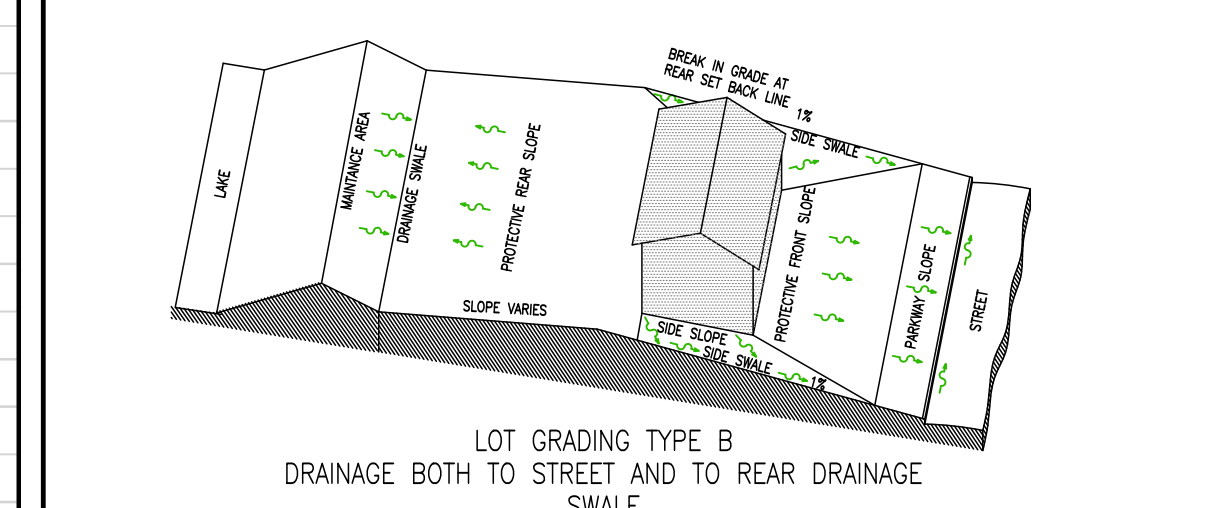
STORM STRUCTURE SCHEDULE

ADJUSTED PGL (1988)	ROADWAY X-SLOPE	STRUCTURE NUMBER	ADJUSTED TOP ELEVATION (1988)	STRUCTURE STATION	STRUCTURE OFFSET	PIPE DIAMETER (RCP)	ADJUSTED PIPE INVERT (1988)				STRUCTURE TYPE AND FDOT INDEX
							WEST	SOUTH	EAST	NORTH	
--	N/A	S-1		11+18.28	72.50 R	36"			7.05		MES #430-021
18.72	0.03	S-2	18.77	11+28.96	16.50 R	15", 36", 24"	12.05		7.35	7.83	CURB INLET TYPE 2 #425-020
18.72	0.03	S-3	18.74	11+28.96	55.20 L	18"			12.55		CURB INLET TYPE 2 #425-020
19.75	0.03	S-5	19.79	13+76.50	16.50 L	24"		8.74		8.74	STORM MANHOLE #425-001
18.96	0.03	S-6	18.05	15+78.54	24.00 L	24"		9.15		9.15	STORM MANHOLE #425-001
18.76	0.03	S-7	18.82		16.50 L	24", 15", 18"		9.45	9.95	9.95	CURB INLET TYPE 2 #425-020
18.76	0.03	S-8	18.82		16.50 R	15"	10.15				CURB INLET TYPE 2 #425-020
19.85	0.03	S-7A	19.94	19+05.34	13.75 L	18"		10.75		10.75	STORM MANHOLE #425-001
19.04	0.03	S-9	19.76	21+42.95	22.00 L	18", 15"		11.55		11.55	STORM MANHOLE #425-001
19.53	0.03	S-10	19.58	21+98.43	16.50 L	15"		11.95	12.05	11.95	CURB INLET TYPE 1 #425-020
18.85	0.03	S-10A	18.84	23+37.00	16.50 L	15"		12.53	12.53		CURB INLET TYPE 1 #425-020
18.85	0.03	S-10B	18.84	23+37.00	16.50 R	15"	12.63				CURB INLET TYPE 1 #425-020
19.53	0.03	S-11	19.58	21+98.43	16.50 R	15"	12.25				CURB INLET TYPE 1 #425-020
18.46	0.03	S-12	18.75	27+72.37	16.50 L	18", 15", 18"	12.55	14.05		12.45	CURB INLET TYPE 1 #425-020
19.3	0.03	S-12A	19.30	26+63.16	15.20 L	18"		12.87	12.87		STORM MANHOLE #425-001
18.61	0.03	S-12B	18.75	25+40.06	16.50 L	18"			13.26	13.26	CURB INLET TYPE 2 #425-020
18.61	0.03	S-12C	18.75	25+40.06	16.50 R	18"	13.36				CURB INLET TYPE 2 #425-020
18.46	0.03	S-13	18.75	27+72.37	16.50 R	15"	14.45			14.45	CURB INLET TYPE 1 #425-020
		S-13A	18.50	27+45.64	21.62 RT	12"		14.68		14.68	STORM MANHOLE #425-001
		S-14	19.83	27+98.12	158.22 L	18", 30"		12.01		12.01	STORM MANHOLE #425-001
		S-15		28+28.16	199.44 L	30"			11.55		MES #430-021
18.64	0.03	S-16	18.71	31+6.08	16.50 R	18"			10.65	10.65	CURB INLET TYPE 2 #425-020
18.64	0.03	S-17	18.71	31+6.08	16.50 L	18", 24"		11.05		10.55	CURB INLET TYPE 2 #425-020
REMOVED		S-17A	19.57	31+3.65	145.00 L	24"		10.16		10.16	STORM MANHOLE #425-001
		S-18		31+03.67	232.00 L	24"	9.85				MES #430-021
		S-19	16.00	29+44.12	188.65 L	30"		11.95			CONTROL STRUCTURE - DBI TYPE H #425-052 W/ J BOTTOM #425-054
		S-20	19.67	29+38.66	28.25 L	30"		8.41		11.74	STORM MANHOLE #425-001
		S-21	19.52	29+21.02	28.25 R	30"		8.3		8.3	STORM MANHOLE #425-001
		S-22		29+20.95	180.00 R	30"				8	MES #430-021
		S-23		29+13.35	105.98 R	30"			7.05		MES #430-021
		S-24	16.35	25+30.89	36.46 L	30"	7.45				CONTROL STRUCTURE - DBI TYPE D #425-052
		S-25	16.00	13+19.00	398.58 R	30"		11.55			CONTROL STRUCTURE - DBI TYPE H #425-052 W/ J BOTTOM #425-054
		S-26		13+53.80	419.67 R	30"			11.35		MES #430-021
		S-27	16.35	16+2.47	37.28 L	19" X 30"			6.55		CONTROL STRUCTURE - DBI TYPE D #425-052
		S-28		16+63.88	190.53 R	24"	6.05				MES #430-021
		S-29	18.86	16+63.88	32.15 R	19" X 30", 24"		6.38	6.38		STORM MANHOLE #425-001

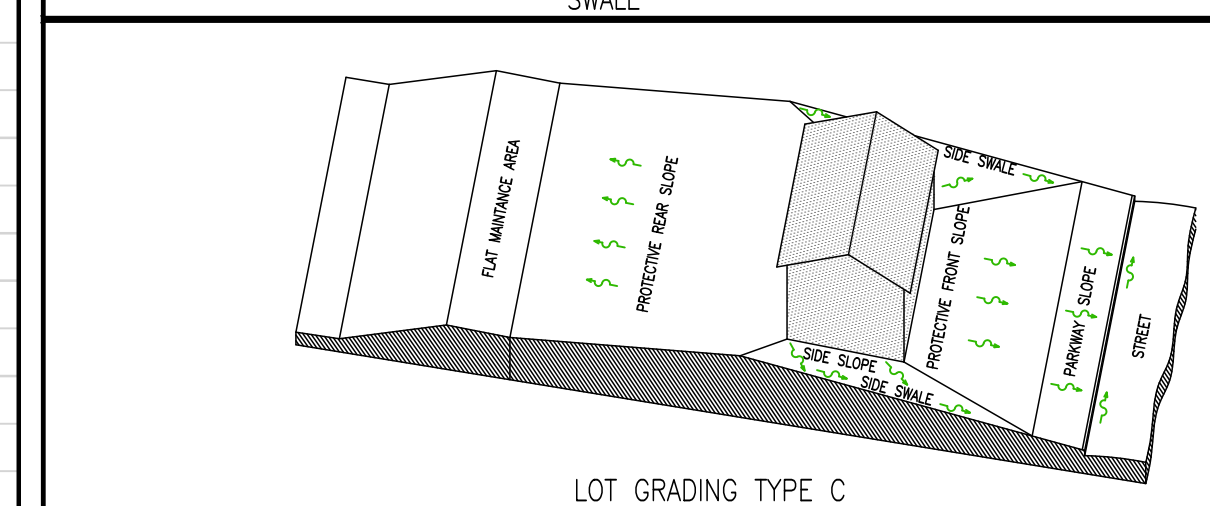
ELEVATIONS CONVERTED TO NAVD 88



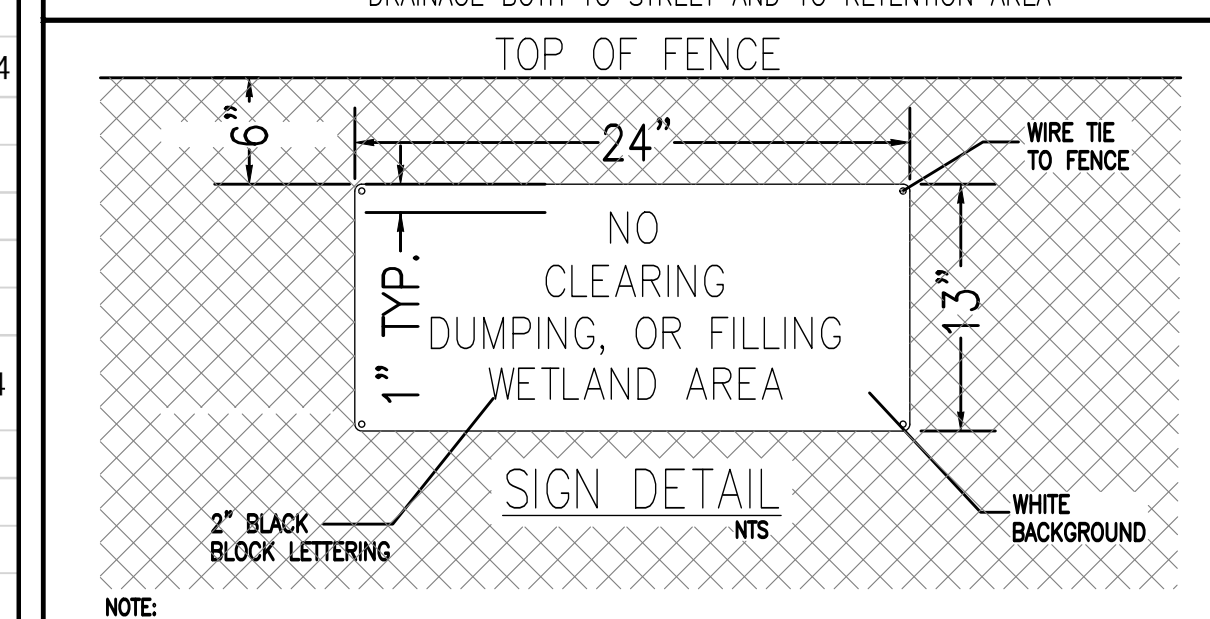
LOT GRADING TYPE A
ALL DRAINAGE TO STREET



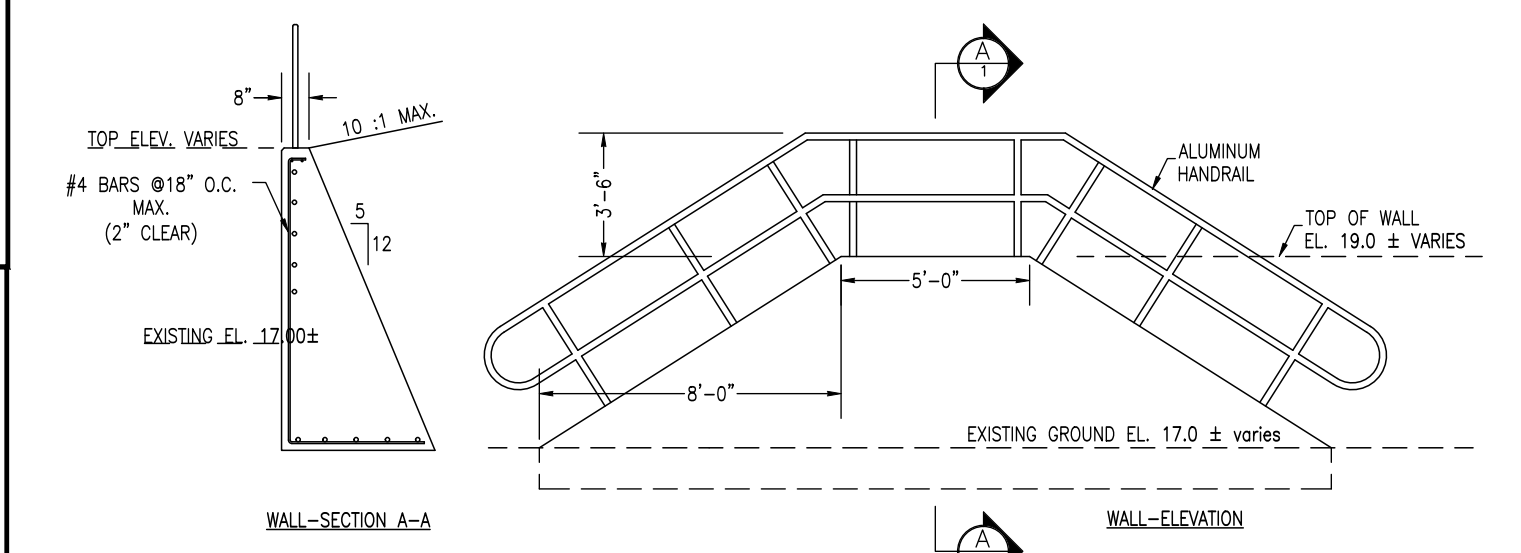
LOT GRADING TYPE B
DRAINAGE BOTH TO STREET AND TO REAR DRAINAGE SWALE



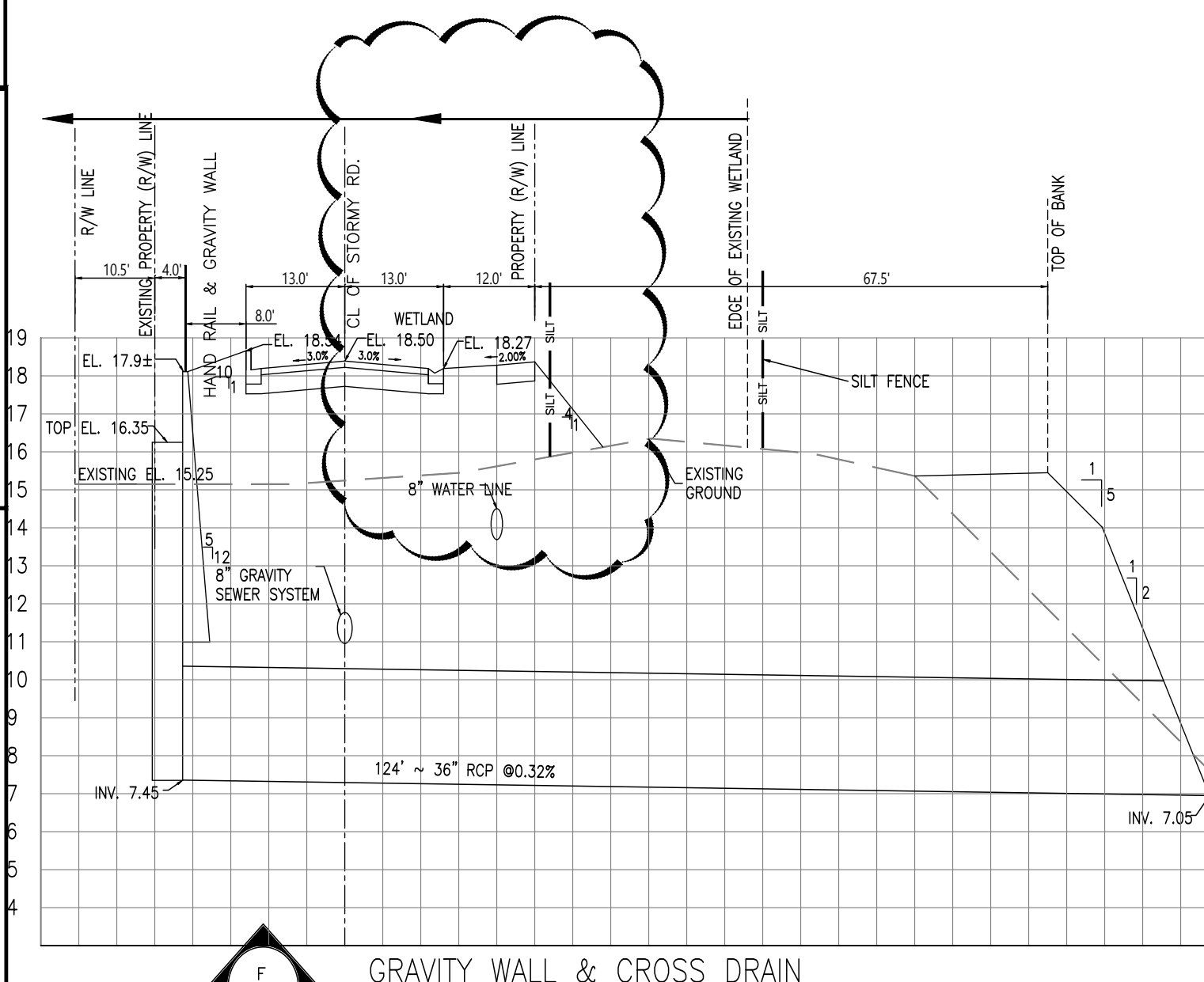
LOT GRADING TYPE C
DRAINAGE BOTH TO STREET AND TO RETENTION AREA



NOTE: POST SIGNS AT EACH LOT, NO FURTHER THAN 100' APART, AND AT ANY CHANGE OF DIRECTION ALONG ALL WETLAND TRACT BOUNDARIES.



GRAVITY WALL WITH GUARD RAIL
FDOT INDEX 400-011 AND 515-070
OF APPROX. GRADE - NOT TO SCALE



GRAVITY WALL & CROSS DRAIN

VERT. = 1" = 4'
HORIZ. = 1" = 20'



CONSULTING CIVIL ENGINEERS, INC.
3650 BOBBI LANE SUITE 119
TITUSVILLE, FLORIDA 32780
PH. (321) 269-9930 INFO@CCEI.FL.COM
CERT. AUTH. NO. 00007522

CLIENT:
A F A B BUSINESS GROUP INC.
4700 OLD COLONY ROAD
NEW SMYRNA, FL. 32168

PROJECT NAME:
FALCON'S ROOST AT LAKE BELLA

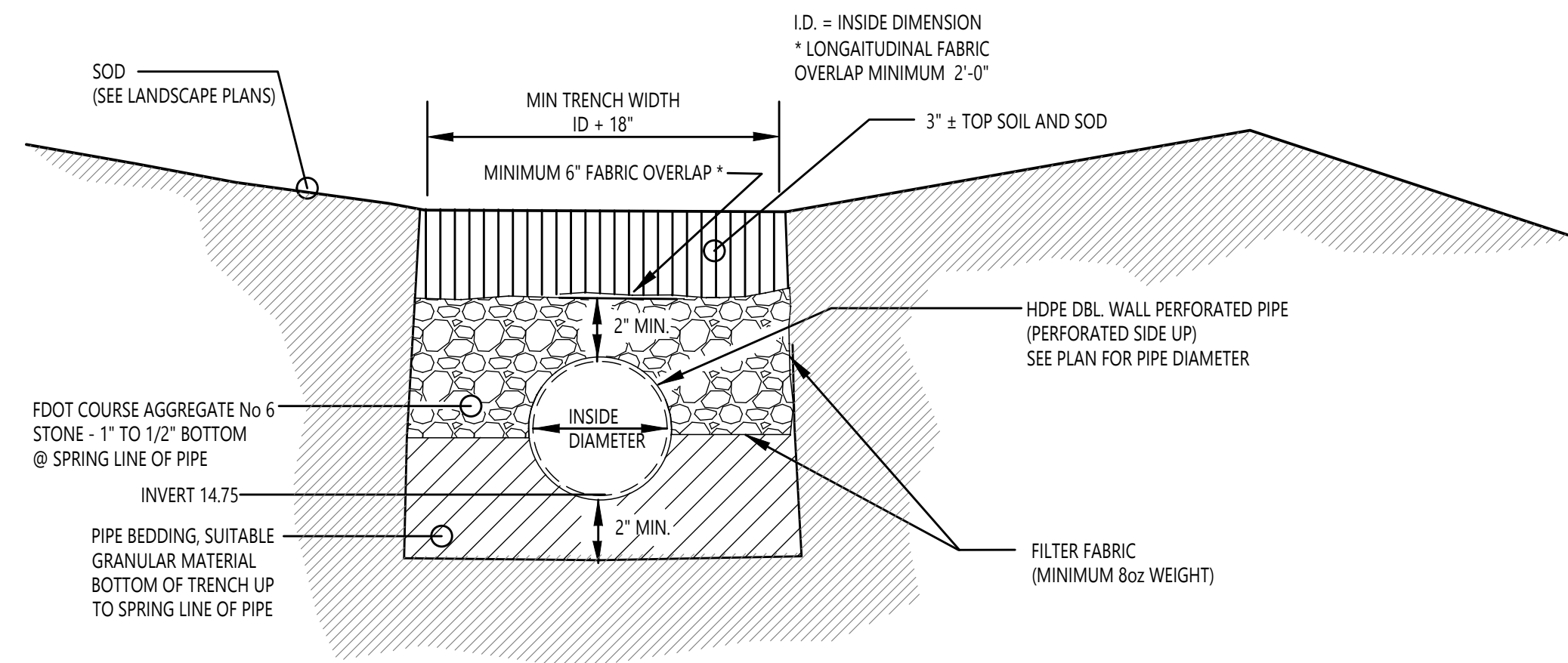
DRAWING TITLE:
DRAINAGE DETAILS

DATE	BY	DESCRIPTION
01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
01-14-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
04-09-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
11-01-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
01-12-23	SGH	ADDED GEOMETRY OF LIFTSTATION AND DRIVEWAY
02-24-23	SGH	REVISED WATER LINE PROFILE AT FM CROSSING ALONG KNOX MCRAE DR.
05-01-23	SGH	REVISED PER CITY COMMENTS

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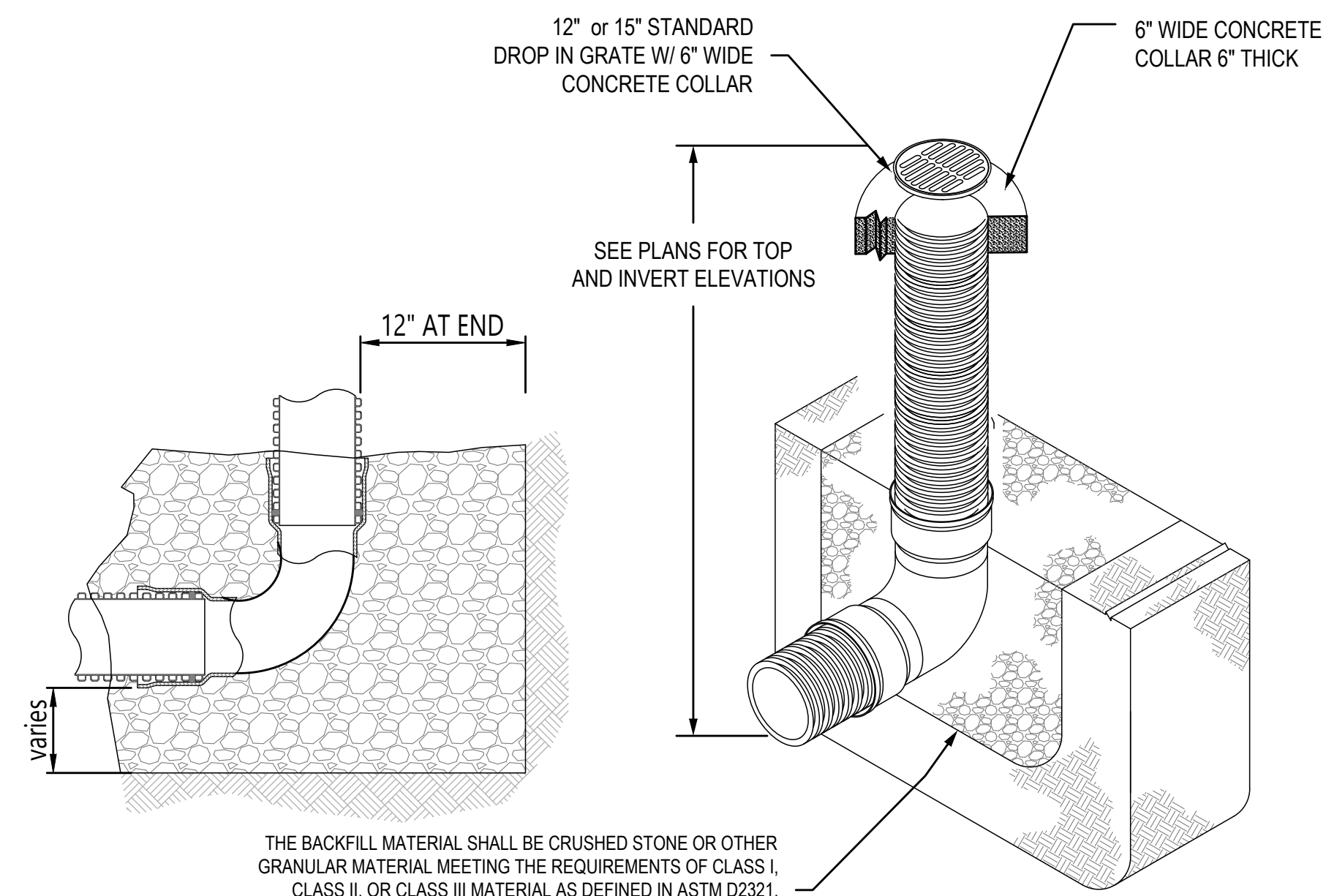
DATE: DESIGNED BY: ZSC DRAWN BY: PT

CCEI PROJECT No. 200521.
SHEET No. **13**



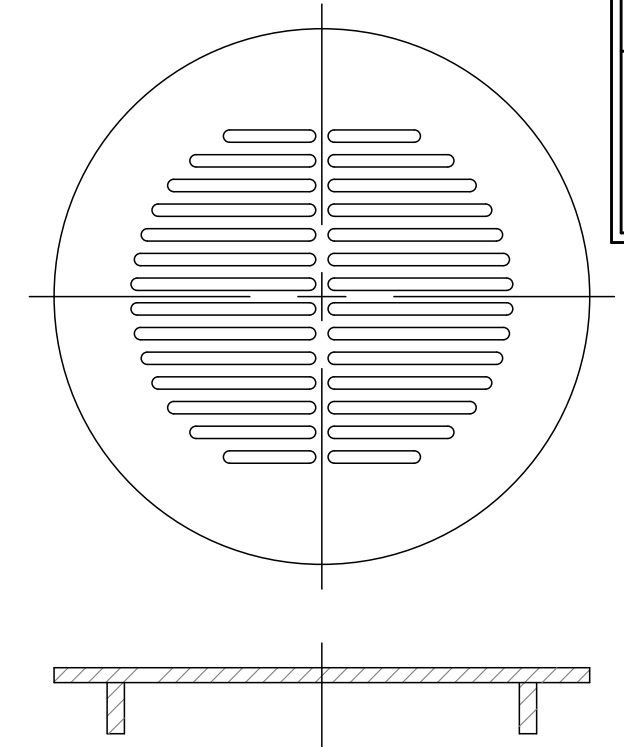
12" & 15" PERFORATED PIPE

1 MODIFIED FRENCH DRAIN DETAIL
9/10 NTS - OR APPROVED EQUAL



2 NYLOPLAST 18" END OF LINE AREA DRAIN & GRATE
9/10 NTS - OR APPROVED EQUAL

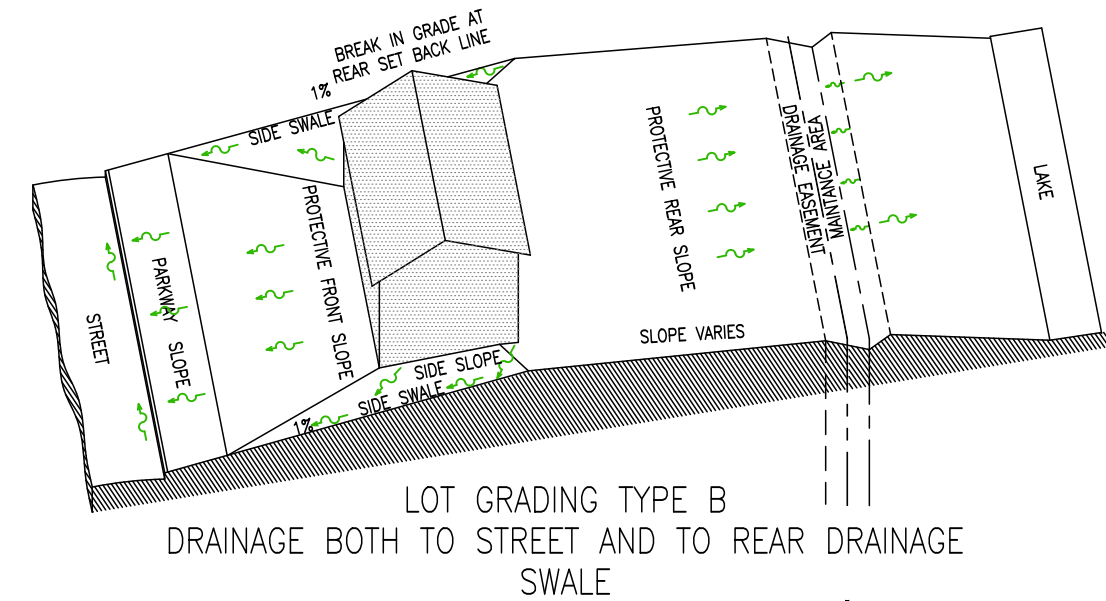
1201DI or 1501DI



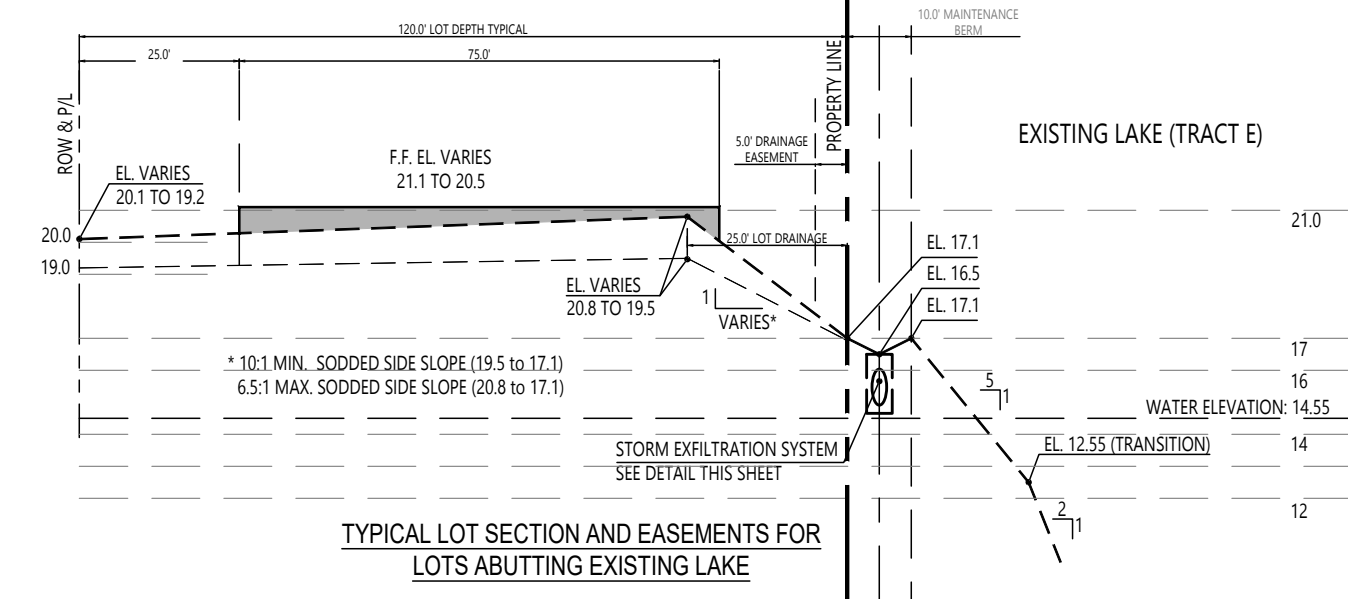
- 1 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
- 2 - IN-LINE INLET REQUIRES A "TEE" CONNECTION RATHER THAN 90° BEND AS SHOWN.

CCEI PROJECT No. 200521.
SHEET No. 14

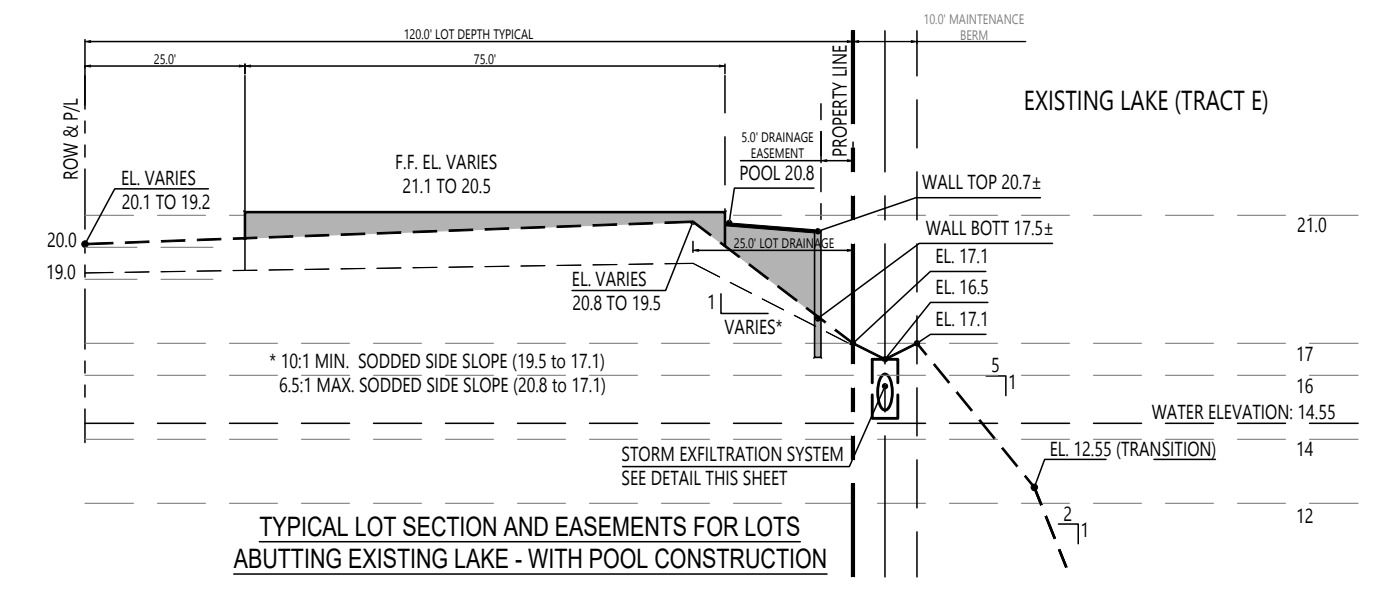
FILE PATH: C:\Users\emcneer1\OneDrive - CCEI\Projects\200521 Falcon's Roost (Lake Bella)\01 Drawings\10 Borders (c-ref)\200521_05-brdr24.dwg May 01, 2023 - 12:09pm



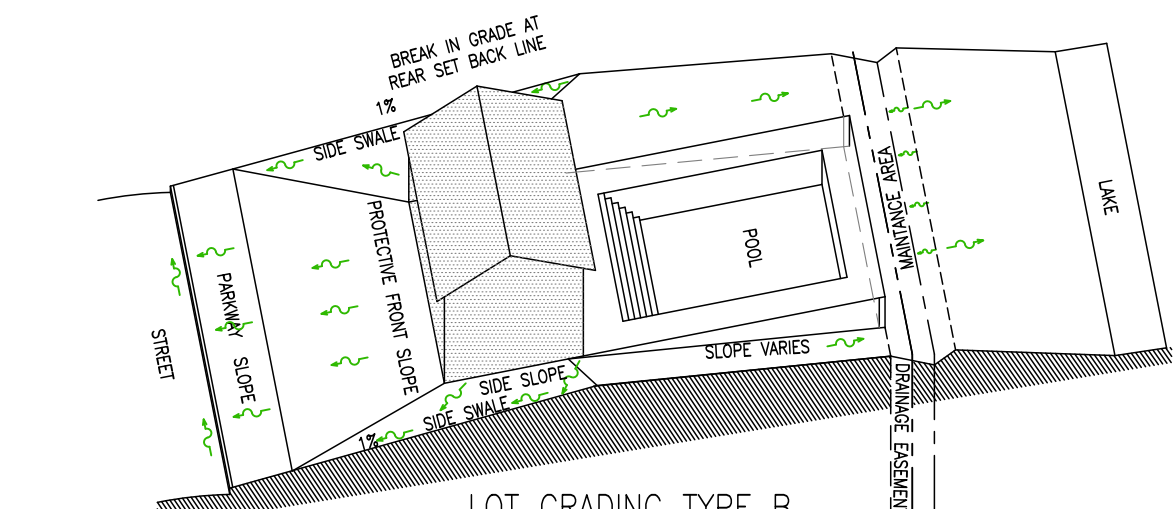
LOT GRADING TYPE B DRAINAGE BOTH TO STREET AND TO REAR DRAINAGE SWALE



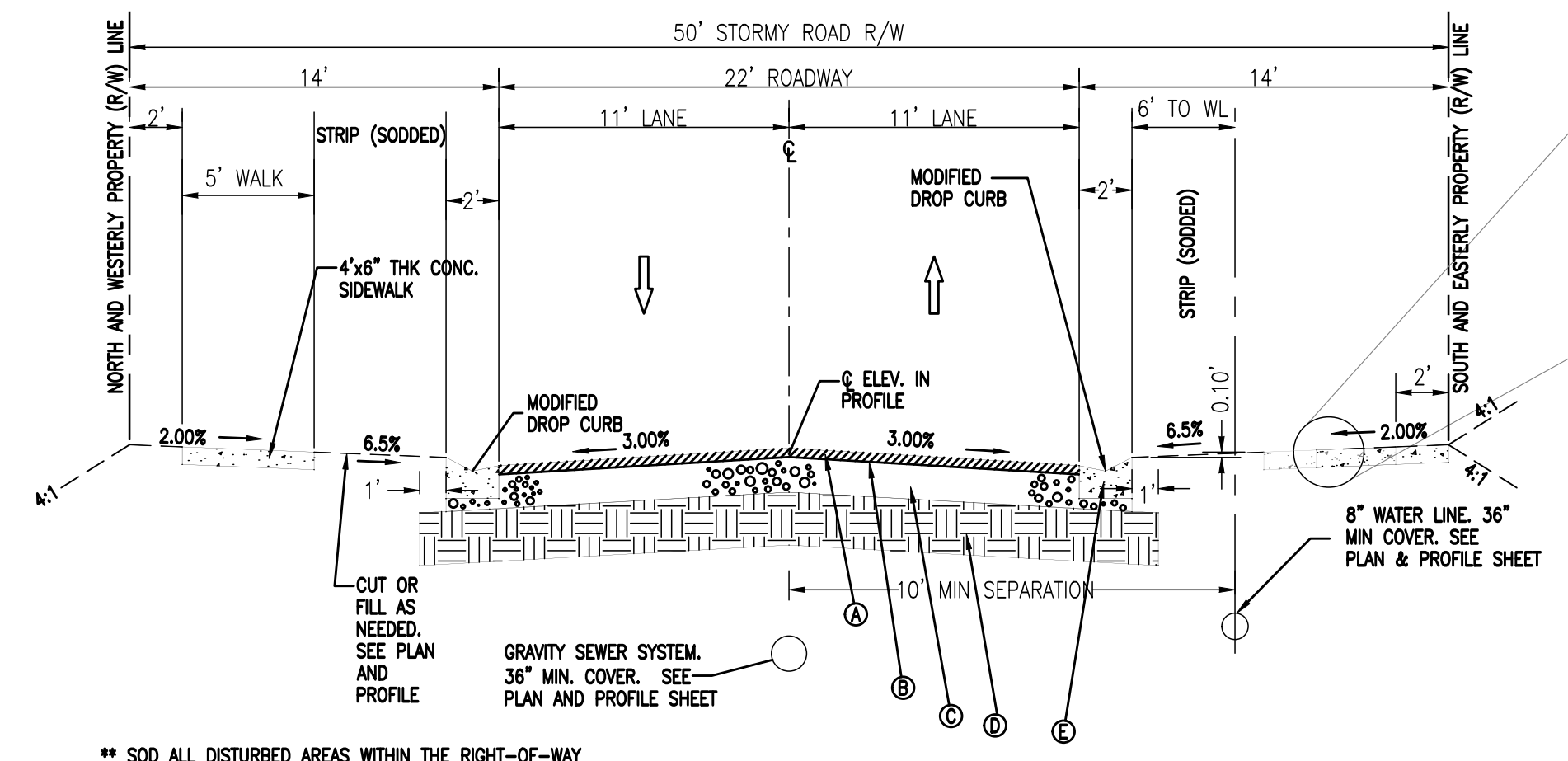
TYPICAL LOT SECTION AND EASEMENTS FOR LOTS ABUTTING EXISTING LAKE



TYPICAL LOT SECTION AND EASEMENTS FOR LOTS ABUTTING EXISTING LAKE - WITH POOL CONSTRUCTION



LOT GRADING TYPE B DRAINAGE BOTH TO STREET AND TO REAR DRAINAGE SWALE W/ POOL



TYPICAL ROADWAY CROSS SECTION WITH SIDEWALK BOTH SIDES

NOTE: SECTION DEPICTED WITH EASTERLY SIDEWALK ABUTTING RIGHT OF WAY UP TO CUL-DE-SAC @ STA 32+69.19, 39.4 FT. LT SIDEWALK TRANSITIONS 2' AWAY FROM PROPERTY LINE ALONG NORTHERN AND WESTERLY RIGHT OF WAY.

PAVEMENT DESIGN LEGEND	
①	ASPHALT WEARING SURFACE 1.5" OF S-(SP-12.5) OR S-(SP-9.5) TESTED PER FOOT STANDARD SECTION 300
②	CONSTRUCT PRIME COAT (GALLON) PER FOOT STANDARD SECTION 300
③	8" THICK LIMEROCK OR CEMENTED COQUINA BASE, MIN. LBR 100, COMPACTED TO A MIN. OF 98% MAXIMUM DENSITY PER AASHTO T-180
④	SUBGRADE, 12" THICK, SUITABLE CLAY MATERIAL, MIN. LBR 40, COMPACTED TO A MIN. OF 98% MAXIMUM DENSITY PER AASHTO T-180
⑤	CONSTRUCT FOOT "DROP CURBS". FOOT INDEX # 300
⑥	6" THICK SIDEWALK, F _c = 3,000 PSI, JOINT SPACING IS 5' O.C. COMPACT SUBGRADE TO 98% MAX. DENSITY

- NOTES:
1. THE BASE SHALL EXTEND 6 INCHES (MINIMUM) BEYOND EDGE OF PAVEMENT.
 2. THE SUBGRADE SHALL EXTEND 6 INCHES (MINIMUM) BEYOND EDGE OF BASE.
 3. WHERE NO SIDEWALK IS CALLED FOR, CONTRACTOR SHALL MAINTAIN 2.00% CROSS-SLOPE TO R/W LINE THEN GRADE 4:1 TO MATCH EXISTING GRADE.



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PH. (321) 269-9930 INFO@CCEI.FL.COM
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CLIENT:
A F A B BUSINESS GROUP INC.
4700 OLD COLONY ROAD
NEW SMYRNA, FL. 32168

PROJECT NAME:
FALCON'S ROOST AT LAKE BELLA

DRAWING TITLE:
DRAINAGE DETAILS/
ROADWAY CROSS SECTION

REVISION TABLE	DATE	BY	DESCRIPTION
01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	
01-14-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	
04-09-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	
11-07-22	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS	
01-12-23	SGH	ADDED GEOMETRY OF LIFTSTATION AND DRIVEWAY	
02-24-23	SGH	REVISED WATER LINE PROFILE AT FM CROSSING ALONG KNOX McRAE DR.	
05-01-23	SGH	REVISED PER CITY COMMENTS	

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DATE: DESIGNED BY: ZSC DRAWN BY: PT

RILEY & Company, Inc. (H-20 LP)

SCOPE: Supply one complete H-20 IP Pre-Fab Lift Station, per design.
Pumps shall be capable of pumping domestic & commercial sewage.

Complete system shall be supplied by:
RILEY & COMPANY, INC.
5491 BENCHMARK LANE, SANFORD, FL 32746
PH. 407-265-9963

NO SUBSTITUTIONS - NO ALTERNATES

The H-20 Load Rated Fiberglass Wetwell Must Be Manufactured By L.F. Manufacturing, Giddings, Texas, Which Includes A Written 20 Yr. Warranty

Certification of the wetwell H-20 load rating must be supplied with submittals. H-20 certification must be signed and sealed by an engineer registered in the State of Florida.

After the H-20 load rated wetwell has been installed, the ASTM Certification Number and Serial Tracking Number must be visible.

PUMPS: (3 YR. WARRANTY)

Submersible pumps shall be HOMA Model RCAV434. The pumps shall be installed in the H-20 LP FRP wetwell utilizing a dual slide rail system. The submersible pumps must be a 4" discharge, 3" solids handling.

Stator winding shall be open type with Class H insulation and shall be heat-shrink fitted into the stator housing. The use of pins, bolts, or other fastening devices is not acceptable.

A heat sensor thermostat shall be attached to the top end of the motor winding and shall be connected in series with the magnetic contactor coil in the control panel to stop motor if winding temperature exceeds 140 C., but shall automatically reset when the winding temperature returns to normal. Two heat sensor thermostats shall be used on three phase motors. The pump motor shaft shall be AISI 430F SS threaded to take the pump impeller. Upper & lower mechanical seals shall be Silicon Carbide vs Silicon Carbide.

DUPLEX CONTROL PANEL: (3 YR. WARRANTY)

Control panel must be manufactured in-house by lift station supplier at their TUV (UL508A CERTIFIED) manufacturing facility.

The Enclosure shall be NEMA 4X Aluminum, minimum 33" high x 25" wide x 12" deep with pad lockable draw latches.

The enclosure shall have external mounting feet to allow for wall mounting.

The following components shall be mounted through the enclosure:

- 1- ea. Red Alarm Beacon (Light)
- 1- ea. Alarm Horn
- 1- ea. Generator Receptacle w/ weatherproof cover
- 1- ea. Alarm Silence Pushbutton

The back panel shall be fabricated from .125, 5052-H32 marine alloy aluminum. All components shall be mounted by machined stainless steel screws.

The following components shall be mounted to back panel:

- 1- ea. Riley & Company Guard Pro II Monitoring System
- 2- ea. Motor Soft-Starts
- 1- ea. Phase Monitor (Three Phase)
- 1- ea. Control Transformer (480 Volt Only)
- 1- ea. Silence Relay
- 1- ea. Duplex Alternator
- 1- ea. Model BOAC5AH Battery Back-Up w/ Smart Charger
- 20- ea. Terminals For Field Connections
- 3- ea. Grounding Lugs

The inner door shall be fabricated from .080, 5052-H32 marine alloy aluminum. The inner door shall have a continuous aluminum piano hinge.

The following components shall be mounted through the inner door:

- 1- ea. Main Circuit Breaker
- 1- ea. Emergency Circuit Breaker
- 1- ea. Mechanical Interlock For Emergency And Main Breakers
- 2- ea. Short Circuit Protectors
- 1- ea. Control Circuit Breaker
- 2- ea. Seal Failure Indicator Lights
- 1- ea. Hand-Off-Auto Selector Switches
- 2- ea. Pump Run Pilot Lights
- 1- ea. Power On Pilot Light
- 2- ea. Elapse Time Meters (Non-Resettable)
- 1- ea. GFI Duplex Convenience Outlet

w/ BATTERY BACK-UP FOR AUDIO AND VISUAL ALARMS, RILEY & COMPANY GUARD PRO RTU MONITORING SYSTEM & MOTOR SOFT-STARTS

RILEY & COMPANY GUARD PRO RTU: Offers a remote control and maintenance solution which allows you to create a decentralized system or monitor and control devices. Changes to the eight (8) digital (24V DC) analogue (0-10V) inputs can be notified via SMS text message, e-mail or both. The digital outputs can be controlled via SMS text message. The built-in maintenance free supercapacitor enables the GUARD PRO II to inform the recipient via SMS text message in the event of a power failure.

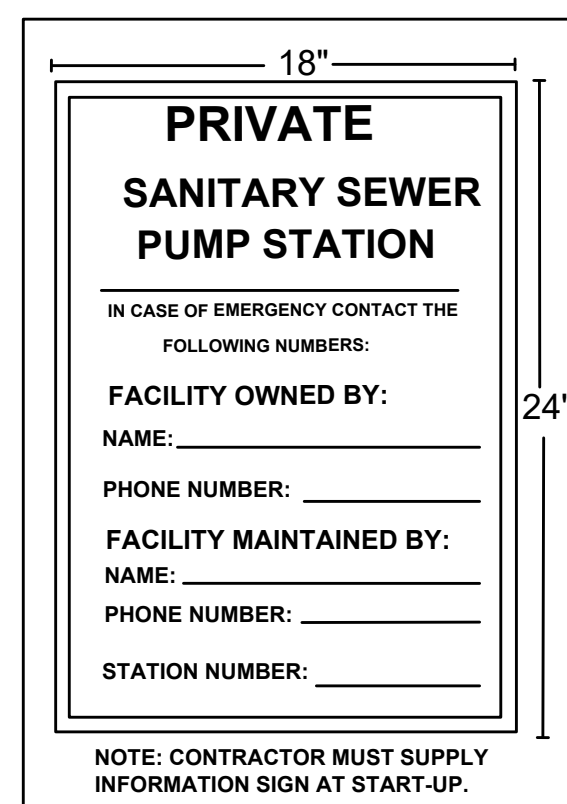
COMPONENT SPECIFICATIONS:
All circuit breakers shall be molded thermal magnetic. The mechanical interlock shall prevent the normal and emergency main breakers being energized at the same time. An emergency generator receptacle shall be supplied in accordance with DEP standards. The generator receptacle shall be adequately sized to meet the equipment operating conditions.

NEUTRAL TO BE SUPPLIED FOR BOTH 230V 3PHASE OR 230V SINGLE PHASE POWER

H-20 LOAD RATED WETWELL WITH LIFTING LUGS:
The fiberglass wetwell must be H-20 load rated with integral lifting lugs, fiberglass slope in bottom of wetwell and valve box. Certification of the H-20 load rating must be supplied at the time of submittals to Engineer. The wetwell shall be manufactured of fiberglass reinforced polyester (FRP) of depth and diameter as shown on the lift station elevation detail. The wall thickness shall be adequate for the depth of the wetwell to maintain the H-20 LOAD RATING.

EXECUTION:
Installation shall be in strict accordance with the manufacturer's recommendations in the locations shown on the drawing.

INSPECTION & TESTING: A factory representative shall be provided for a one (1) time start-up and shall have complete knowledge of the proper operation and maintenance of complete system. Megger the motors. The pump motors shall be meggered out prior to the start-up to ensure that the insulation of the pump motor/cable is intact. The pump controls and pumps shall be checked for mechanical reliability and proper operation.



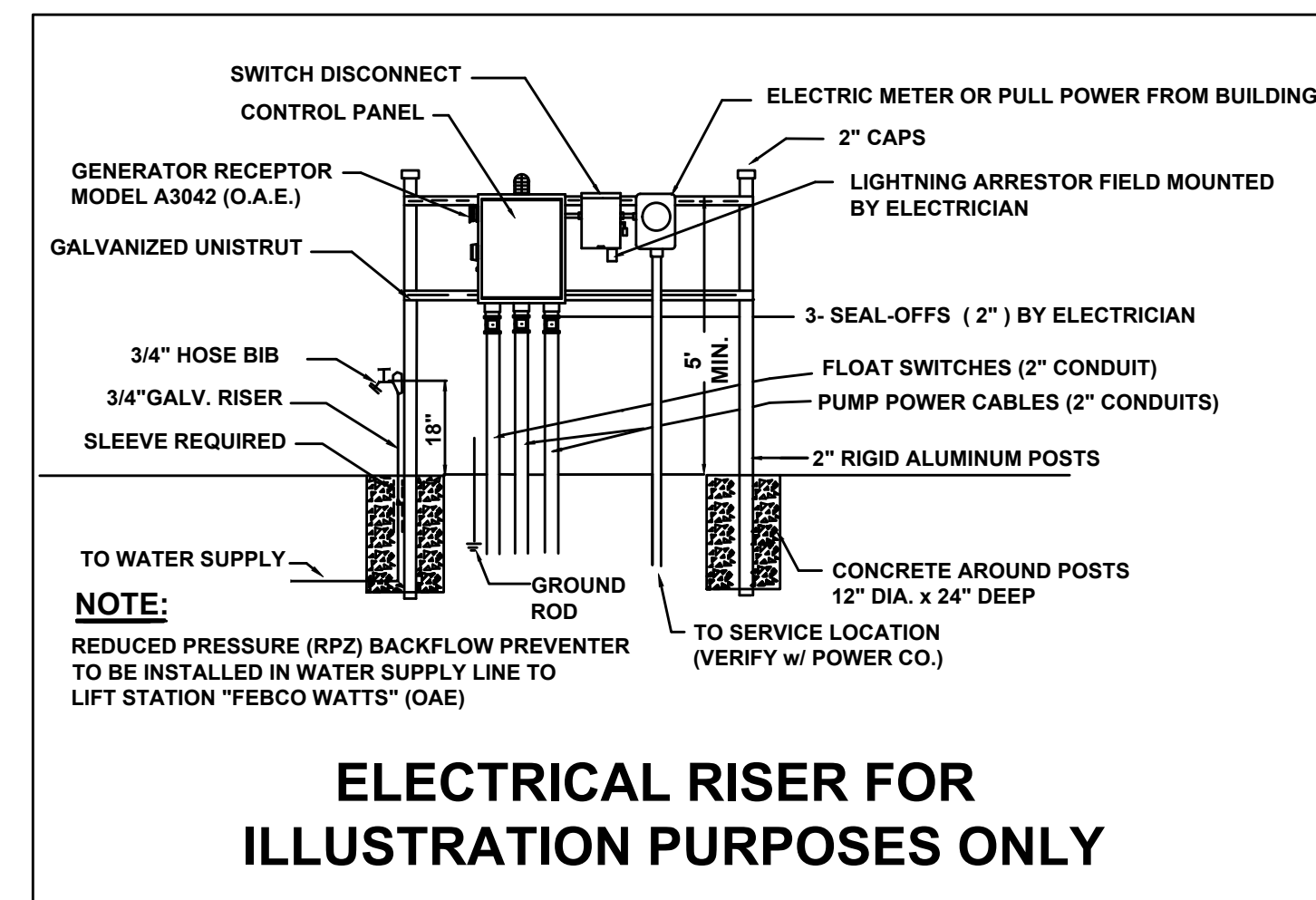
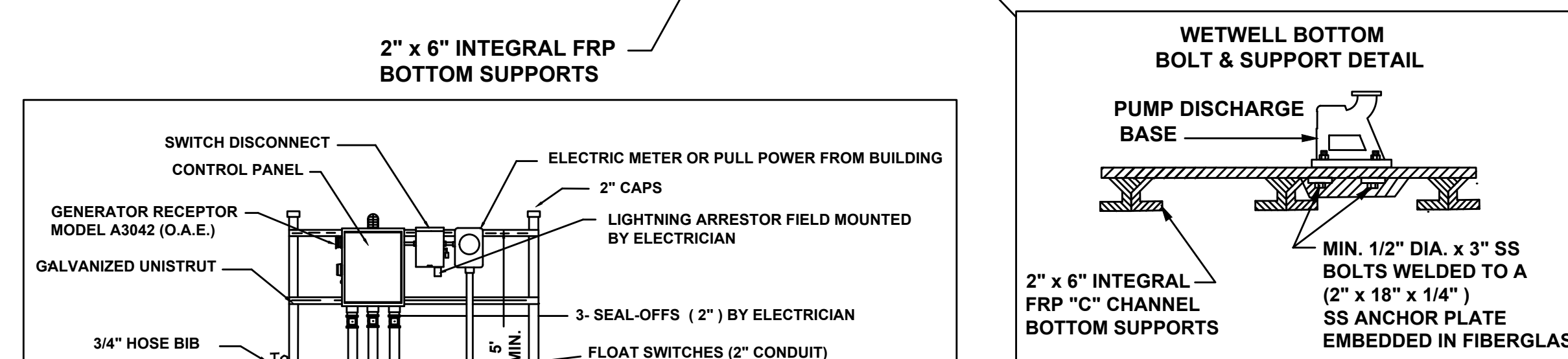
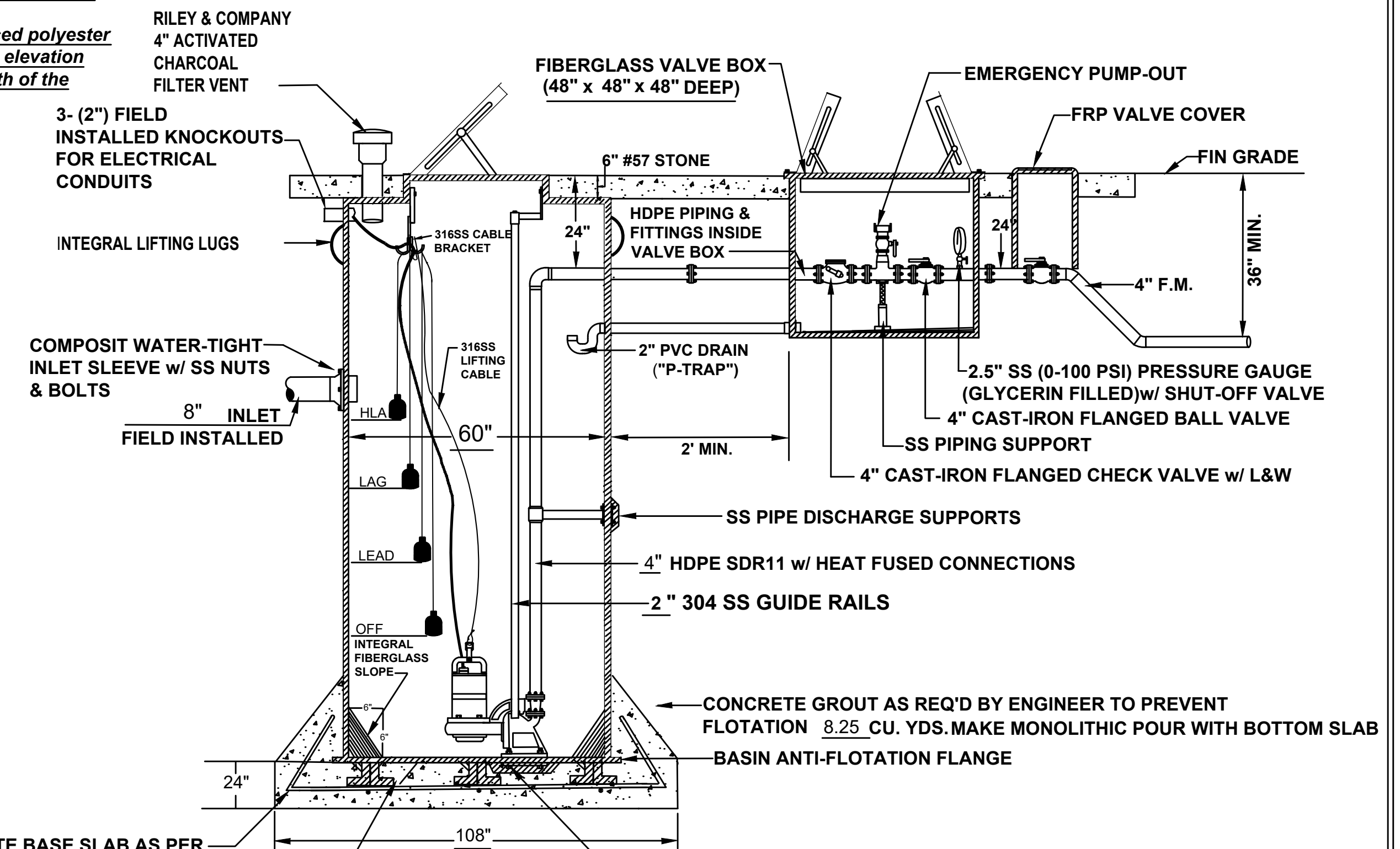
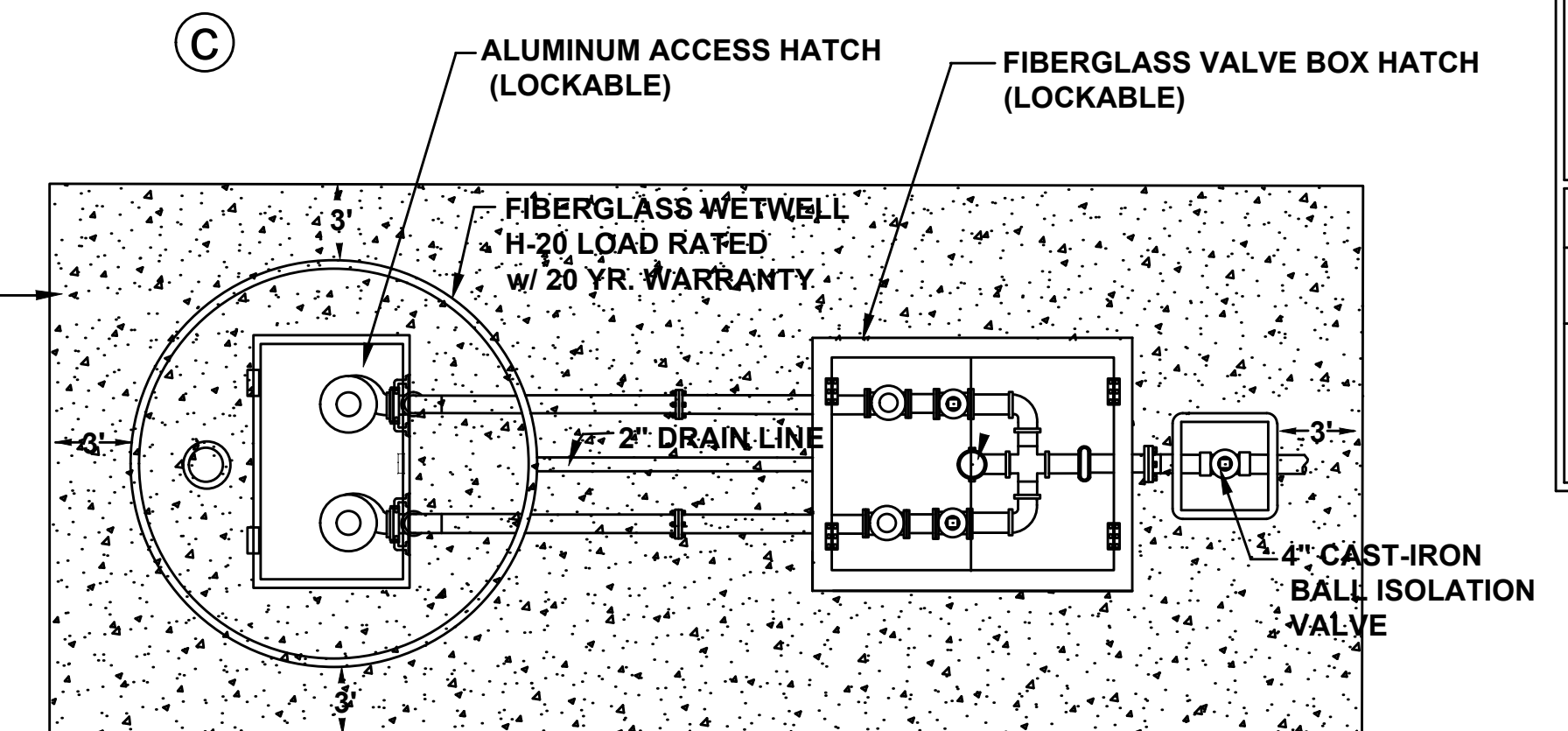
LIFT STATION WILL BE PRIVATELY OWNED AND MAINTAINED.

PUMP DATA		ELEVATIONS	
PRIMARY PUMP CAPACITY	90 GPM	TOP OF WETWELL	21.00
PRIMARY TDH	62 TDH	INLET INVERT	10.00
PUMP MANUFACTURER	HOMA	HIGH LEVEL ALARM (HLA)	9.50
PUMP MODEL #	RCAV434	2nd PUMP ON (LAG)	9.00
R.P.M.	3450	1st PUMP ON (LEAD)	8.50
HORSEPOWER	13.0	PUMPS OFF (OFF)	7.50
ELECTRICAL/ VOLTS / PHASE	230V/3	BOTTOM OF WETWELL	4.00
PUMP DISCHARGE SIZE	4"	WETWELL DIAMETER	60"

*** ELECTRICIAN NOTES:**

1. DRAWING NOT TO SCALE
2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES
3. ELECTRICIAN SHALL SEAL OFF CONDUIT RUNS
4. ELECTRICIAN TO MOUNT LIGHTNING ARRESTOR AT SWITCH DISCONNECT
5. CONTRACTOR SHALL VERIFY POWER SOURCE PRIOR TO ORDERING EQUIPMENT
6. NEUTRAL TO BE SUPPLIED FOR 230V-3 PHASE POWER.

RILEY & CO. / H-20 LP 11-09-2020



SEE SHEET 08 FOR DETAILED PLAN

FILE PATH: C:\Users\Engineer\Documents\CCEI\Dropbox\CCEI Projects\200521 Falcon's Roost (Lake Bella)\01 Drawings\10 Borders (x-ref)\200521_rls-brdr24.dwg, May 01, 2023 - 1:09pm

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PH.(321) 269-9930 INFO@CCEIFL.COM
CERT. AUTH. NO. 00007522

CLIENT:
A F A B BUSINESS GROUP INC.
4700 OLD COLONY ROAD
NEW SMYRNA, FL. 32168

PROJECT NAME:
**FALCON'S ROOST
AT LAKE BELLA**

DRAWING TITLE:
LIFT STATION DETAIL

DATE	BY	DESCRIPTION
01-12-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
01-14-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
04-09-21	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
02-07-22	SGH	REVISED PER CITY OF TITUSVILLE COMMENTS
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05-01-23	SGH	REVISED PER CITY COMMENTS

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ZOEHR S. CHEHAYEB, P.E. #38577
DATE: DESIGNED BY: ZSC DRAWN BY: PT



City of Titusville
 555 South Washington Avenue
 Titusville, Florida 32796
 PH: (321) 383-5823 Fax: (321) 383-5700

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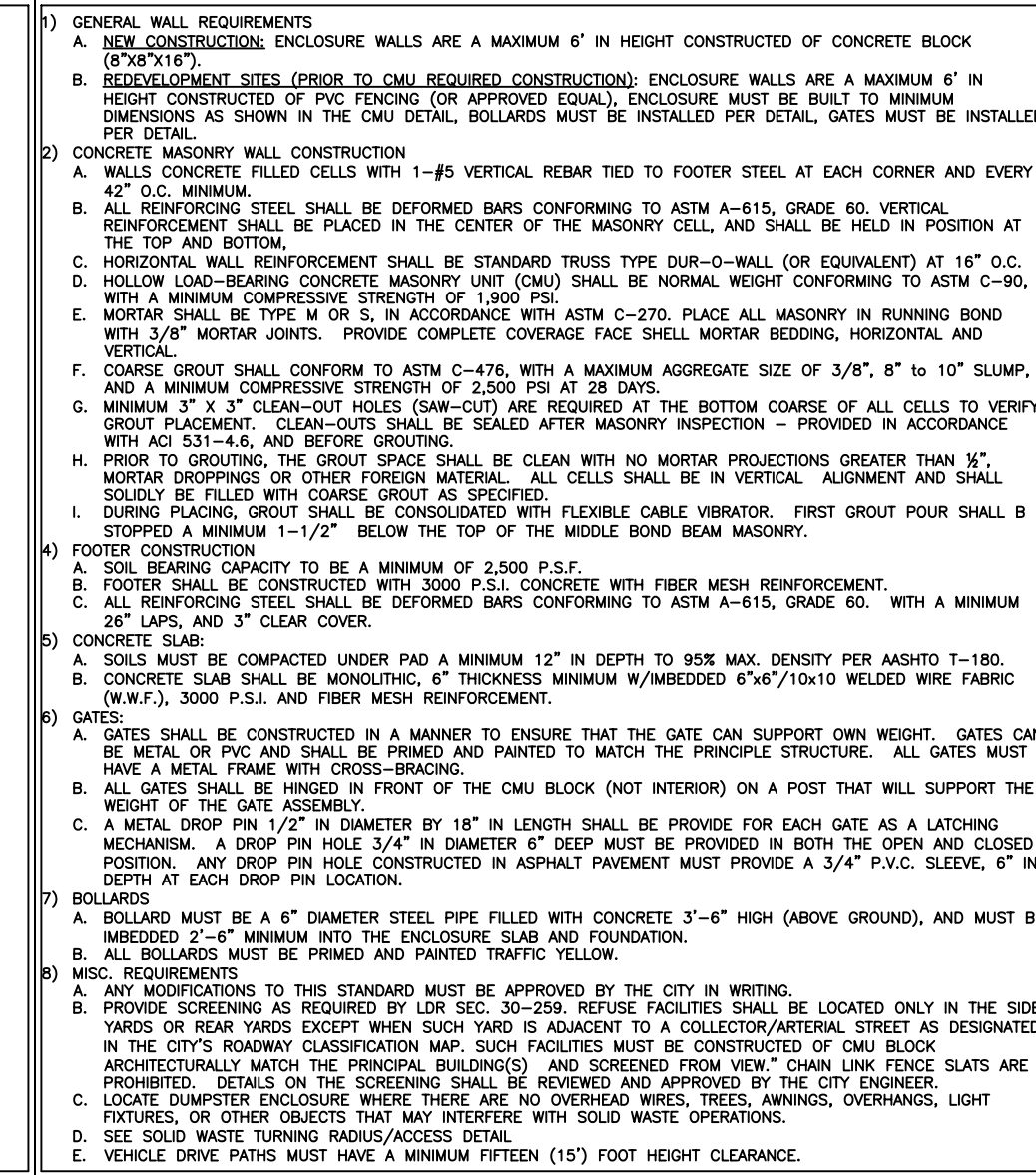
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Any detail that is not required for the specific development that these details have been included in the permit set may be crossed out on this drawing sheet but may not be removed. No additional detail and/or specification may be added to this drawing sheet.

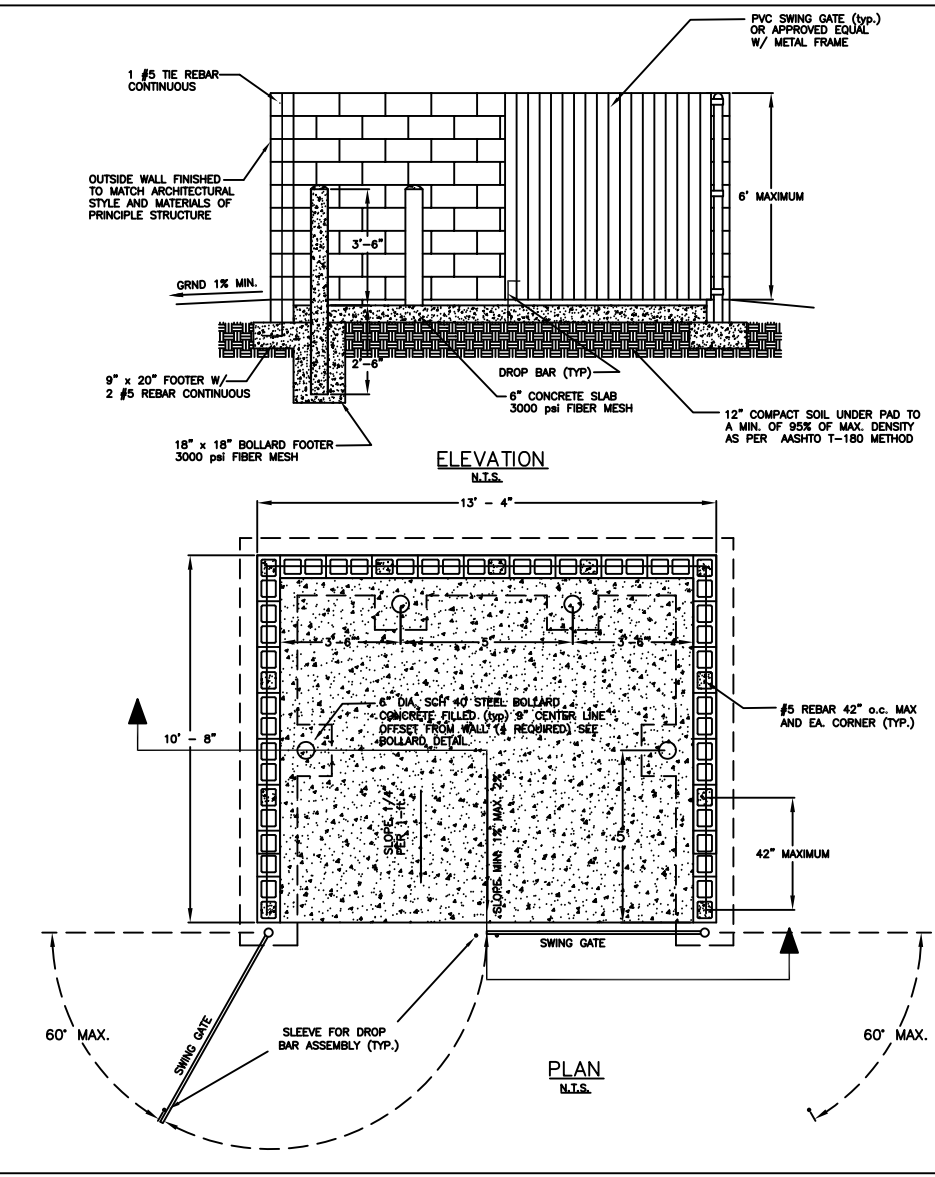
No.	Revision	Date

**DETAIL STANDARDS
 AND SPECIFICATIONS**

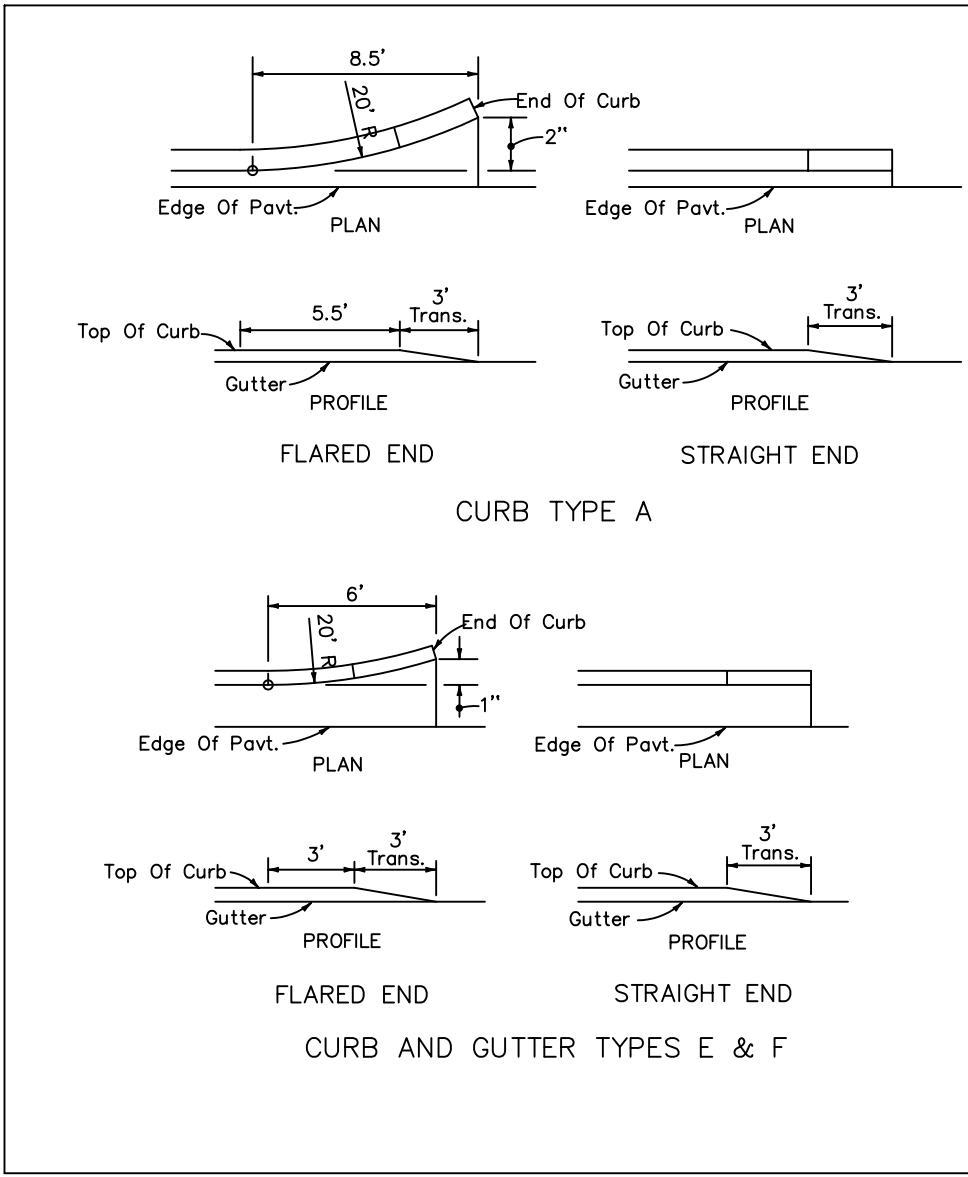
ENGINEERING SERVICES DEPT.
 FEBRUARY 4, 2021 Date
 N.T.S. Scale
 COT DS2 Sheet



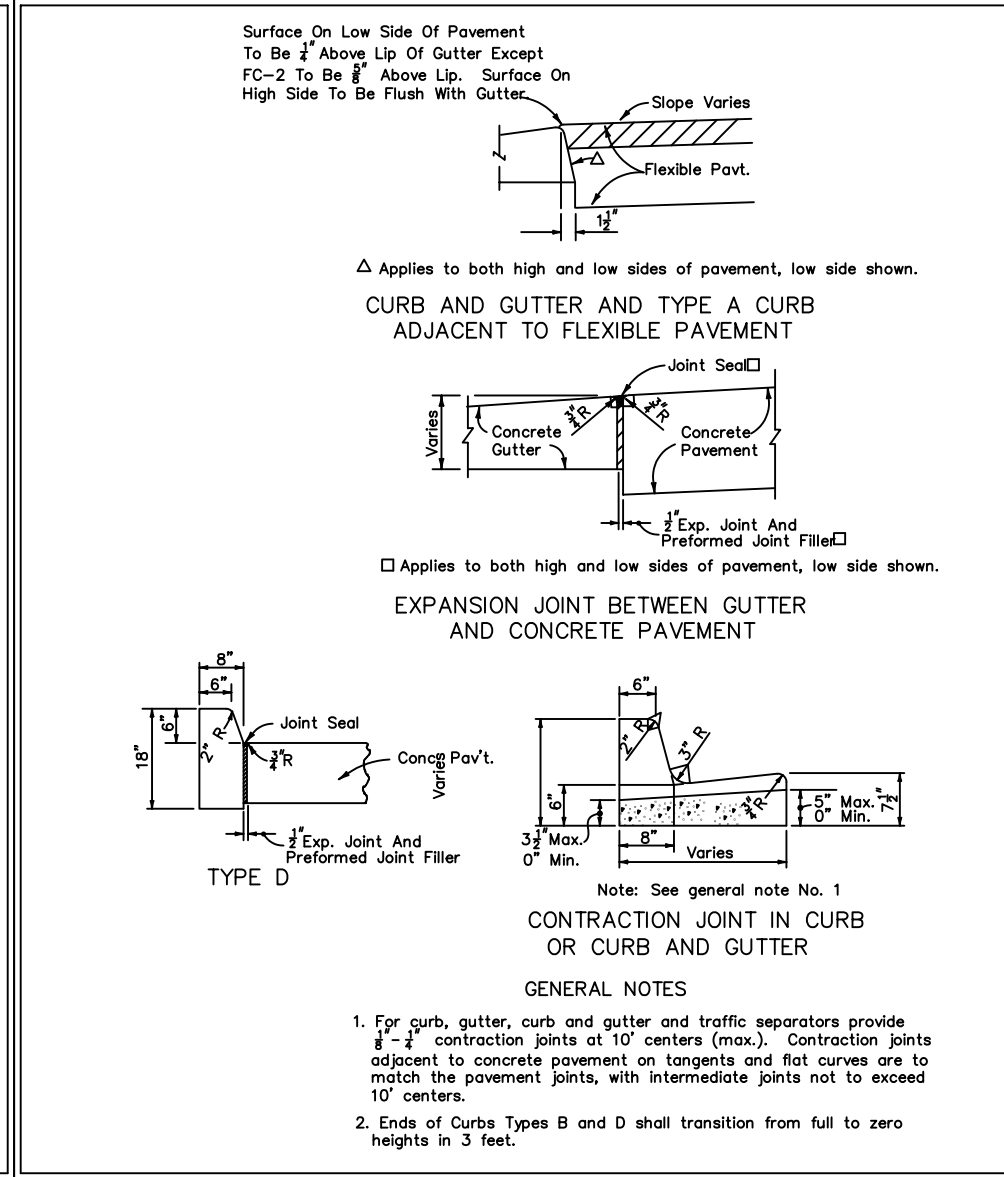
TYPICAL TRASH ENCLOSURE DETAIL
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 2 OF 3



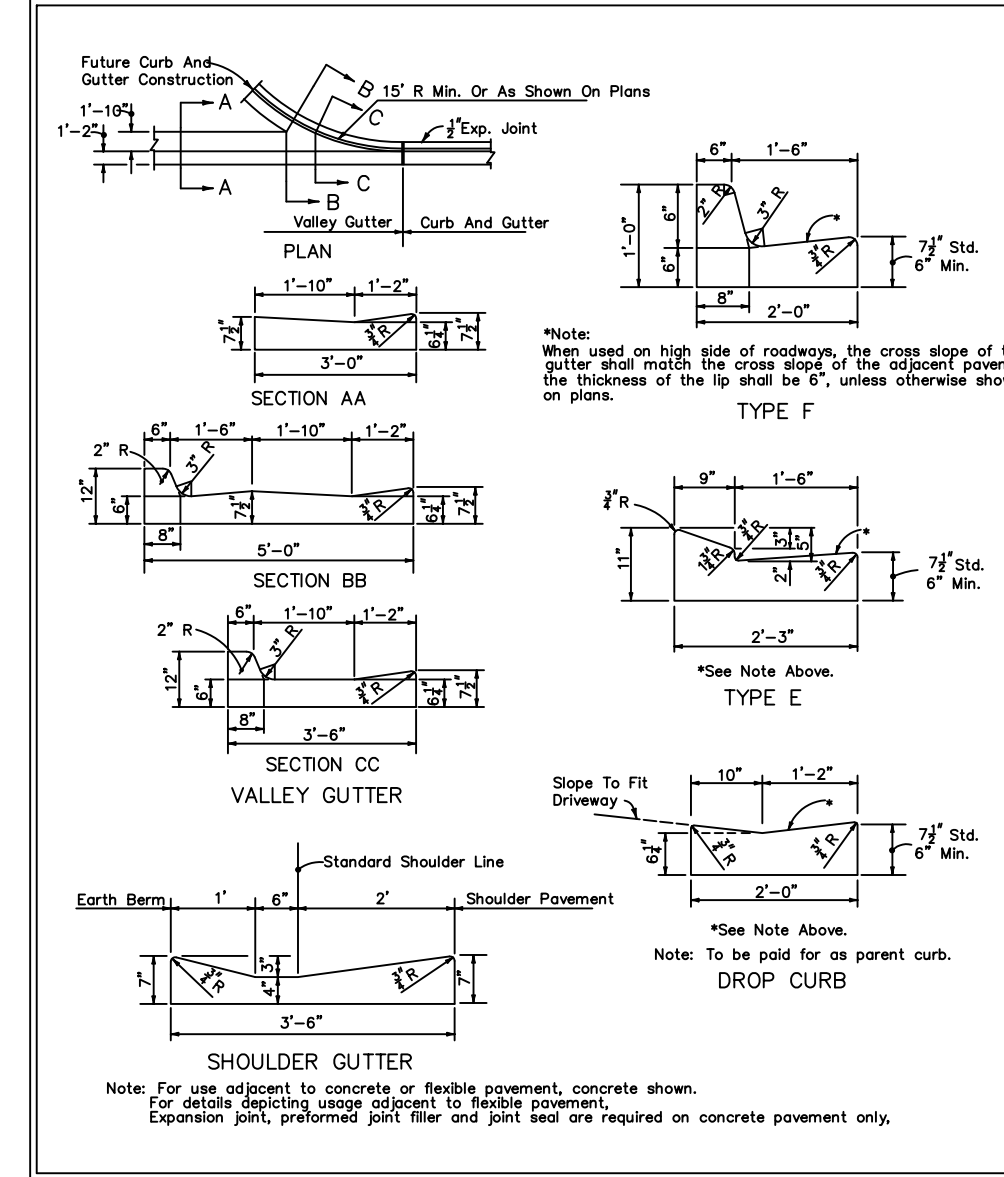
TYPICAL TRASH ENCLOSURE DETAIL
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 3



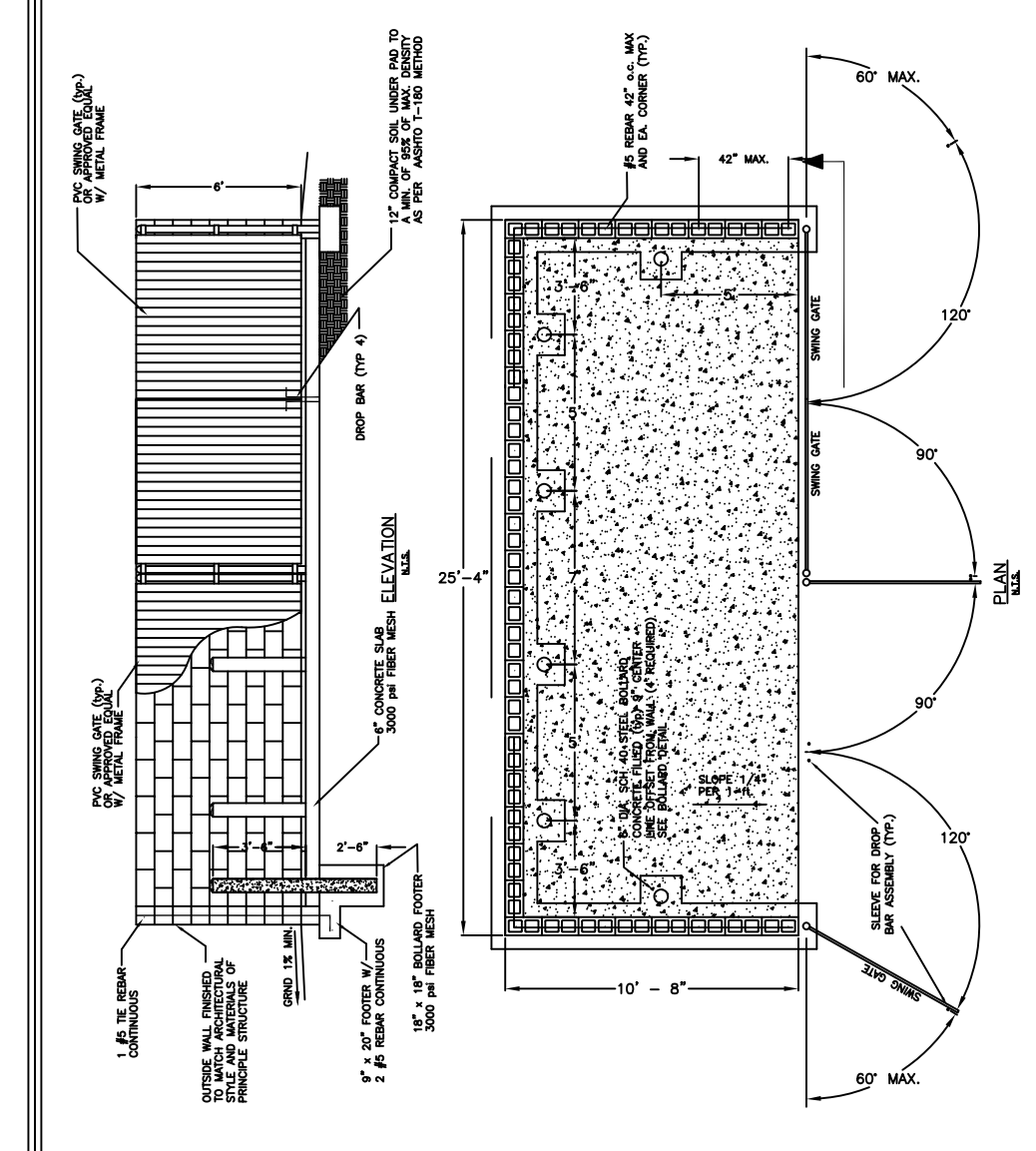
TYPICAL CURB & GUTTER TRANSITIONS
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 1



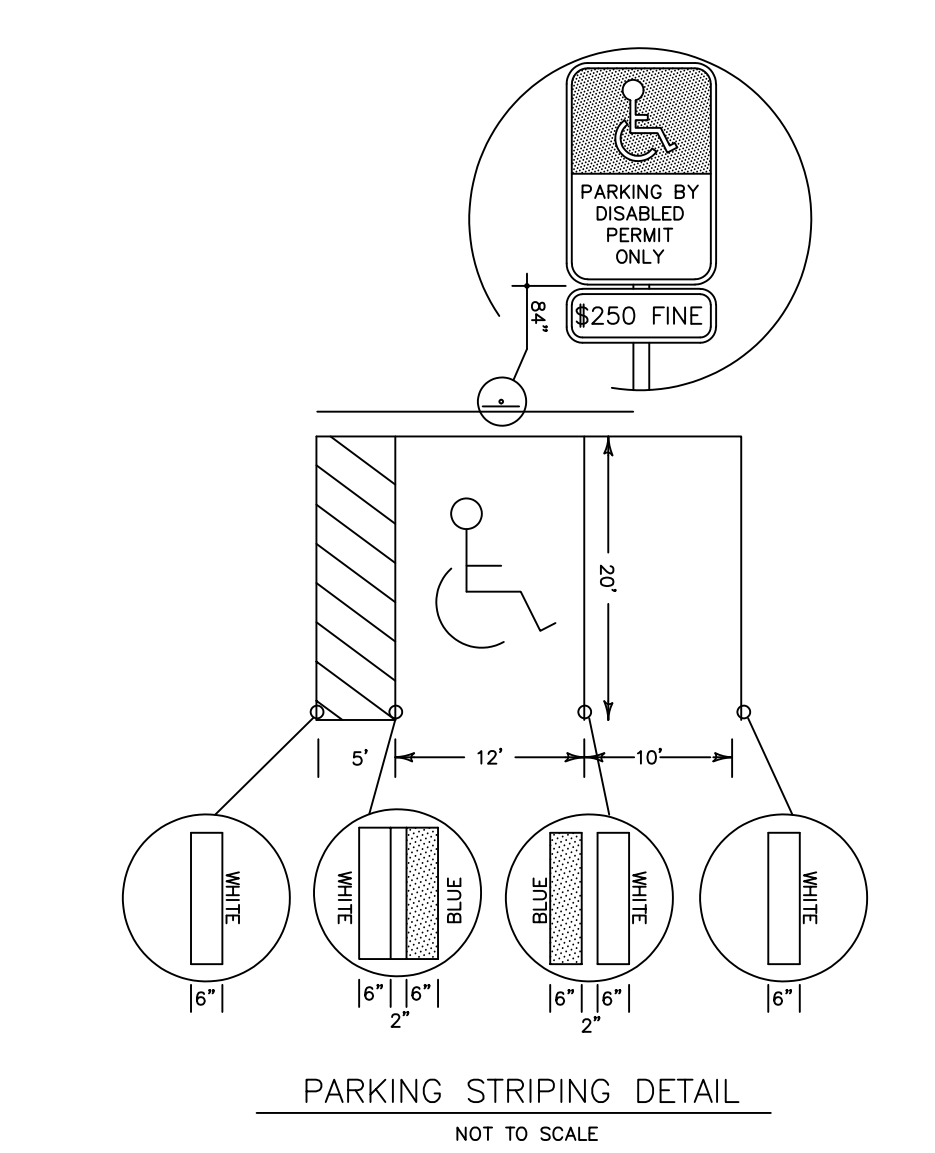
TYPICAL CONTRACTION/EXPANSION JOINTS
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 1



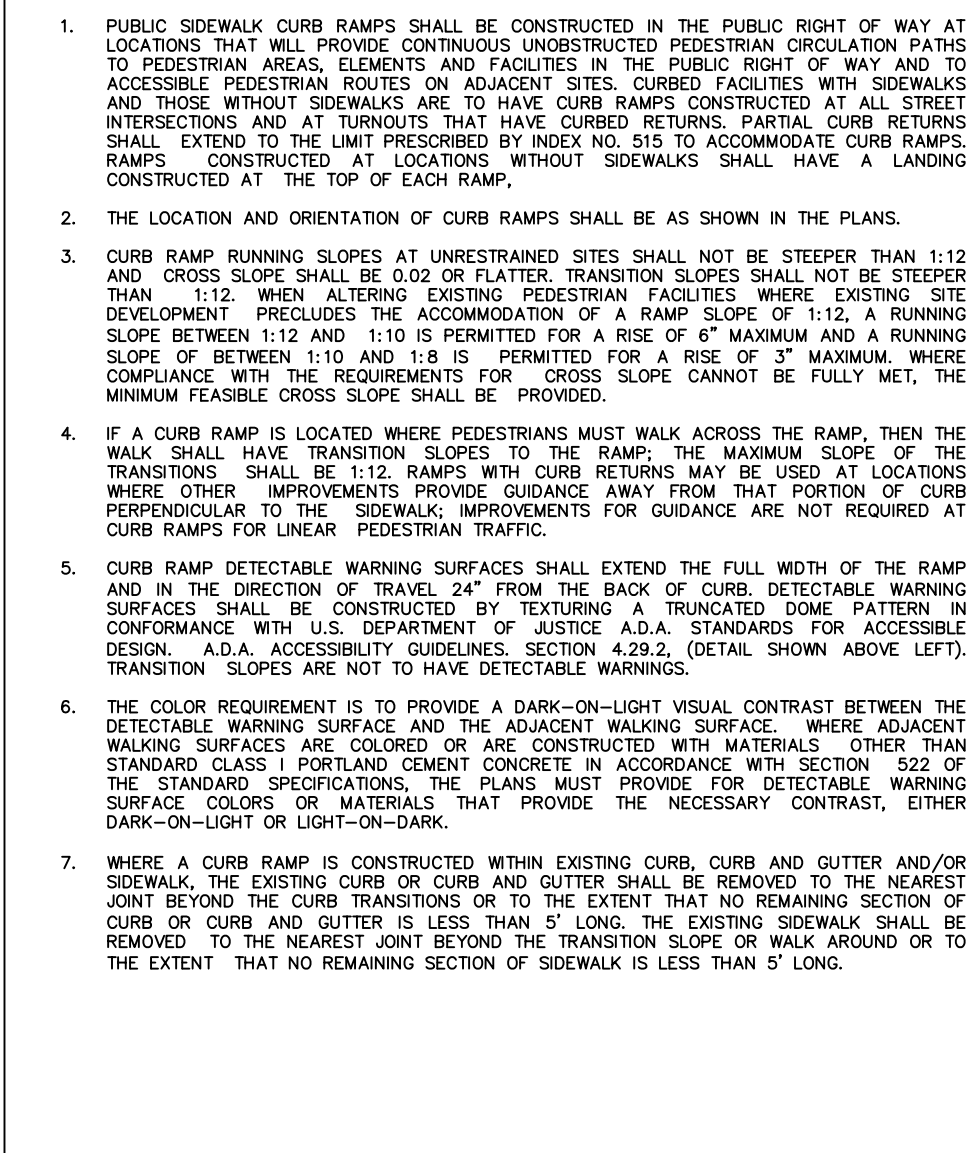
TYPICAL CONCRETE CURB & GUTTER
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 1



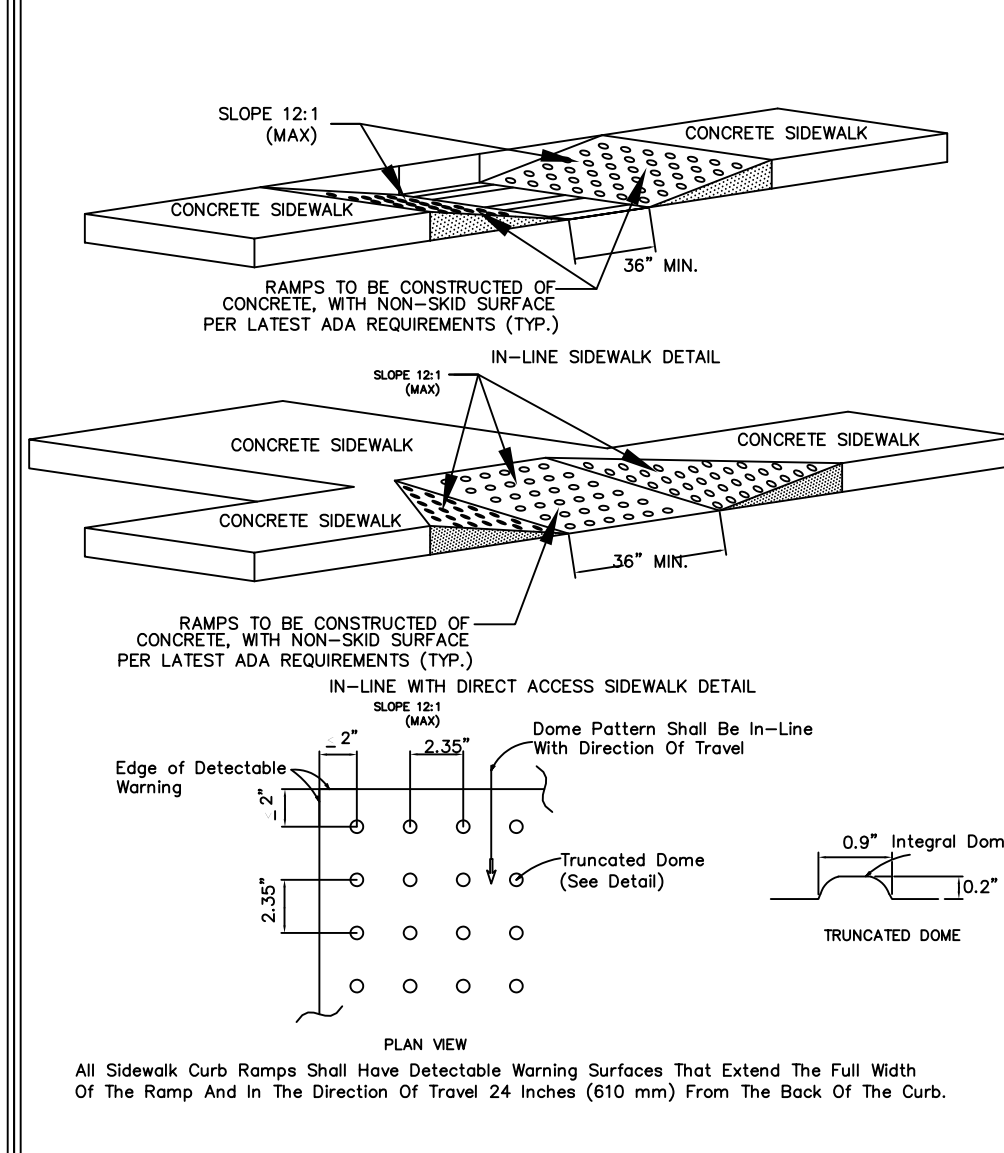
TYPICAL HANDICAP PARKING MARKINGS
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 1



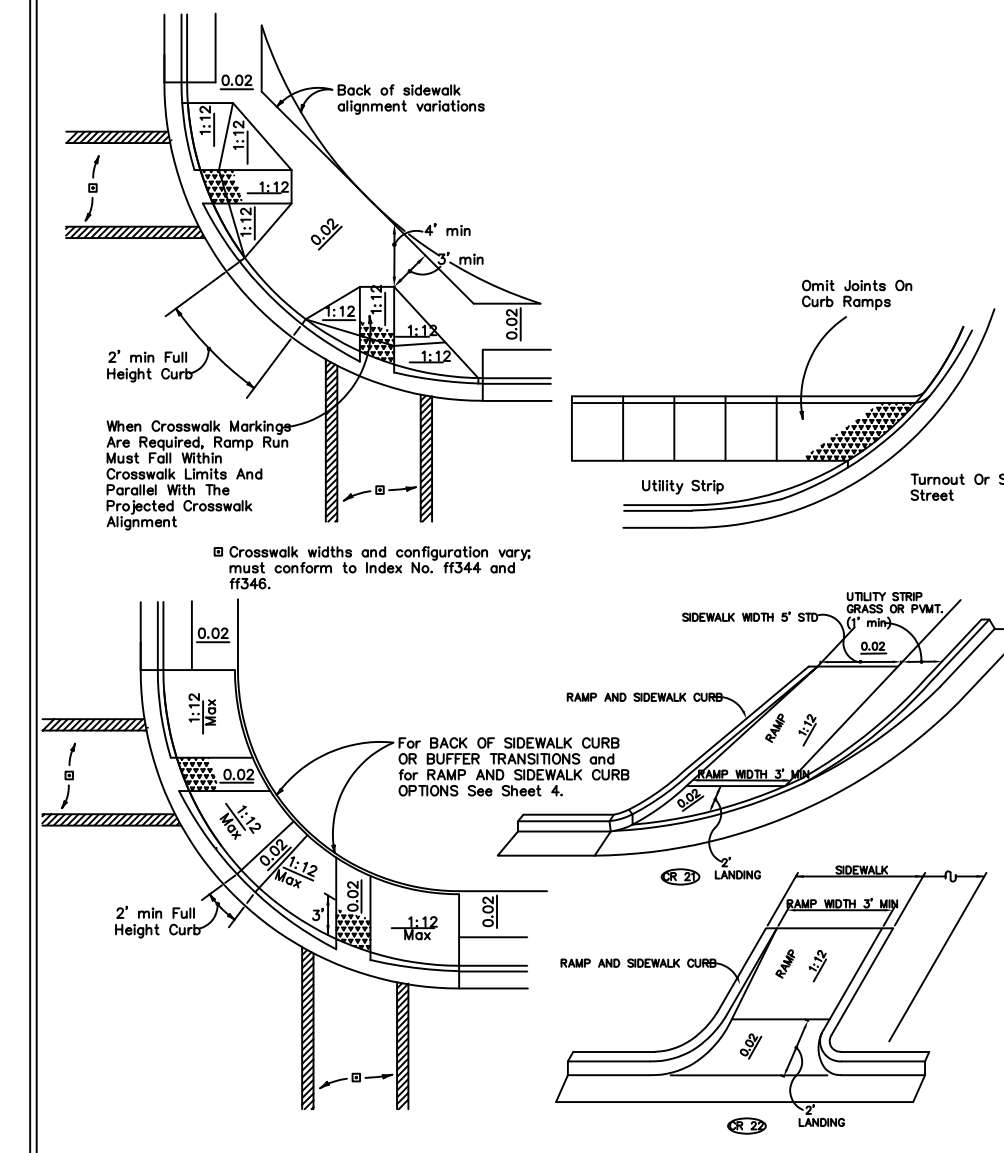
TYPICAL HANDICAP RAMP DETAILS
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 2 OF 2



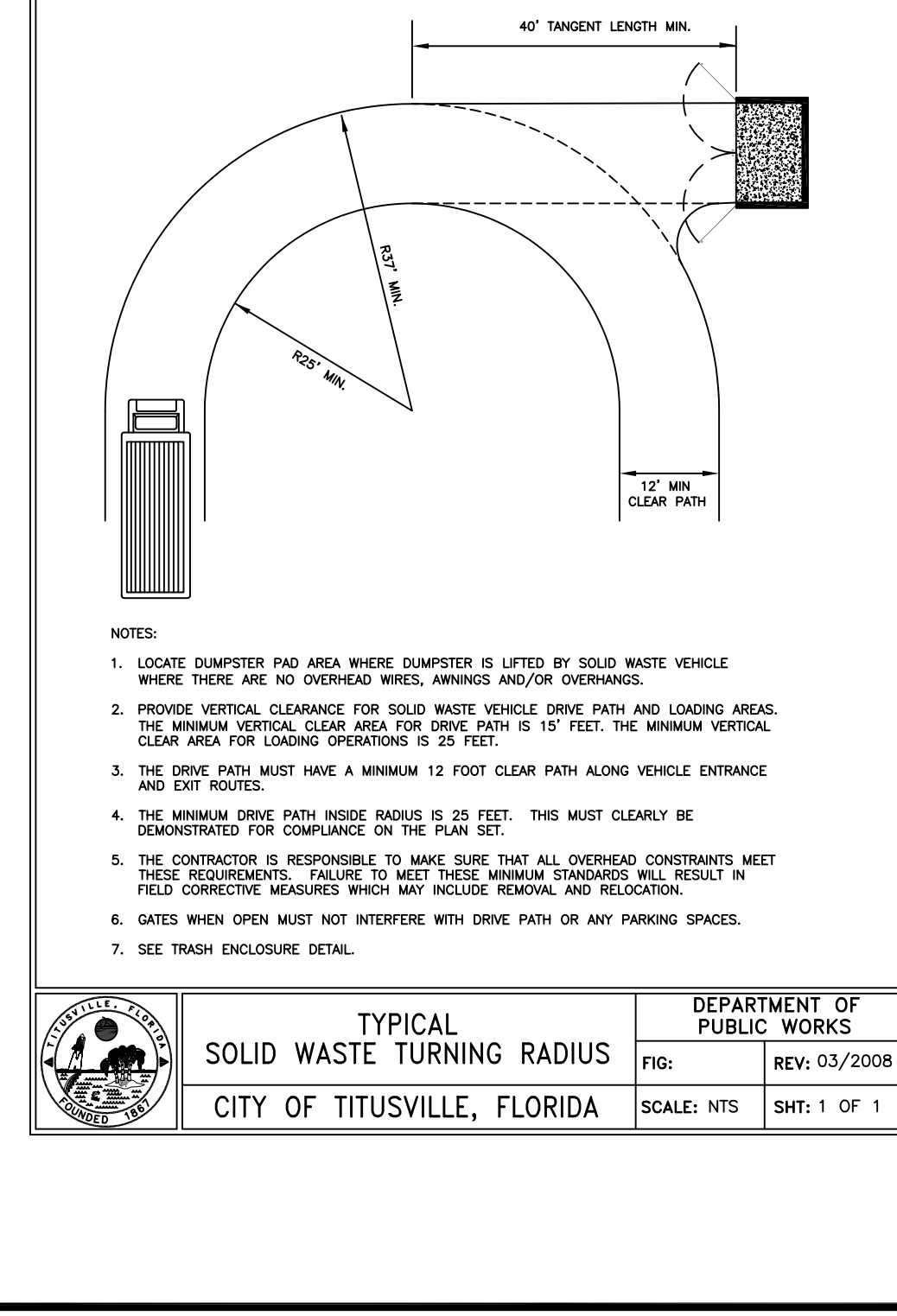
TYPICAL HANDICAP RAMP DETAILS
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 2



TYPICAL CURB RAMP PLACEMENT
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 1



TYPICAL CURB RAMP PLACEMENT
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 1

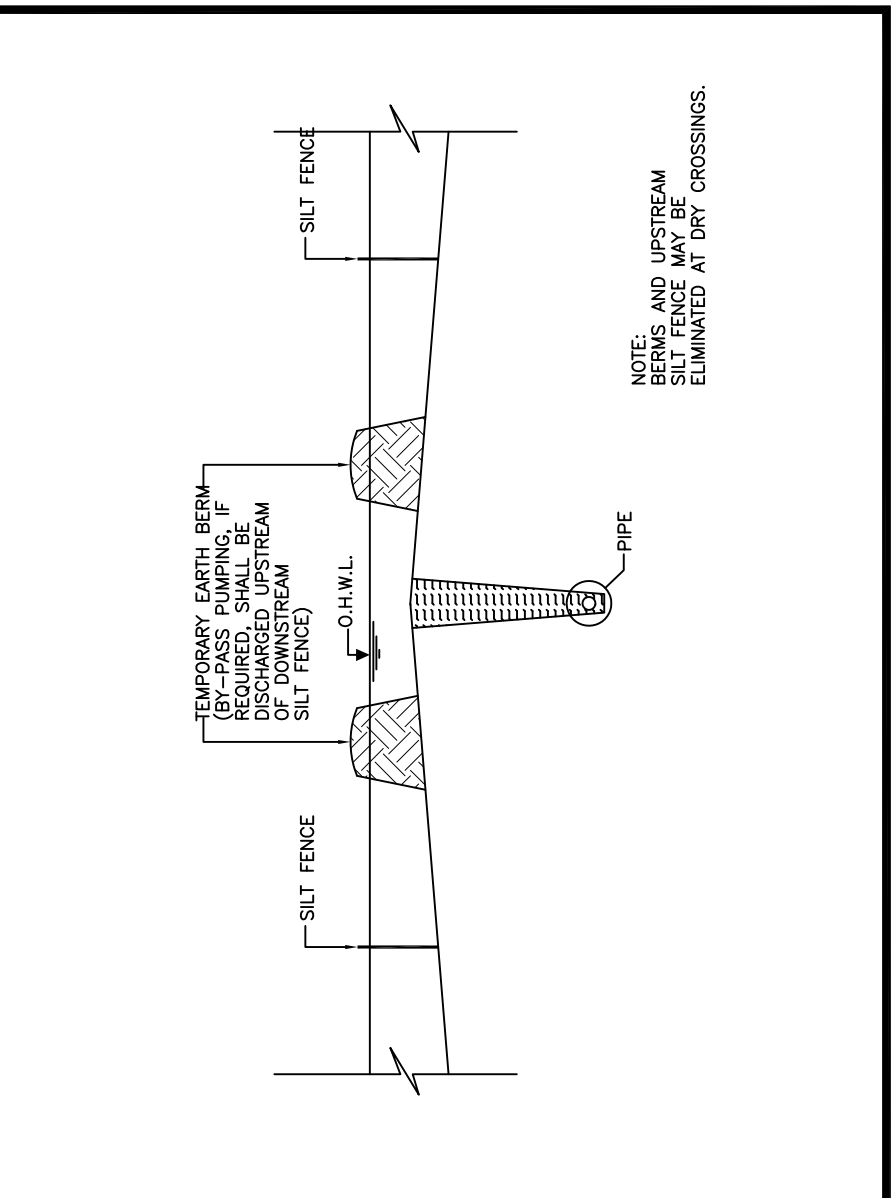
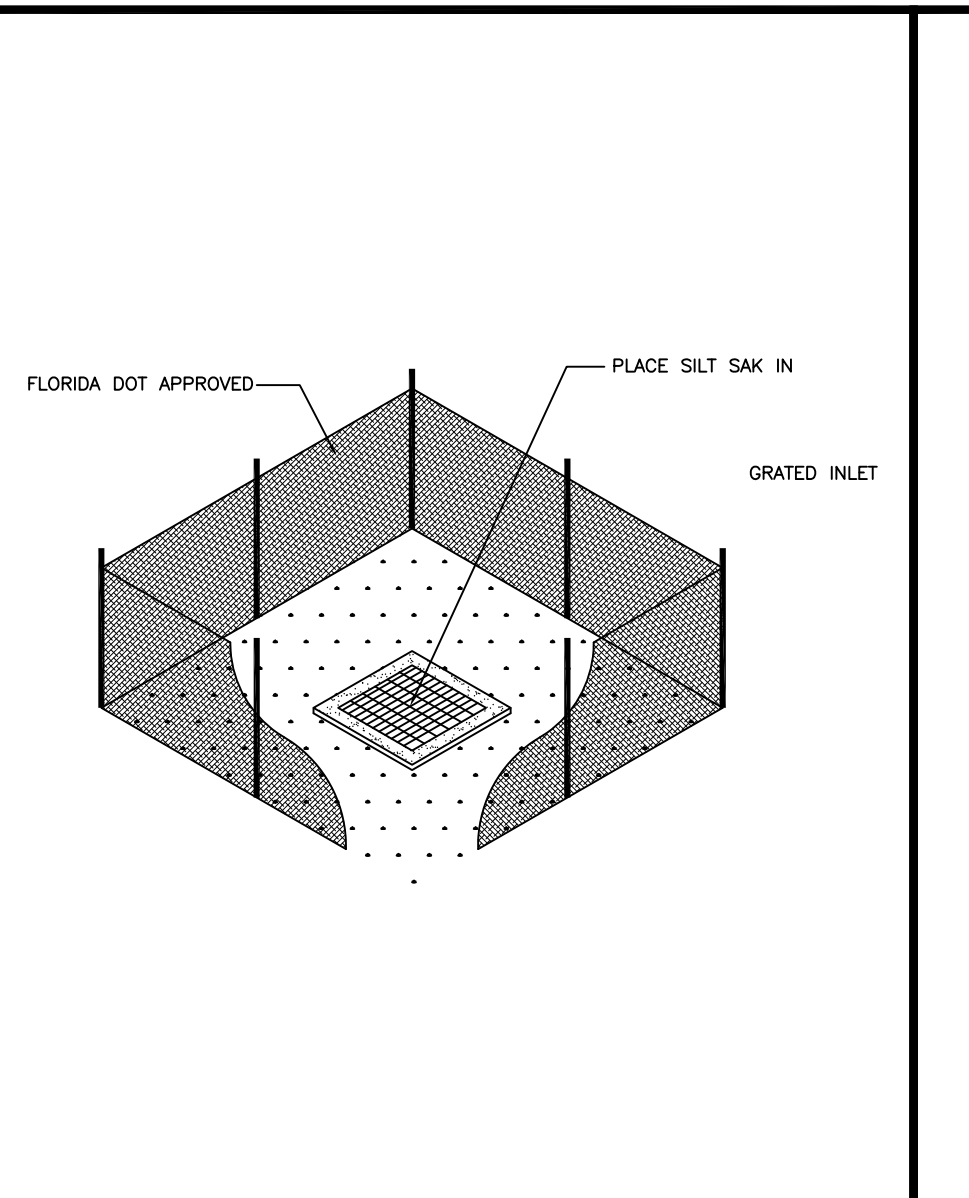
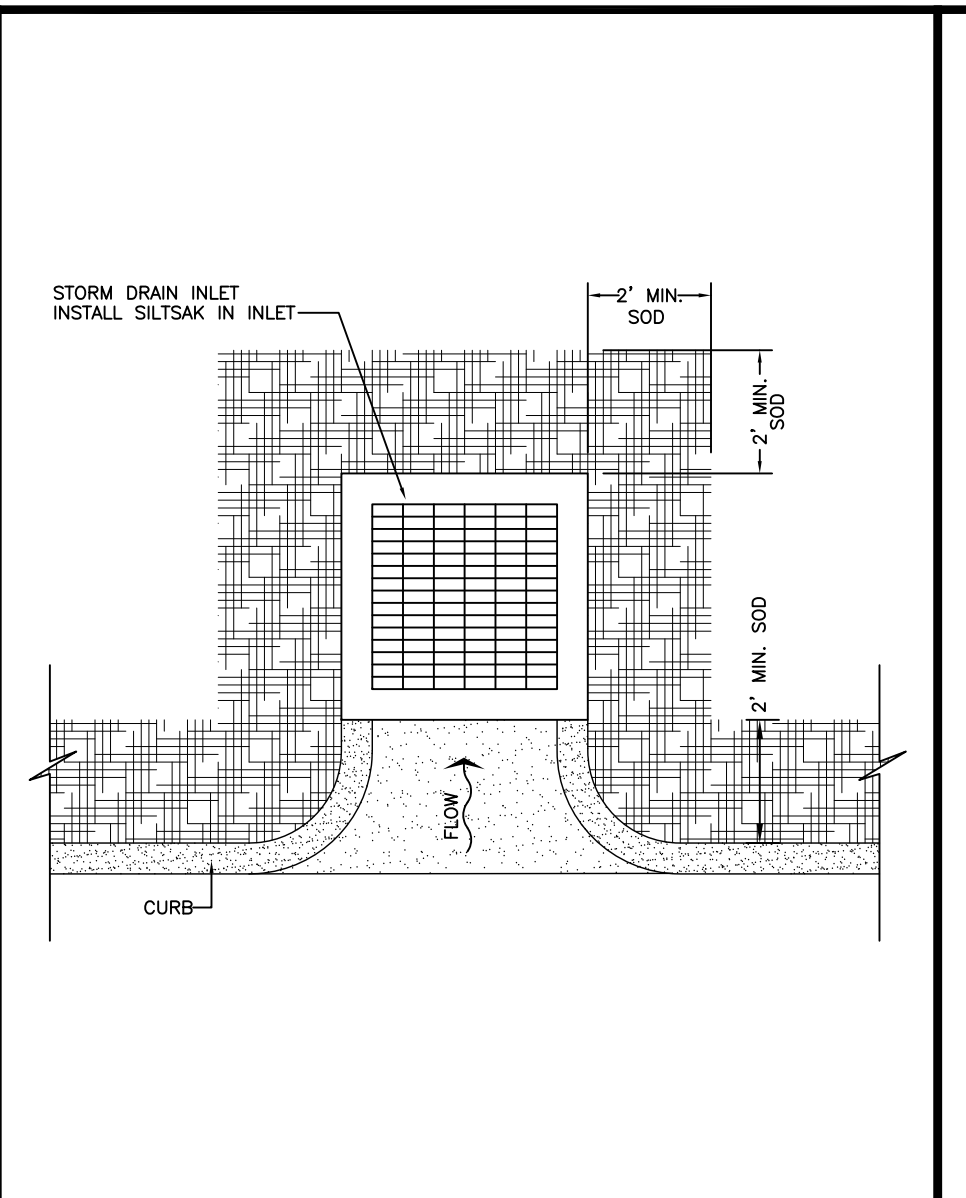
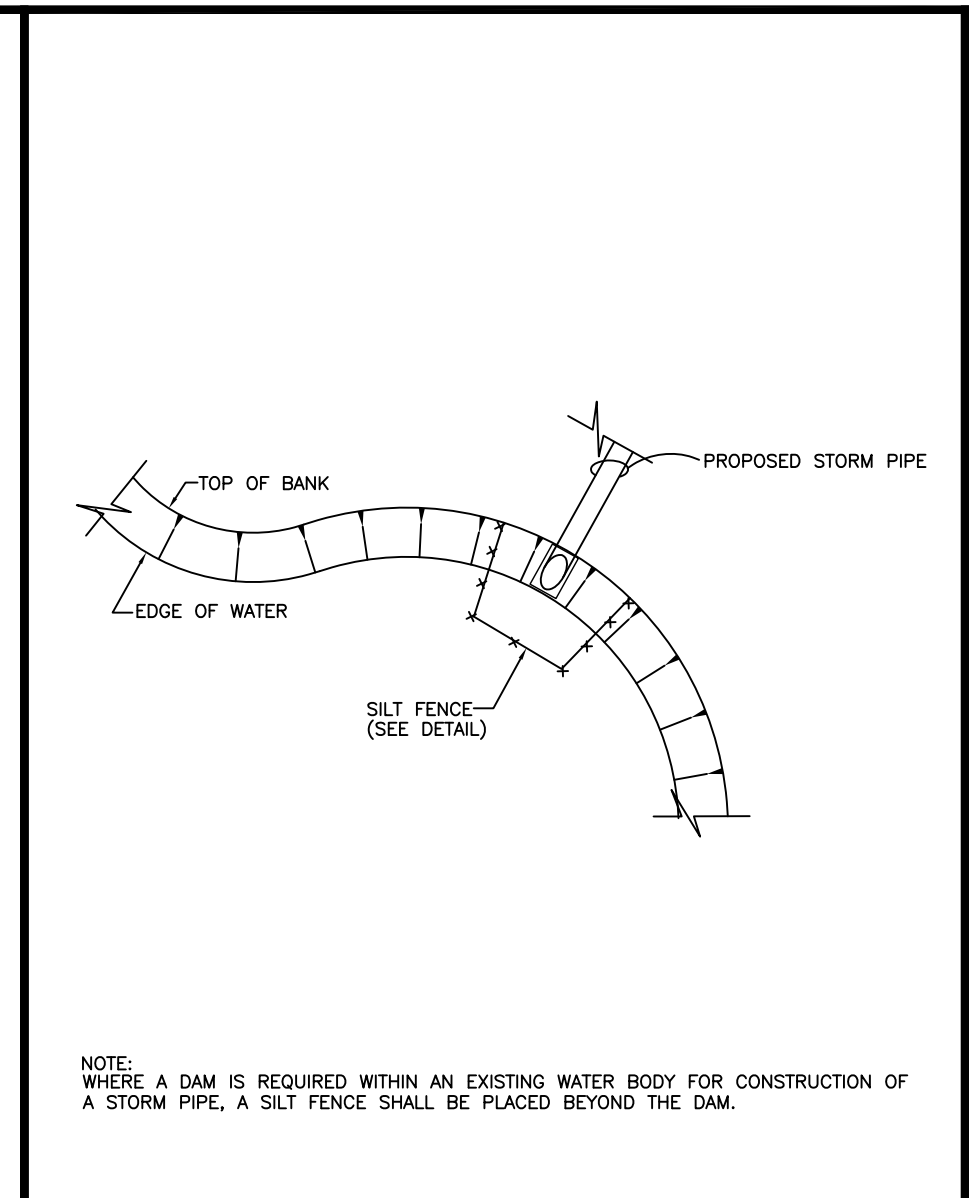
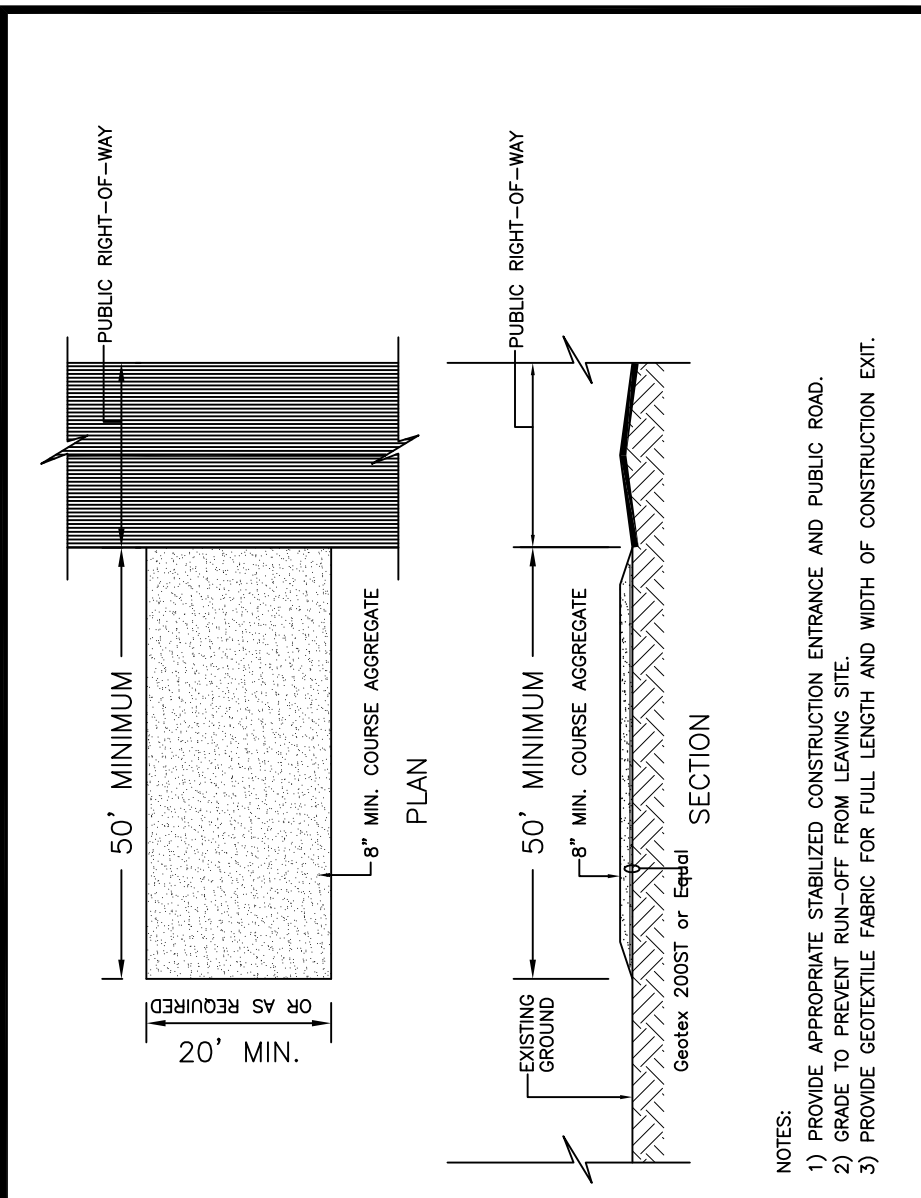


TYPICAL SOLID WASTE TURNING RADIUS
 CITY OF TITUSVILLE, FLORIDA
 SCALE: NTS SHT: 1 OF 1

1. GENERAL
 1.1. These specifications cover the construction and testing of public roadways within the City of Titusville. Both those that are to be maintained by the City and those that are private constructed to City Standards.
 1.2. The Contractor shall be responsible for ordering and paying for all required testing. A City of Titusville representative shall witness all testing and receive a copy of results from the testing lab. Any testing performed without a witness from the City of Titusville shall not be accepted.
 1.3. All work shall conform to the current version of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction except as modified below.
 2. SUBGRADE
 2.1. LBR - All subbase's shall have a minimum LBR of 40 to be accepted. Minimum testing shall be one per soil type.
 2.2. Modified Proctor for Density - Proctors shall be taken at a minimum of 1 per source or at any change in subbase material.
 2.3. Density - Testing for density shall be 1 test per 500 feet minimum with no less than 3 test per roadway. Minimum density shall be 98% Modified Proctor using test FM 1-T 180 Method D.
 2.4. Test Roll of Subbase - shall be completed with a contractor provided roller with minimum axle load of 15,000 lbs on the rear axle or other pre-approved equipment such as a loaded 20 yard dump truck or a loaded water truck. The process for testing shall be as follows:
 2.5. Rolling shall be conducted parallel to the roadway centerline at approximately 2 - 3 miles per hour.
 2.6. Inspector shall follow truck on as many passes as necessary to determine the suitability of the subbase. Minimum one pass per lane.
 2.7. Any soft and/or pumping areas of subbase shall be reworked and retested as allowed by these specifications or as directed prior to acceptance of subbase material.
 2.8. Stabilization Depth - If used, stabilization depth shall be confirmed by the inspector at 1 test per 1000 feet.
 2.9. Repair of Failed Areas - Areas that exhibit pumping, soft spots and low compaction shall be repaired or replaced and re-tested as directed by the Engineer. The repair or replacement may consist of re-mixing in-place material, additional compaction effort, removal of unsatisfactory material and replacement with satisfactory material, or by strengthening the material with additional stabilization in-place.

2.6. Approval - Upon submission of passing compaction test results and satisfactory roll test, the Engineer will approve the subbase for placement of material and installation of curb and gutter. However subbase approval may be rescinded if substantial time passes or inclement weather damages the base. The contractor will be required to repair and retest any deterioration and seek re-approval from the Engineer.
 3.0. BASE
 3.1. Graded Aggregate Base - shall have a minimum of 12" clearance measured from the bottom of the base to the seasonal high water level.
 3.1.1. LBR Value - shall have a minimum LBR of 100 to be accepted. Minimum testing shall be one per source.
 3.1.2. Modified Proctor for Density - Proctors shall be taken at a minimum of 1 per source.
 3.1.3. Density - Testing for density shall be 1 test per 500 feet minimum with no less than 3 test per roadway. Minimum density shall be 100% Modified Proctor using test FM 1-T 180 Method D.
 3.1.4. Test Roll - shall be completed as completed for subbase material.
 3.1.5. 3" Base Coring - 1 core per 500 feet shall be taken to verify base thickness. Average of all corings shall meet or exceed plan thickness.
 3.1.6. Repair of Failed Areas - Areas that exhibit pumping, soft spots and low compaction shall be repaired or replaced and re-tested as directed by the Engineer. The repair or replacement may consist of additional compaction effort, removal of unsatisfactory material and replacement with satisfactory material, or replacement of Graded Aggregate with Asphalt Base.
 3.1.7. Approval - Upon submission of passing test results and test roll the Engineer will approve the base for placement of asphalt surface course. However base approval may be rescinded if substantial time passes or inclement weather damages the base. The contractor will be required to repair and retest any deterioration and seek re-approval from the Engineer.
 3.2. Limericks Base - shall only be used with 18" of clearance below the high water level and the bottom of the base.
 3.2.1. LBR Value - shall have a minimum LBR of 100 to be accepted. Minimum testing shall be one per source.
 3.2.2. Proctor for Density - Proctors shall be taken at a minimum of 1 per 1000 feet or at any change in base material source.
 3.2.3. Density - Testing for density shall be 1 test per 500 feet minimum with no less than 3 test per roadway. Minimum density shall be 98% Modified Proctor using test FM 1-T 180 Method D.
 3.2.4. Test Roll - shall be completed as completed for subbase material.
 3.2.5. Repair of Failed Areas - Areas that exhibit pumping, soft spots and low compaction shall be repaired or replaced and re-tested as directed by the Engineer. The repair or replacement may consist of additional compaction effort, removal of unsatisfactory material and replacement with satisfactory material, or replacement of Limericks Base with Asphalt Base.
 3.2.6. Approval - Upon submission of passing test results and test roll the Engineer will approve the base for placement of asphalt surface course. However base approval may be rescinded if substantial time passes or inclement weather damages the base. The contractor will be required to repair and retest any deterioration and seek re-approval from the Engineer.
 3.3. Asphalt Base - shall be minimum of 4" thick and shall be used only as approved by the engineer.
 3.3.1. Options - Asphalt Base shall be constructed using either of the 2 options listed below:
 3.3.1. a. Type 5 mix shall conform with FDOT 2000 specifications for Roads and Bridges 2000 Edition.
 3.3.1. b. Superpave mix shall conform with most recent FDOT standards.
 3.3.2. 3" Base Coring - 1 core per 500 feet shall be taken to verify base thickness. Average of all corings shall meet or exceed plan thickness. Minimum of 1 coring per roadway.
 3.3.3. Density - density testing shall be completed at 1 per 500 feet with a minimum of 3 per roadway. Density shall meet or exceed 98% of provided lab density for the mix used.
 3.3.4. Approval - Upon submission of passing test results the Engineer will approve the base for placement of asphalt surface course. However base approval may be rescinded if substantial time passes or inclement weather damages the base. The contractor will be required to repair and retest any deterioration and seek re-approval from the Engineer.
 3.4. SOIL CEMENT COURSE
 3.4.1. Approved Mixes - the following FDOT design mixes may be used with the listed layer thickness and rules regarding the mix:
 4.1.1. Type S-1 - 1-1/4" to 2-1/2" thick; may not be used as the first course on layers thicker than 3-1/2" total. Construction shall conform to FDOT Specifications for Roads and Bridges 2000 Edition. Testing shall conform to below.
 4.1.2. Type S-3 - 3/4" to 1-1/4" thick; only used in top layer, limited to one layer only. Construction shall conform to FDOT Specifications for Roads and Bridges 2000 Edition. Testing shall conform to below.
 4.1.3. Superpave Mixes SP-9.5, SP12.5, and SP19.0 shall conform to FDOT Specifications for Roads and Bridges 2000 Edition. Testing shall conform to below.
 4.2. 2" Coring - 1 core per 500 feet shall be taken to verify asphalt thickness. Average of all corings shall meet or exceed plan thickness. Minimum of 1 coring per roadway.

1. PUBLIC SIDEWALK CURB RAMPS SHALL BE CONSTRUCTED IN THE PUBLIC RIGHT OF WAY AT LOCATIONS THAT WILL PROVIDE CONTINUOUS UNRESTRICTED PEDESTRIAN CIRCULATION PATHS TO PEDESTRIAN AREAS, ELEMENTS AND FACILITIES IN THE PUBLIC RIGHT OF WAY AND TO ACCESSIBLE PEDESTRIAN ROUTES ON ADJACENT SITES, CURB FACILITIES WITH SIDEWALKS AND THOSE WITHOUT SIDEWALKS ARE TO HAVE CURB RAMPS CONSTRUCTED AT ALL STREET INTERSECTIONS AND AT TURNED RETURNS. PARTIAL CURB RETURNS SHALL EXTEND TO THE LIMIT PRESCRIBED BY INDEX NO. 515 TO ACCOMMODATE CURB RAMPS. RAMPS CONSTRUCTED AT LOCATIONS WITHOUT SIDEWALKS SHALL HAVE A LANDING CONSTRUCTED AT THE TOP OF EACH RAMP.
 2. THE LOCATION AND ORIENTATION OF CURB RAMPS SHALL BE AS SHOWN IN THE PLANS.
 3. CURB RAMP RUNNING SLOPES AT UNRESTRICTED SITES SHALL NOT BE STEEPER THAN 1:12 AND CROSS SLOPES SHALL NOT BE STEEPER THAN 1:12. WHEN ALTERING EXISTING PEDESTRIAN FACILITIES WHERE EXISTING SITE DEVELOPMENT PRECLUDES THE ACCOMMODATION OF A RAMP SLOPE OF 1:12, A RUNNING SLOPE BETWEEN 1:12 AND 1:10 IS PERMITTED FOR A RISE OF 3" MAXIMUM AND A RUNNING SLOPE OF BETWEEN 1:10 AND 1:8 IS PERMITTED FOR A RISE OF 3" MAXIMUM WHERE COMPLIANCE WITH THE REQUIREMENTS FOR CROSS SLOPE CANNOT BE FULLY MET, THE MINIMUM FEASIBLE CROSS SLOPE SHALL BE PROVIDED.
 4. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, THEN THE TRANSITIONS SHALL BE 1:12 RAMP SLOPES WITH CURB RETURNS MAY BE USED AT LOCATIONS WHERE OTHER IMPROVEMENTS PROVIDE GUIDANCE AWAY FROM THAT PORTION OF CURB PERPENDICULAR TO THE SIDEWALK. IMPROVEMENTS FOR GUIDANCE ARE NOT REQUIRED FOR CURB RAMPS FOR LINEAR PEDESTRIAN TRAFFIC.
 5. CURB RAMP DETECTABLE WARNING SURFACES SHALL EXTEND THE FULL WIDTH OF THE RAMP AND IN THE DIRECTION OF TRAVEL 24" FROM THE BACK OF CURB. DETECTABLE WARNING SURFACES SHALL BE CONSTRUCTED BY TEXTURING A TRUNCATED DOME PATTERN IN CONFORMANCE WITH U.S. DEPARTMENT OF JUSTICE A.D.A. STANDARDS FOR ACCESSIBLE DESIGN. A.D.A. ACCESSIBILITY GUIDELINES SECTION 4.29.2. (DETAIL SHOWN ABOVE LEFT). TRANSITION SLOPES ARE NOT TO HAVE DETECTABLE WARNING SURFACES.
 6. THE COLOR REQUIREMENT IS TO PROVIDE A DARK-ON-LIGHT VISUAL CONTRAST BETWEEN THE DETECTABLE WARNING SURFACE AND THE ADJACENT WALKING SURFACE. WHERE ADJACENT WALKING SURFACES ARE COLORED, ARE CONSTRUCTED WITH MATERIALS OTHER THAN STANDARD GRANULAR PORTLAND CEMENT CONCRETE ACCORDING TO SECTION 2.02 OF THE STANDARD SPECIFICATIONS, THE PLANS MUST PROVIDE FOR DETECTABLE WARNING SURFACES. COLORS OR MATERIALS THAT PROVIDE THE NEAREST CONTRAST, EITHER DARK-ON-LIGHT OR LIGHT-ON-DARK.
 7. WHERE A CURB RAMP IS CONSTRUCTED WITH EXISTING CURB, CURB AND GUTTER AND/OR SIDEWALK, THE EXISTING CURB OR GUTTER SHALL BE MAINTAINED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. THE CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE OR WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5' LONG.



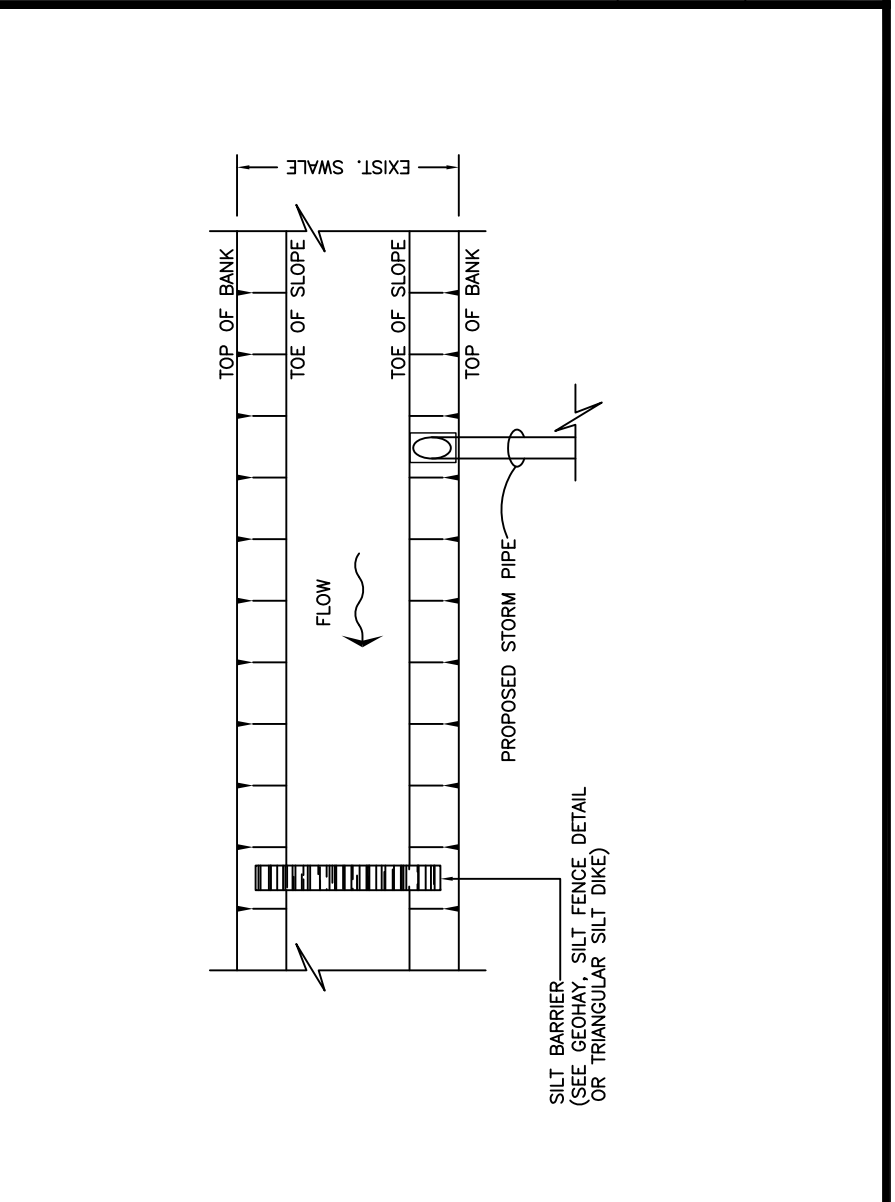
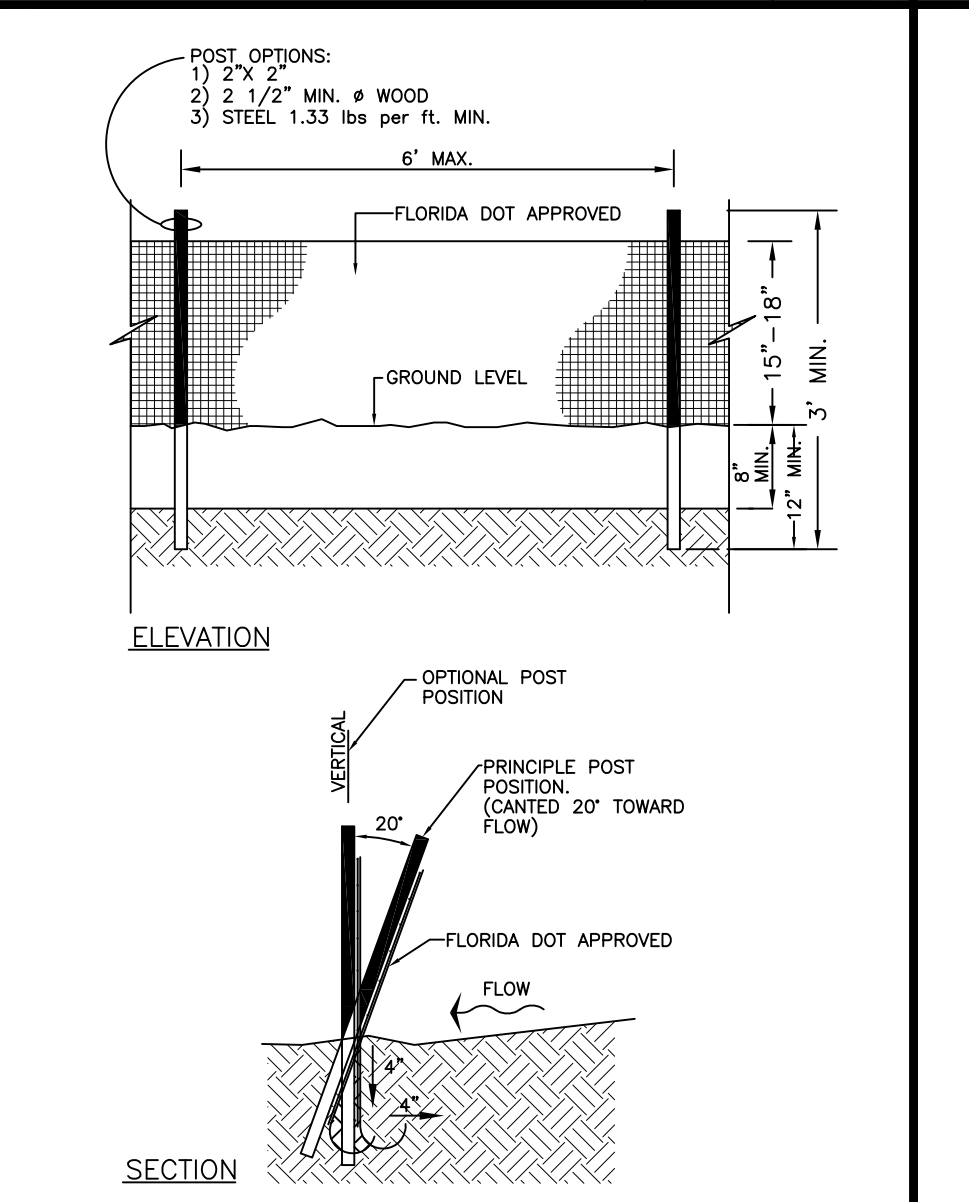
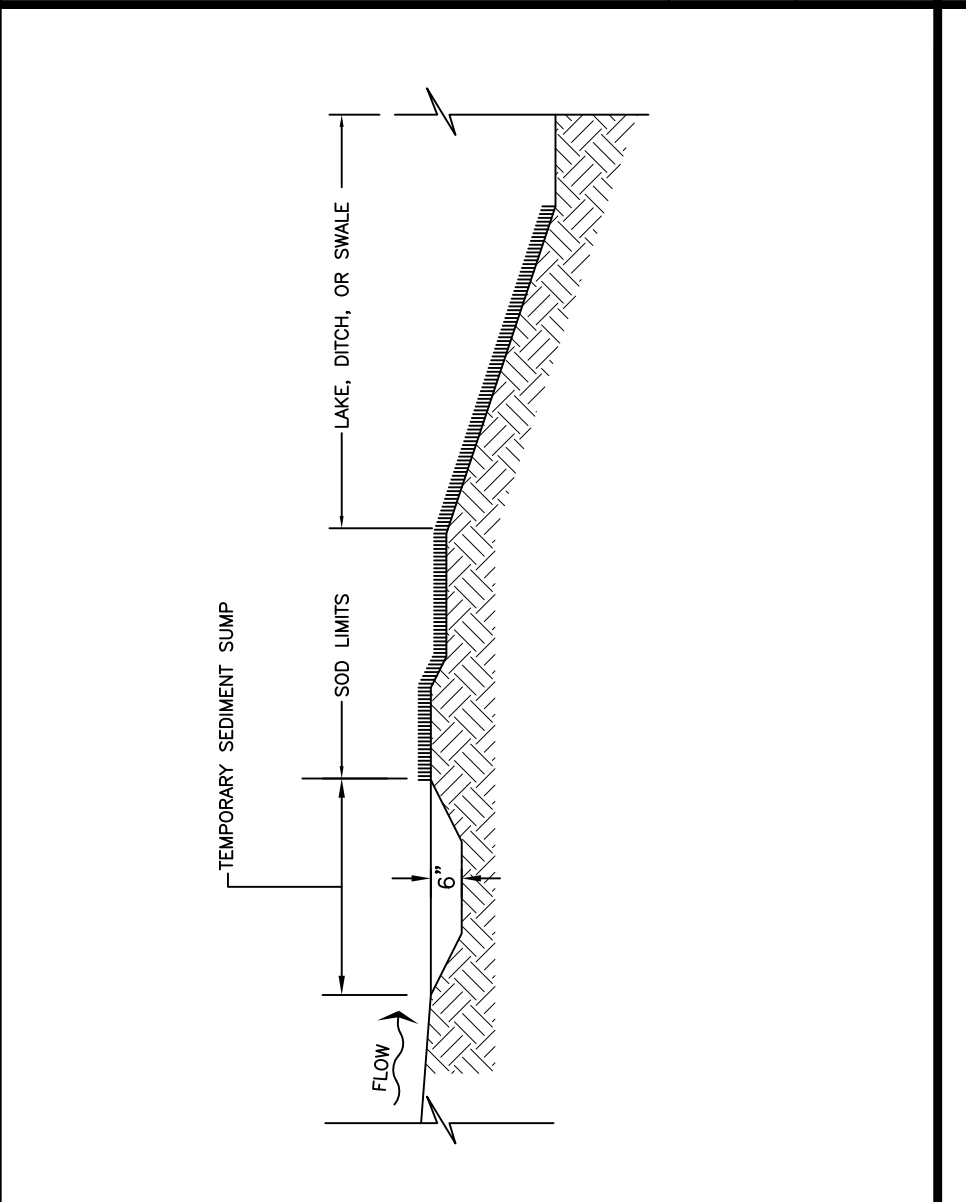
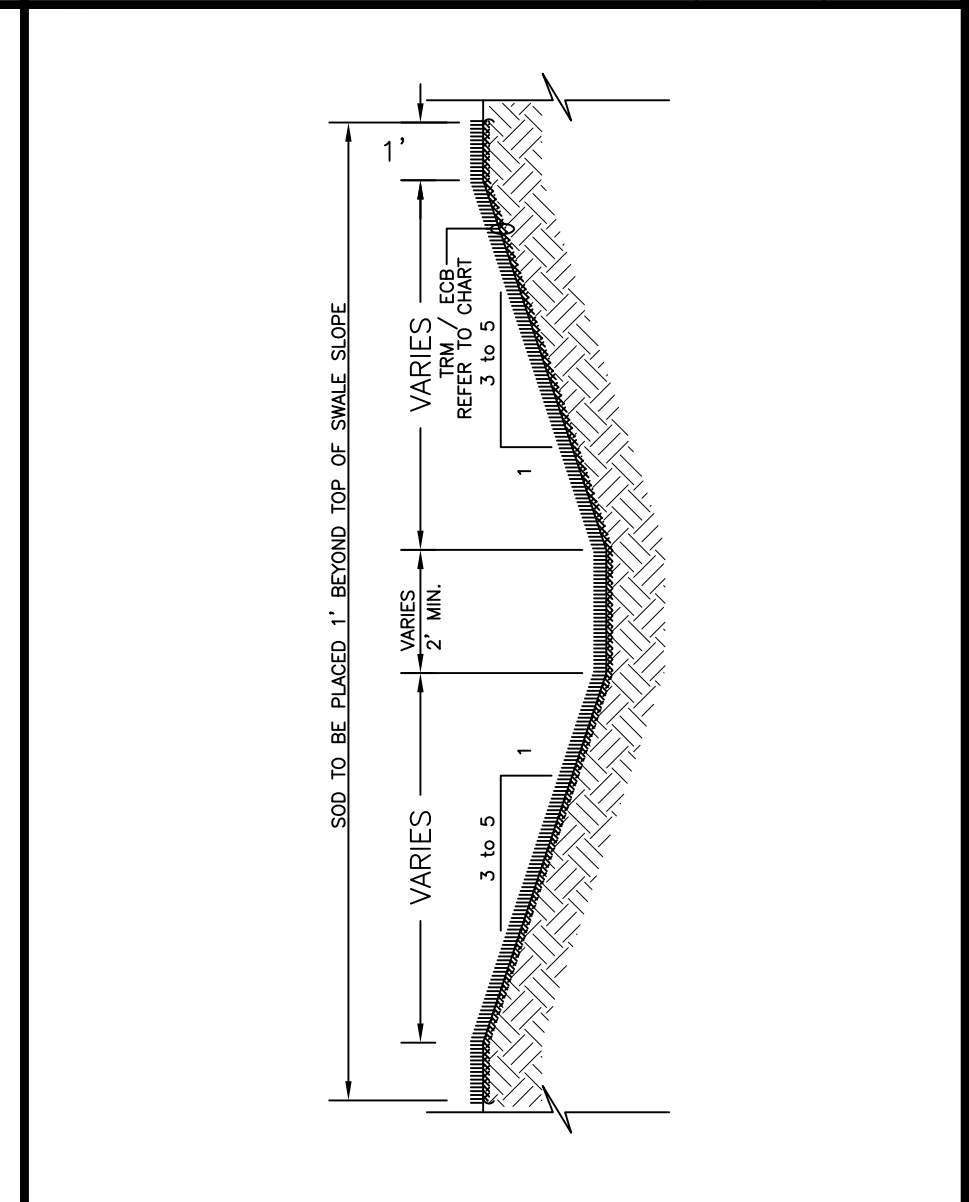
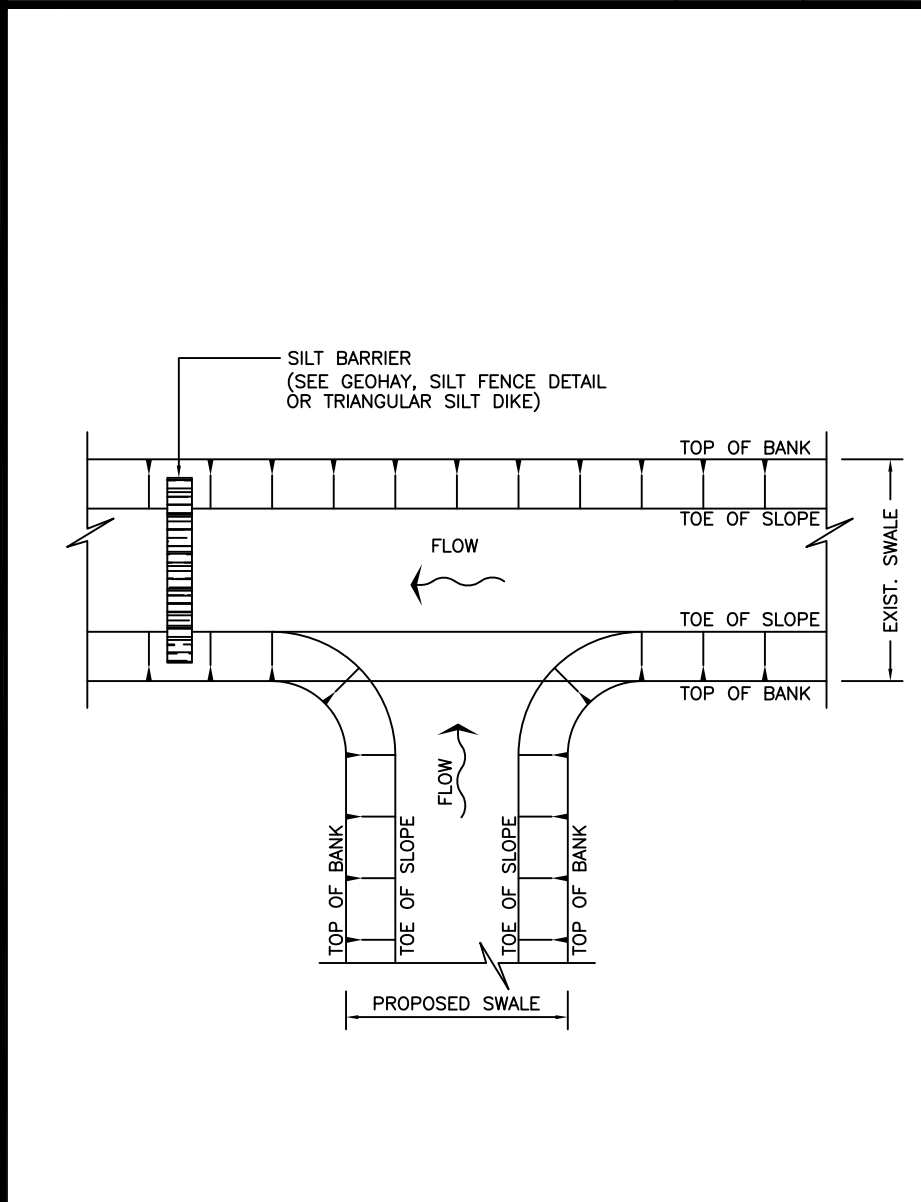
STABILIZED CONSTRUCTION INGRESS/EGRESS
CITY OF TITUSVILLE, FLORIDA

SILT BARRIER AT CONNECTION OF PIPE TO A WATER BODY
CITY OF TITUSVILLE, FLORIDA

SOD ALONG CURB AND INLET
CITY OF TITUSVILLE, FLORIDA

SILT BARRIER PROTECTION AROUND DITCH BOTTOM INLETS
CITY OF TITUSVILLE, FLORIDA

UNDERGROUND PIPE CROSSING
CITY OF TITUSVILLE, FLORIDA



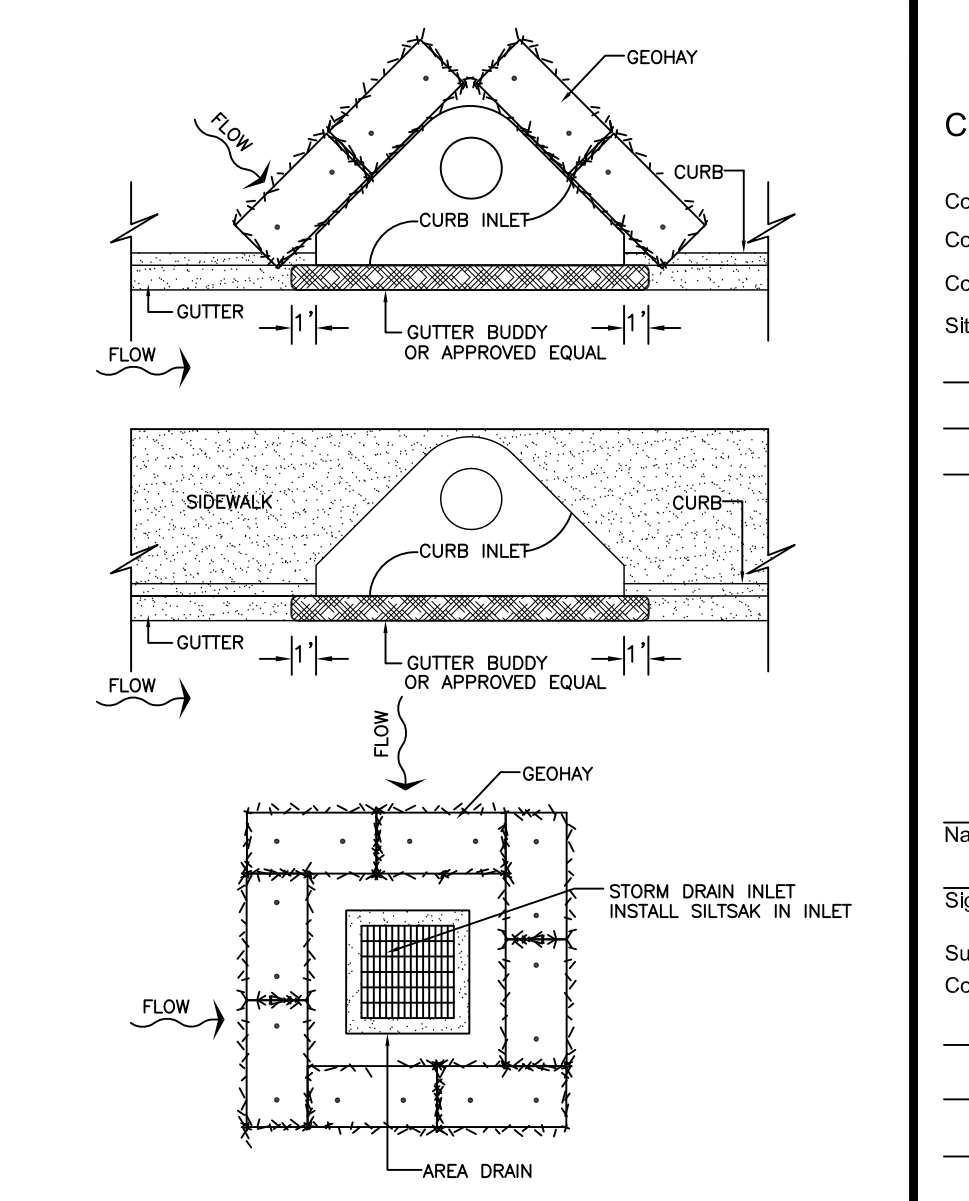
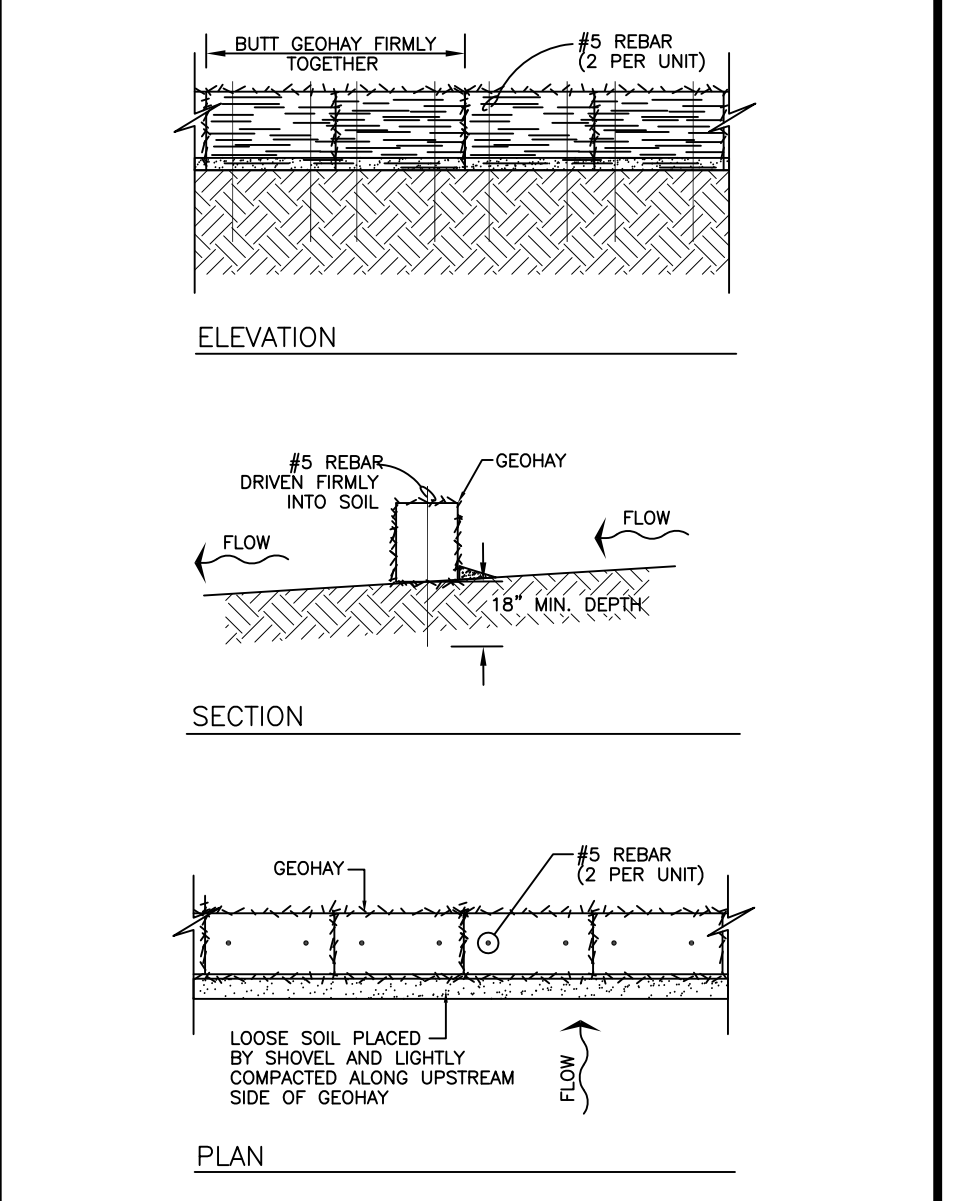
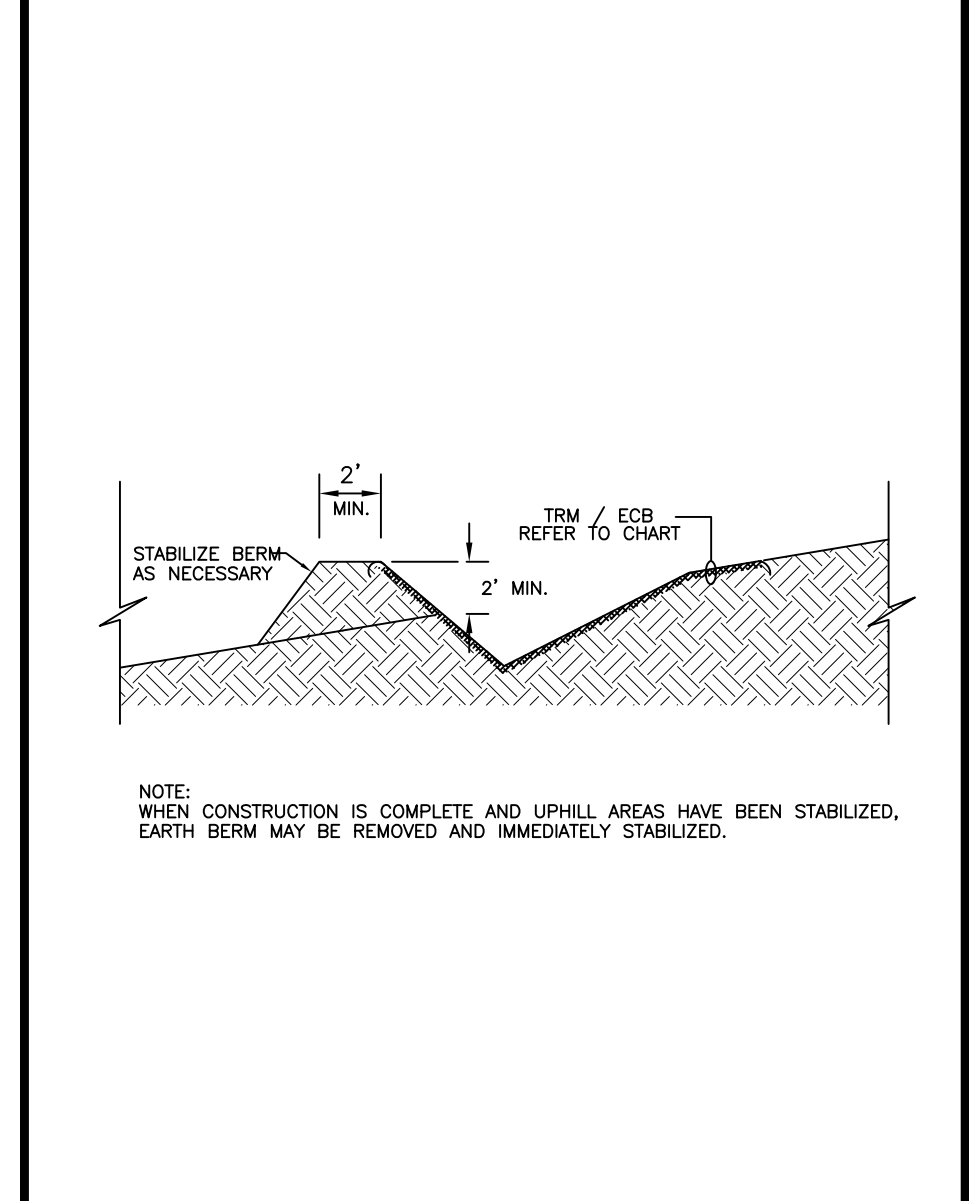
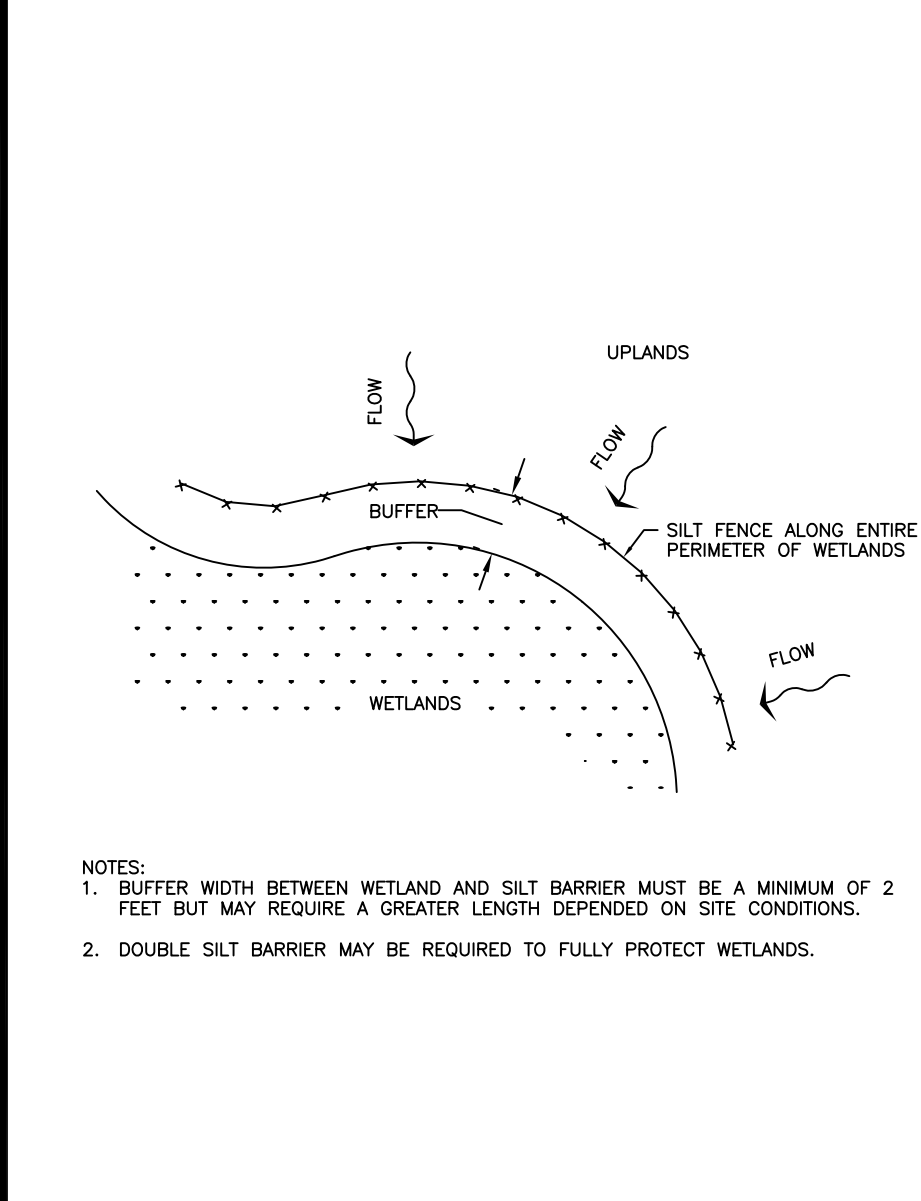
SILT BARRIER PLACED IN SWALE
CITY OF TITUSVILLE, FLORIDA

TYPICAL SWALE SECTION
CITY OF TITUSVILLE, FLORIDA

TEMPORARY SEDIMENT SUMP
CITY OF TITUSVILLE, FLORIDA

TYPICAL SILT FENCE DETAIL
CITY OF TITUSVILLE, FLORIDA

SILT BARRIER AT CONNECTION OF STORM PIPE TO SWALE
CITY OF TITUSVILLE, FLORIDA



CONTRACTOR CERTIFICATION STATEMENT

Company Name: _____
 Company Address: _____
 Company Phone No. _____ Fax No. _____
 Site address/description: _____

"I certify under penalty of law that I understand and shall comply with the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

Name and Official Title (Type or print) _____
 Signature: _____ Date: _____
 Subcontractor Acknowledgements:
 Company Name: _____

SILT BARRIER AROUND WETLANDS
CITY OF TITUSVILLE, FLORIDA

STABILIZED EARTH BERM
CITY OF TITUSVILLE, FLORIDA

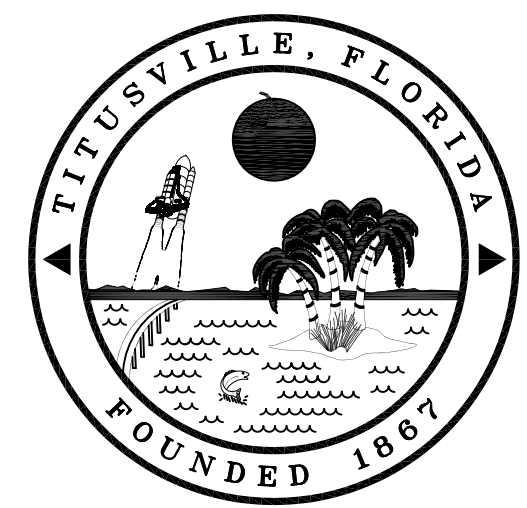
HAY DETAIL
CITY OF TITUSVILLE, FLORIDA

INLET PROTECTION
CITY OF TITUSVILLE, FLORIDA

CONTRACTOR CERTIFICATION STATEMENT
CITY OF TITUSVILLE, FLORIDA

CITY OF TITUSVILLE LAND DEVELOPMENT REGULATION NOTES:

- PER LDR SEC. 35-58. EROSION CONTROL STANDARDS (A) THE AREA OF LAND DISTURBED BY DEVELOPMENT SHALL BE AS SMALL AS PRACTICAL. THOSE AREAS WHICH ARE NOT TO BE DISTURBED SHALL BE PROTECTED BY AN ADEQUATE BARRIER FROM CONSTRUCTION ACTIVITY. WHENEVER POSSIBLE, NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED.
- PER LDR SEC. 35-58. EROSION CONTROL STANDARDS (B) LAND WHICH HAS BEEN CLEARED FOR DEVELOPMENT UPON WHICH CONSTRUCTION WILL NOT BEGIN WITHIN THIRTY (30) DAYS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION BY APPROPRIATE MEANS.
- PER LDR SEC. 35-58. EROSION CONTROL STANDARDS (C) ALL SEDIMENT SHALL BE RETAINED ON THE DEVELOPMENT SITE.
- PER LDR SEC. 35-58. EROSION CONTROL STANDARDS (D) WETLANDS AND OTHER WATER BODIES SHALL NOT BE USED AS SEDIMENT TRAPS DURING DEVELOPMENT PER LDR SEC. 35-58. EROSION CONTROL STANDARDS (E) EROSION AND SEDIMENTATION PLANS SHALL BE APPROVED BY THE CITY PRIOR TO ISSUANCE OF AN UTILITY CONSTRUCTION PERMIT.
- PER LDR SEC. 35-58. EROSION CONTROL STANDARDS (F) EROSION AND SEDIMENTATION FACILITIES SHALL RECEIVE REGULAR MAINTENANCE TO ASSURE THAT THEY CONTINUE TO FUNCTION PROPERLY.
- PER LDR SEC. 35-65. MAINTENANCE AND INSPECTIONS (A) THE INSTALLED SYSTEM(S) REQUIRED BY THIS ARTICLE SHALL BE MAINTAINED BY THE OWNER. (B) AT THE TIME OF ISSUANCE OF A STORMWATER CONSTRUCTION PERMIT, INSPECTION FEE(S) SHALL BE PAID. THE APPLICANT SHALL ARRANGE WITH THE ADMINISTRATOR FOR SCHEDULING THE FOLLOWING INSPECTIONS: (1) EROSION AND SEDIMENT CONTROL INSPECTIONS: AS NECESSARY TO ENSURE EFFECTIVE CONTROL OF EROSION AND SEDIMENTATION. CONTROL PRACTICES SHALL BE INSTALLED AND STABILIZED BETWEEN ANY WATERS AND ANY AREAS CLEARED. (2) BURIAL INSPECTIONS: PRIOR TO THE BURIAL OF ANY UNDERGROUND DRAINAGE STRUCTURE. (3) FINAL INSPECTION: WHEN ALL WORK INCLUDING INSTALLATION OF ALL STORM WATER MANAGEMENT SYSTEM FACILITIES HAS BEEN COMPLETED, THE ENFORCEMENT OFFICER WHO INSPECTS THE WORK SHALL EITHER APPROVE IT OR NOTIFY THE APPLICANT IN WRITING IN WHAT RESPECTS THERE HAS BEEN A FAILURE TO COMPLY WITH THE REQUIREMENTS OF THE APPROVED PERMIT.
- ALL PERSONS AND ENTITIES SHALL MAINTAIN PRIVATE STORMWATER MANAGEMENT SYSTEMS IN FULL COMPLIANCE WITH APPLICABLE CODES AND ORDINANCES. ANY PERSON OR ENTITY THAT FAILS TO MAINTAIN THE STORMWATER MANAGEMENT SYSTEMS SHALL BE CONSIDERED AS A VIOLATION OF THIS CODE AND ENFORCEMENT ACTION MAY BE INITIATED AND ENFORCED THROUGH THE MUNICIPAL CODE ENFORCEMENT BOARD. FINES AND LIENS MAY BE IMPOSED AS AUTHORIZED BY CHAPTER 162 FLORIDA STATUTES (AS AMENDED FROM TIME TO TIME) AND APPLICABLE CODES AND ORDINANCES. IF ANY ENTITY HAS BEEN DISSOLVED OR NO LONGER OWNS SAID PRIVATE STORMWATER MANAGEMENT SYSTEMS, THEN, IN THAT EVENT, THE PROPERTY OWNERS UTILIZING SAID STORMWATER MANAGEMENT SYSTEMS OR PROPERTIES THAT ARE BENEFITED BY SAID STORMWATER MANAGEMENT SYSTEMS SHALL BE FINANCIALLY RESPONSIBLE FOR THE UPKEEP AND MAINTENANCE OF SAID STORMWATER MANAGEMENT SYSTEMS. FOR EXAMPLE, IF STORMWATER MANAGEMENT SYSTEMS ARE TO BE OWNED AND MAINTAINED BY A HOMEOWNERS ASSOCIATION AND THE HOMEOWNERS ASSOCIATION HAS BEEN DISSOLVED, AND IS NO LONGER ACTIVE OR FUNCTIONING THEN, IN THAT EVENT, THE LOT OWNERS UTILIZING SAID STORMWATER MANAGEMENT SYSTEMS OR BENEFITED BY SAID SYSTEMS SHALL BE PRORATA RESPONSIBLE FOR THE UPKEEP AND MAINTENANCE OF SAID SYSTEMS. THE CITY OF TITUSVILLE MAY INITIATE AN ACTION THROUGH THE MUNICIPAL CODE ENFORCEMENT BOARD FOR SAID VIOLATION AND APPROPRIATE FINES AND LIENS MAY BE IMPOSED AND RECORDED AGAINST BENEFITED PROPERTIES. THE LIENS MAY BE FORECLOSED AND COLLECTED IN THE SAME MANNER AS CODE LIENS INCLUDING THE CITY'S COSTS AND A REASONABLE ATTORNEY'S FEES.



City of Titusville
 555 South Washington Avenue
 Titusville, Florida 32796
 PH: (321) 383-5823 Fax: (321) 383-5700

CITY OF TITUSVILLE STANDARD DISCLAIMER FOR SPECIFICATIONS AND DETAIL DRAWINGS

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Any detail that is not required for the specific development that these details have been included in the permit set may be crossed out on this drawing sheet but may not be removed. No additional detail and or specification may be added to this drawing sheet.

- TIME GRADING AND CONSTRUCTION TO MINIMIZE SOIL EXPOSURE.
- RETAIN EXISTING VEGETATION WHEREVER POSSIBLE.
- VEGETATE AND MULCH DENUDED AREAS.
- DIVERT RUNOFF AWAY FROM DENUDED AREAS.
- MINIMIZE LENGTH AND STEEPNESS OF SLOPES.
- KEEP RUNOFF VELOCITIES LOW.
- PREPARE CONVEYANCES AND OUTLETS TO HANDLE CONCENTRATED OR INCREASED FLOWS.
- TRAP SEDIMENT ON SITE.
- INSPECT AND MAINTAIN CONTROL MEASURES.

No.	Revision	Date

EROSION CONTROL DETAILS AND SPECIFICATIONS

DEVELOPMENT SERVICES	DEPT.	COT EC1
DECEMBER 2012	DATE	
N.T.S.	SCALE SHEET	

EROSION AND SEDIMENTATION CONTROL NOTES

CONSTRUCTION ACTIVITIES CAN RESULT IN THE GENERATION OF SIGNIFICANT AMOUNTS OF POLLUTANTS WHICH MAY REACH SURFACE OR GROUND WATERS. ONE OF THE PRIMARY POLLUTANTS OF SURFACE WATERS IS SEDIMENT DUE TO EROSION. EXCESSIVE QUANTITIES OF SEDIMENT WHICH REACH WATER BODIES OF FLOODPLAINS HAVE BEEN SHOWN TO ADVERSELY AFFECT THEIR PHYSICAL, BIOLOGICAL, AND CHEMICAL PROPERTIES. TRANSPORTED SEDIMENT CAN OBSTRUCT STREAM CHANNELS, REDUCE HYDRAULIC CAPACITY OF WATER BODIES OF FLOODPLAINS, REDUCE THE DESIGN CAPACITY OF CULVERTS AND OTHER WORKS, AND ELIMINATE BENTHIC INVERTEBRATES AND FISH SPAWNING SUBSTRATES BY SILTATION. EXCESSIVE SUSPENDED SEDIMENTS REDUCE LIGHT PENETRATION AND THEREFORE, REDUCE PRIMARY PRODUCTIVITY.

MINIMUM STANDARDS:

- SEDIMENT BASIN AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTRIBUTING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UNSLOPE LAND DISTURBANCE TAKES PLACE.
- ALL SEDIMENT CONTROL MEASURES ARE TO BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO ANY GRADING OF DISTURBANCE OF EXISTING SURFACE MATERIAL ON BALANCE OF SITE. PERIMETER SEDIMENT BARRIERS SHALL BE CONSTRUCTED TO PREVENT SEDIMENT OF TRASH FROM FLOWING OR FLOATING ON TO ADJACENT PROPERTIES.
- PERMANENT OF TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN UNDISTURBED FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT UNDISTURBED FOR MORE THAN ONE YEAR.
- DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
- A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IN THE OPINION OF THE REVIEWER, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
- STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
- SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE SEDIMENT BASIN SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE THE ANTICIPATED SEDIMENT LOADING FROM THE LAND-DISTURBING ACTIVITY. THE OUTFALL DEVICE OR SYSTEM DESIGN SHALL TAKE INTO ACCOUNT THE TOTAL DRAINAGE AREA FLOWING THROUGH THE DISTURBED AREA TO BE SERVED BY THE BASIN.
- AFTER ANY SIGNIFICANT RAINFALL, SEDIMENT CONTROL STRUCTURES WILL BE INSPECTED FOR INTEGRITY. ANY DAMAGE DEVICES SHALL BE CORRECTED IMMEDIATELY.
- CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
- WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
- SEDIMENT WILL BE PREVENTED FROM ENTERING ANY STORM DRAIN SYSTEM, DITCH OR CHANNEL. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
- BEFORE TEMPORARY OR NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS ARE MADE OPERATION, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
- WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
- WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES, A TEMPORARY STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
- THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
- PERIODIC INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL STRUCTURES MUST BE PROVIDED TO ENSURE INTENDED PURPOSE IS ACCOMPLISHED. THE DEVELOPER, OWNER AND/OR CONTRACTOR SHALL BE CONTINUALLY RESPONSIBLE FOR ALL SEDIMENT WORKING THE PROPERTY. SEDIMENT CONTROL MEASURES SHALL BE IN WORKING CONDITION AT THE END OF EACH WORKING DAY.
- UNDERGROUND UTILITY LIENS SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
 - NO MORE THAT 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
 - EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
 - EFFLUENT FROM DEWATER OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
 - RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
- WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY TRACKING ON TO THE PAVED SURFACE, WHERE SEDIMENT IS TRANSPORTED ON TO A PUBLIC ROAD SURFACE WITH CURBS AND GUTTERS, THE ROAD SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL SUBDIVISION LOTS AS WELL AS TO LARGER LAND-DISTRIBUTING ACTIVITIES.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, IN THE OPINION OF THE REVIEWER. DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
- PROPERTIES AND WATERWAYS DOWNSTREAM FROM CONSTRUCTION SITE SHALL BE PROTECTED FROM SEDIMENT DISPOSITION AND EROSION.
- PHASED PROJECTS SHOULD BE CLEARED IN CONJUNCTION WITH CONSTRUCTION OF EACH PHASE.
- EROSION CONTROL DESIGN AND CONSTRUCTION SHALL FOLLOW THE REQUIREMENTS IN INDEX NOS. 101, 102, 103 OF FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS.
- THE REVIEWER MAY APPROVE MODIFICATIONS OR AFTER PLANS TO THESE EROSION CONTROL CRITERIA DUE TO SITE SPECIFIC CONDITIONS.
- THE CONTRACTOR IS TO PREPARE A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH NPDES REQUIREMENTS AND THE NOTES ON THESE PLANS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT COMPLETED NPDES NOTICE OF INTENT (NOI) AND NOTICE OF TERMINATION (NOT) FORMS TO FDEP, WITH COPIES PROVIDED TO THE CITY.
- PER THE NPDES GENERIC PERMIT (PART II.5), FINAL STABILIZATION OCCURS WHEN VEGETATIVE COVER WITH A DENSITY OF AT LEAST 70% OCCURS.
- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE, BUT IN NO CASE MORE THAN 7 DAYS, IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AS REQUIRED PER THE NPDES GENERIC PERMIT (PART V.D.2.A(1)).
- NOTE THAT THE INSPECTION FREQUENCY SHOWN IN NOTE 6 ON THE SWPPP IS MORE STRINGENT THAN THE FREQUENCY REQUIRED BY THE NPDES GENERIC PERMIT (THE REQUIRED FREQUENCY IS ONCE EVERY 7 DAYS AND WITHIN 24 HOURS OF ANY RAINFALL AMOUNT MEASURING 0.5 INCHES OR GREATER).

FDEP 62-621.300(4)(A) PART V. STORMWATER POLLUTION PREVENTION PLAN

- A STORMWATER POLLUTION PREVENTION PLAN SHALL BE DEVELOPED AND IMPLEMENTED FOR EACH CONSTRUCTION SITE COVERED BY THIS PERMIT. STORMWATER POLLUTION PREVENTION PLANS SHALL BE PREPARED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICES. EQUIVALENT EROSION AND SEDIMENT CONTROL PLANS PREPARED AS AN ENVIRONMENTAL RESOURCE PERMIT REQUIREMENT UNDER PART IV, CHAPTER 373, F.S., MAY SERVE AS THE POLLUTION PREVENTION PLAN PROVIDED ALL OF THE ELEMENTS OF THIS SECTION ARE INCLUDED IN SUCH AN ALTERNATIVE PLAN. THE PLAN SHALL IDENTIFY POTENTIAL SOURCES OF POLLUTION THAT MAY REASONABLY BE EXPECTED TO AFFECT THE QUALITY OF STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY. IN ADDITION, THE PLAN SHALL DESCRIBE AND ENSURE THE IMPLEMENTATION OF BEST MANAGEMENT PRACTICES WHICH WILL BE USED TO REDUCE THE POLLUTANTS IN STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY AND TO ASSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THIS PERMIT. FACILITIES MUST IMPLEMENT THE PROVISIONS OF THE STORMWATER POLLUTION PREVENTION PLAN REQUIRED UNDER THIS PART AS A CONDITION OF THIS PERMIT. FAILURE TO DEVELOP AND IMPLEMENT A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE REQUIREMENTS OF THIS PART SHALL BE DEEMED A VIOLATION OF THIS PERMIT AND THE PERMITTEE SHALL BE SUBJECT TO ENFORCEMENT ACTION.
- DEADLINES FOR PLAN PREPARATION AND COMPLIANCE.
 - THE POLLUTION PREVENTION PLAN SHALL
 - BE COMPLETED (INCLUDING CERTIFICATION BY THE OPERATOR IN ACCORDANCE WITH PART VII.C.) PRIOR TO THE SUBMITTAL OF AN NOI TO BE COVERED UNDER THIS PERMIT AND UPDATED AS APPROPRIATE;
 - THE PLAN SHALL PROVIDE FOR COMPLIANCE WITH THE TERMS AND SCHEDULE OF THE PLAN BEGINNING WITH THE INITIATION OF CONSTRUCTION ACTIVITIES.
 - KEEPING PLANS CURRENT.
 - THE PERMITTEE SHALL AMEND THE PLAN WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE POTENTIAL FOR THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OF THE STATE OR AN MS4, INCLUDING THE ADDITION OF OR CHANGE IN LOCATION OF STORAGE AREAS OR DISCHARGE POINTS, AND WHICH HAS NOT OTHERWISE BEEN ADDRESSED IN THE PLAN. THE PERMITTEE ALSO SHALL AMEND THE PLAN IF IT PROVES TO BE INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS FROM SOURCES IDENTIFIED UNDER PART V.D.I. OF THIS PERMIT, OR IN OTHERWISE ACHIEVING THE GENERAL OBJECTIVES OF CONTROLLING POLLUTANTS IN STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY. IN ADDITION, THE PLAN SHALL BE AMENDED TO IDENTIFY ANY NEW CONTRACTOR AND/OR SUBCONTRACTOR THAT WILL IMPLEMENT A MEASURE OF THE STORMWATER POLLUTION PREVENTION PLAN (SEE PART V.D.6.). AMENDMENTS TO THE PLAN SHALL BE PREPARED, SIGNED, DATED AND KEPT AS ATTACHMENTS TO THE ORIGINAL PLAN.
- CONTENTS OF PLAN.
 1. SITE DESCRIPTION. EACH PLAN SHALL PROVIDE A DESCRIPTION OF POLLUTANT SOURCES AND OTHER INFORMATION AS INDICATED:
 - A DESCRIPTION OF THE NATURE OF THE CONSTRUCTION ACTIVITY;
 - A DESCRIPTION OF THE INTENDED SEQUENCE OF MAJOR ACTIVITIES WHICH DISTURB SOILS FOR MAJOR PORTIONS OF THE SITE (E.G., GRUBBING, EXCAVATION, GRADING);
 - ESTIMATES OF THE TOTAL AREA OF THE SITE AND THE TOTAL AREA OF THE SITE THAT IS EXPECTED TO BE DISTURBED BY EXCAVATION, GRADING, OR OTHER CONSTRUCTION ACTIVITIES;
 - EXISTING DATA DESCRIBING THE SOIL OR THE QUALITY OF ANY DISCHARGE FROM THE SITE AND AN ESTIMATE OF THE SIZE OF THE DRAINAGE AREA FOR EACH DISCHARGE POINT;
 - A SITE MAP INDICATING DRAINAGE PATTERNS AND APPROXIMATE SLOPES ANTICIPATED AFTER MAJOR GRADING ACTIVITIES. AREAS OF SOIL DISTURBANCE AND THE TIMING DURING THE CONSTRUCTION PROCESS THAT THE MEASURES WILL BE IMPLEMENTED, FOR EXAMPLE, PERIMETER CONTROLS FOR ONE PORTION OF THE SITE WILL BE INSTALLED AFTER THE CLEARING AND GRUBBING NECESSARY FOR INSTALLATION OF THE MEASURE, BUT BEFORE THE CLEARING AND GRUBBING FOR THE REMAINING PORTIONS OF THE SITE. PERIMETER CONTROLS SHALL BE ACTIVELY MAINTAINED UNTIL FINAL STABILIZATION OF THOSE PORTIONS OF THE SITE UPWARD OF THE PERIMETER CONTROL. TEMPORARY PERIMETER CONTROLS SHALL BE REMOVED AFTER FINAL STABILIZATION. ALL CONTROLS SHALL BE CONSISTENT WITH THE PERFORMANCE STANDARDS FOR EROSION AND SEDIMENT CONTROL AND STORMWATER TREATMENT AS SET FORTH IN RULE 62-40.432, F.A.C., THE APPLICABLE ENVIRONMENTAL RESOURCE PERMITTING REQUIREMENTS OF THE DEP OR APPROPRIATE WMD RELATING TO PERFORMANCE STANDARDS FOR EROSION AND SEDIMENT CONTROL AND STORMWATER TREATMENT AND THE GUIDELINES CONTAINED IN THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL, FDOT, FDEP (2007), INCORPORATED BY REFERENCE IN RULE 62-621.300(4)(A), F.A.C. AND AVAILABLE ON THE DEPARTMENT'S WEBSITE AT HTTP://WWW.DEP.STATE.FL.US/WATER/STORMWATER/NPDES.
 2. CONTROLS. EACH PLAN SHALL INCLUDE A DESCRIPTION OF APPROPRIATE CONTROLS, BMPs AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE. THE PLAN SHALL CLEARLY DESCRIBE FOR EACH MAJOR ACTIVITY IDENTIFIED IN PART V.D.I.B. OF THIS PERMIT THE CONTROL MEASURES AND THE TIMING DURING THE CONSTRUCTION PROCESS THAT THE MEASURES WILL BE IMPLEMENTED. FOR EXAMPLE, PERIMETER CONTROLS FOR ONE PORTION OF THE SITE WILL BE INSTALLED AFTER THE CLEARING AND GRUBBING NECESSARY FOR INSTALLATION OF THE MEASURE, BUT BEFORE THE CLEARING AND GRUBBING FOR THE REMAINING PORTIONS OF THE SITE. PERIMETER CONTROLS SHALL BE ACTIVELY MAINTAINED UNTIL FINAL STABILIZATION OF THOSE PORTIONS OF THE SITE UPWARD OF THE PERIMETER CONTROL. TEMPORARY PERIMETER CONTROLS SHALL BE REMOVED AFTER FINAL STABILIZATION. ALL CONTROLS SHALL BE CONSISTENT WITH THE PERFORMANCE STANDARDS FOR EROSION AND SEDIMENT CONTROL AND STORMWATER TREATMENT AS SET FORTH IN RULE 62-40.432, F.A.C., THE APPLICABLE ENVIRONMENTAL RESOURCE PERMITTING REQUIREMENTS OF THE DEP OR APPROPRIATE WMD RELATING TO PERFORMANCE STANDARDS FOR EROSION AND SEDIMENT CONTROL AND STORMWATER TREATMENT AND THE GUIDELINES CONTAINED IN THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL, FDOT, FDEP (2007), INCORPORATED BY REFERENCE IN RULE 62-621.300(4)(A), F.A.C. AND AVAILABLE ON THE DEPARTMENT'S WEBSITE AT HTTP://WWW.DEP.STATE.FL.US/WATER/STORMWATER/NPDES.
 - EROSION AND SEDIMENT CONTROLS.
 - STABILIZATION PRACTICES. EACH PLAN SHALL PROVIDE A DESCRIPTION OF INTERIM AND PERMANENT STABILIZATION PRACTICES, INCLUDING SITE-SPECIFIC SCHEDULING OF THE IMPLEMENTATION OF THE PRACTICES. SITE PLANS SHOULD ENSURE THAT EXISTING VEGETATION IS PRESERVED WHERE ATTAINABLE AND THAT DISTURBED PORTIONS OF THE SITE ARE STABILIZED. STABILIZATION PRACTICES MAY INCLUDE: TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, GEOTEXTILES, SOD STABILIZATION, VEGETATIVE BUFFER STRIPS, PROTECTION OF TREES, PRESERVATION OF MATURE VEGETATION AND OTHER APPROPRIATE MEASURES. A RECORD OF THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR, WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE AND WHEN STABILIZATION MEASURES ARE INITIATED SHALL BE INCLUDED IN THE PLAN. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE, BUT IN NO CASE MORE THAN 7 DAYS, IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.
 - STRUCTURAL PRACTICES. EACH PLAN SHALL INCLUDE A DESCRIPTION OF STRUCTURAL PRACTICES TO DIVERT FLOWS FROM EXPOSED SOILS, STORE FLOWS, RETAIN SEDIMENT ON-SITE OR OTHERWISE LIMIT RUNOFF AND THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE. SUCH PRACTICES MAY INCLUDE SILT FENCES, EARTH DIKES, DIVERSIONS, SWALES, SEDIMENT TRAPS, CHECK DAMS, SUBSURFACE DRAINS, PIPE SLOPE DRAINS, LEVEL SPREADERS, STORM DRAIN INLET PROTECTION, ROCKY OUTLET PROTECTION, REINFORCED SOIL RETAINING SYSTEMS, GABIONS, COAGULATING AGENTS AND TEMPORARY OR PERMANENT SEDIMENT BASINS. STRUCTURAL BMPs SHALL BE PLACED ON UPLAND SOILS UNLESS A STATE OF FLORIDA WETLAND RESOURCE MANAGEMENT PERMIT OR ENVIRONMENTAL RESOURCE PERMIT ISSUED PURSUANT TO CHAPTER 373, F.S., AND APPLICABLE REGULATIONS OF THE DEP OR WMD AUTHORIZE OTHERWISE.
 - SEDIMENT BASINS.
 - FOR DRAINAGE BASINS WITH 10 OR MORE DISTURBED ACRES AT ONE TIME, A TEMPORARY (OR PERMANENT) SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE PER ACRE DRAINED, OR EQUIVALENT CONTROL MEASURES, SHALL BE PROVIDED WHERE ATTAINABLE UNTIL FINAL STABILIZATION OF THE SITE. THE 3,600 CUBIC FEET OF STORAGE AREA PER ACRE DRAINED DOES NOT APPLY TO FLOWS FROM OFFSITE AREAS AND FLOWS FROM ONSITE AREAS THAT ARE EITHER UNDISTURBED OR HAVE UNDERGONE FINAL STABILIZATION WHERE SUCH FLOWS ARE DIVERTED AROUND BOTH THE DISTURBED AREA AND THE SEDIMENT BASIN. FOR DRAINAGE BASINS WITH 10 OR MORE DISTURBED ACRES AT ONE TIME AND WHERE A TEMPORARY SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE PER ACRE DRAINED, OR EQUIVALENT CONTROLS IS NOT ATTAINABLE, A COMBINATION OF SMALLER SEDIMENT BASINS AND/OR SEDIMENT TRAPS AND OTHER BMPs SHOULD BE USED. AT A MINIMUM, SILT FENCES OR EQUIVALENT SEDIMENT CONTROLS ARE REQUIRED FOR ALL SIDESLOPE AND DOWNSLOPE BOUNDARIES OF THE CONSTRUCTION AREA.
 - FOR DRAINAGE BASINS OF LESS THAN 10 ACRES, SEDIMENT BASINS AND/OR SEDIMENT TRAPS ARE RECOMMENDED BUT NOT REQUIRED, AT A MINIMUM, SILT FENCES OR EQUIVALENT SEDIMENT CONTROLS ARE REQUIRED FOR ALL SIDESLOPE AND DOWNSLOPE BOUNDARIES OF THE CONSTRUCTION AREA.
 - AREAS THAT WILL BE USED FOR PERMANENT STORMWATER INFILTRATION TREATMENT (E.G., STORMWATER RETENTION PONDS) SHOULD NOT BE USED FOR TEMPORARY SEDIMENT BASINS UNLESS APPROPRIATE MEASURES ARE TAKEN TO ASSURE REMOVAL OF ACCUMULATED FINE SEDIMENTS, WHICH MAY CAUSE PREMATURE CLOGGING AND LOSS OF INFILTRATION CAPACITY, AND TO AVOID EXCESSIVE COMPACTION OF SOILS BY CONSTRUCTION MACHINERY OR EQUIPMENT.
 - PERMANENT STORMWATER MANAGEMENT CONTROLS. EACH PLAN SHALL INCLUDE A DESCRIPTION OF STORMWATER MANAGEMENT CONTROLS OR BMPs (E.G., STORMWATER DETENTION OR RETENTION SYSTEMS, VEGETATED SWALES, VELOCITY DISSIPATION DEVICES AT DISCHARGE POINTS) THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORMWATER DISCHARGES THAT WILL OCCUR DURING CONSTRUCTION AND AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED. THIS GENERIC PERMIT ONLY ADDRESSES THE INSTALLATION OF STORMWATER MANAGEMENT CONTROLS AND NOT THE ULTIMATE OPERATION AND MAINTENANCE OF SUCH CONTROLS AFTER THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED AND THE SITE HAS UNDERGONE FINAL STABILIZATION. UNDER THIS GENERIC PERMIT, PERMITTEES ARE ONLY RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF STORMWATER MANAGEMENT BMPs PRIOR TO FINAL STABILIZATION OF THE SITE, AND ARE NOT RESPONSIBLE FOR MAINTENANCE AFTER STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY HAVE BEEN ELIMINATED FROM THE SITE. HOWEVER, ALL STORMWATER MANAGEMENT SYSTEMS AND BMPs SHALL BE OPERATED AND MAINTAINED IN PERPETUITY AFTER FINAL STABILIZATION IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE STATE OF FLORIDA ENVIRONMENTAL RESOURCE PERMIT ISSUED UNDER PART IV, CHAPTER 373, F.S.
 - CONTROLS FOR OTHER POTENTIAL POLLUTANTS.
 - WASTE DISPOSAL. THE PLAN SHALL ASSURE THAT WASTE, SUCH AS DISCARDED BUILDING MATERIALS, CHEMICALS, LITTER AND SANITARY WASTE ARE PROPERLY CONTROLLED IN ACCORDANCE WITH ALL APPLICABLE STATE, LOCAL AND FEDERAL REGULATIONS. THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF SOLID MATERIALS, INCLUDING BUILDING MATERIALS, TO SURFACE WATERS OF THE STATE OR AN MS4.
 - THE PLAN SHALL ASSURE THAT OFF-SITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST IS MINIMIZED.

- THE PLAN SHALL BE CONSISTENT WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS.
- THE PLAN SHALL ADDRESS THE PROPER APPLICATION RATES AND METHODS FOR THE USE OF FERTILIZERS, HERBICIDES AND PESTICIDES AT THE CONSTRUCTION SITE AND SET FORTH HOW THESE PROCEDURES WILL BE IMPLEMENTED AND ENFORCED. NUTRIENTS SHALL BE APPLIED ONLY AT RATES NECESSARY TO ESTABLISH AND MAINTAIN VEGETATION.
- THE PLAN SHALL ENSURE THAT THE APPLICATION, GENERATION AND MIGRATION OF TOXIC SUBSTANCES ARE LIMITED AND THAT TOXIC MATERIALS ARE PROPERLY STORED AND DISPOSED.
- MAINTENANCE. THE PLAN SHALL INCLUDE A DESCRIPTION OF PROCEDURES THAT WILL BE FOLLOWED TO ENSURE THE TIMELY MAINTENANCE OF VEGETATION, EROSION AND SEDIMENT CONTROLS, STORMWATER MANAGEMENT PRACTICES AND OTHER PROTECTIVE MEASURES AND BMPs SO THEY WILL REMAIN IN GOOD AND EFFECTIVE OPERATING CONDITION.
- INSPECTIONS. AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.50 INCHES OR GREATER, A QUALIFIED INSPECTOR (PROVIDED BY THE OPERATOR) SHALL INSPECT ALL POINTS OF DISCHARGE INTO SURFACE WATERS OF THE STATE OR AN MS4; DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED; AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; STRUCTURAL CONTROLS; AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AS FOLLOWS:
 - DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE STORMWATER SYSTEM. THE STORMWATER MANAGEMENT SYSTEM AND EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. DISCHARGE LOCATIONS OR POINTS SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION AND SEDIMENT CONTROL AND STORMWATER TREATMENT MEASURES ARE EFFECTIVE IN PREVENTING OR MINIMIZING THE DISCHARGE OF POLLUTANTS, INCLUDING RETAINING SEDIMENT ONSITE PURSUANT TO RULE 62-40.432, F.A.C. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING.
 - BASED ON THE RESULTS OF THE INSPECTION, ALL MAINTENANCE OPERATIONS NEEDED TO ASSURE PROPER OPERATION OF ALL CONTROLS, BMPs, PRACTICES OR MEASURES IDENTIFIED IN THE STORMWATER POLLUTION PREVENTION PLAN SHALL BE DONE IN A TIMELY MANNER, BUT IN NO CASE LATER THAN 7 CALENDAR DAYS FOLLOWING THE INSPECTION. IF NEEDED, POLLUTION PREVENTION CONTROLS, BMPs AND MEASURES IDENTIFIED IN THE PLAN SHALL BE REVISED AS APPROPRIATE, BUT IN NO CASE LATER THAN 7 CALENDAR DAYS FOLLOWING THE INSPECTION. SUCH MODIFICATIONS SHALL PROVIDE FOR TIMELY IMPLEMENTATION OF ANY CHANGES TO THE PLAN WITHIN 7 CALENDAR DAYS FOLLOWING THE INSPECTION.
 - A REPORT SUMMARIZING THE SCOPE OF THE INSPECTION; NAME(S) AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION; THE DATE(S) OF THE INSPECTION; RAINFALL DATA; MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE STORMWATER POLLUTION PREVENTION PLAN; AND ACTIONS TAKEN IN ACCORDANCE WITH PARAGRAPH V.D.4.B. OF THIS PERMIT, SHALL BE MADE AND RETAINED, IN ACCORDANCE WITH PART VI OF THIS PERMIT, AS PART OF THE STORMWATER POLLUTION PREVENTION PLAN. SUCH REPORTS SHALL IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE, WHERE A REPORT DOES NOT IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE, THE REPORT SHALL CONTAIN A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THIS PERMIT. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART VII.C. OF THIS PERMIT.
- NON-STORMWATER DISCHARGES. EXCEPT FOR FLOWS FROM FIRE FIGHTING ACTIVITIES, SOURCES OF NON-STORMWATER LISTED IN PART IV.A.3. OF THIS PERMIT THAT ARE COMBINED WITH STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY MUST BE IDENTIFIED IN THE PLAN. THE PLAN SHALL IDENTIFY AND ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION AND TREATMENT MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE.
- CONTRACTOR/SUBCONTRACTOR CERTIFICATION.
 - THE STORMWATER POLLUTION PREVENTION PLAN MUST CLEARLY IDENTIFY, FOR EACH MEASURE IDENTIFIED IN THE PLAN, THE CONTRACTOR(S) AND SUBCONTRACTOR(S) THAT WILL IMPLEMENT THE MEASURES IDENTIFIED IN PART V.D.6.B. OF THIS PERMIT. ALL CERTIFICATIONS MUST BE INCLUDED IN THE STORMWATER POLLUTION PREVENTION PLAN.
 - CERTIFICATION STATEMENT FOR CONTRACTORS/SUBCONTRACTORS. ALL CONTRACTORS AND SUBCONTRACTORS IDENTIFIED IN A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH PART V.D.6.A. OF THIS PERMIT SHALL SIGN A COPY OF THE FOLLOWING CERTIFICATION STATEMENT BEFORE CONDUCTING ANY ACTIVITIES AT THE SITE:

"I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND, AND SHALL COMPLY WITH, THE TERMS AND CONDITIONS OF THE STATE OF FLORIDA GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES AND THIS STORMWATER POLLUTION PREVENTION PLAN PREPARED THEREUNDER."

THE CERTIFICATION MUST INCLUDE THE NAME AND TITLE OF THE PERSON PROVIDING THE SIGNATURE IN ACCORDANCE WITH PART VII.C. OF THIS PERMIT; THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE CONTRACTING FIRM; AND THE DATE THE CERTIFICATION IS MADE.

PART VI. RETENTION OF RECORDS

- THE PERMITTEE SHALL RETAIN COPIES OF STORMWATER POLLUTION PREVENTION PLANS AND ALL REPORTS REQUIRED BY THIS PERMIT, AND RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT, FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE SITE IS FINALLY STABILIZED.
- THE PERMITTEE SHALL RETAIN A COPY OF THE STORMWATER POLLUTION PREVENTION PLAN AND ALL REPORTS, RECORDS AND DOCUMENTATION REQUIRED BY THIS PERMIT AT THE CONSTRUCTION SITE, OR AN APPROPRIATE ALTERNATIVE LOCATION AS SPECIFIED IN THE NOI, FROM THE DATE OF PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.

PART VII. STANDARD PERMIT CONDITIONS

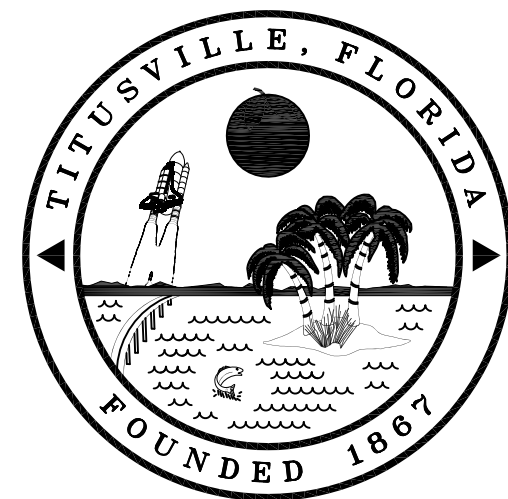
- ANY PERMIT NONCOMPLIANCE CONSTITUTES A VIOLATION OF SECTION 403.161, F. S. AND IS GROUNDS FOR ENFORCEMENT ACTION; FOR PERMIT COVERAGE TERMINATION, OR REVOCATION; OR FOR DENIAL OF PERMIT COVERAGE RENEWAL.
- ALL OF THE GENERAL CONDITIONS LISTED IN RULE 62-621.250, F.A.C., ARE ADOPTED HEREIN BY REFERENCE.
- SIGNATORY REQUIREMENTS.
 - ALL NOTICES OF INTENT, NOTICES OF TERMINATION, STORMWATER POLLUTION PREVENTION PLANS, REPORTS, CERTIFICATIONS OR INFORMATION EITHER SUBMITTED TO THE DEPARTMENT OR THE OPERATOR OF A MUNICIPAL SEPARATE STORM SEWER SYSTEM, OR THAT THIS PERMIT REQUIRES BE MAINTAINED BY THE PERMITTEE, SHALL BE SIGNED AS SET FORTH IN RULE 62-620.305, F.A.C.
 - INSPECTION REPORTS PREPARED PURSUANT TO PART V.D.4.C. OF THIS PERMIT SHALL BE SIGNED BY THE QUALIFIED INSPECTOR THAT PREPARED THEM AS WELL AS BY A RESPONSIBLE AUTHORITY FOR THE OPERATOR AS SPECIFIED IN PART VII.C.1. ABOVE.
 - ANY PERSON SIGNING DOCUMENT UNDER THIS PERMIT, EXCEPT CONTRACTOR/SUBCONTRACTOR CERTIFICATIONS UNDER PART V.D.6., SHALL MAKE THE FOLLOWING CERTIFICATION:

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

PART VIII. TERMINATION OF COVERAGE

- NOTICE OF TERMINATION.
 - WHERE A SITE HAS BEEN FINALLY STABILIZED (SEE PART II FOR THE DEFINITION OF FINAL STABILIZATION) AND ALL STORMWATER DISCHARGES AUTHORIZED BY THIS PERMIT ARE ELIMINATED, THE PERMITTEE SHALL SUBMIT A COMPLETED NOTICE OF TERMINATION (DEP FORM 62-621.300(6)), SIGNED IN ACCORDANCE WITH PART VII.C. OF THIS PERMIT, WITHIN 14 DAYS OF FINAL STABILIZATION OF THE SITE TO TERMINATE COVERAGE UNDER THIS PERMIT.
 - ELIMINATION OF STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY MEANS THAT ALL DISTURBED SOILS AT THE SITE HAVE BEEN FINALLY STABILIZED AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN REMOVED OR WILL BE REMOVED AT AN APPROPRIATE TIME, OR THAT ALL STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY FROM THE SITE THAT ARE AUTHORIZED BY THIS GENERIC PERMIT HAVE OTHERWISE BEEN ELIMINATED.
 - FOR CONSTRUCTION ACTIVITIES WHERE THE OPERATOR CHANGES, THE EXISTING OPERATOR SHALL FILE AN NOI IN ACCORDANCE WITH THIS PART WITHIN 14 DAYS OF RELINQUISHING CONTROL OF THE PROJECT TO A NEW OPERATOR.
- WHERE TO SUBMIT.
 - A PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION EITHER ELECTRONICALLY OR BY PAPER COPY.
 - THE DEPARTMENT ENCOURAGES THE ELECTRONIC SUBMISSION OF NOTES THROUGH THE NPDES STORMWATER PROGRAM'S ELECTRONIC PERMITTING APPLICATION AVAILABLE AT HTTP://WWW.DEP.STATE.FL.US/WATER/STORMWATER/NPDES/.
 - IF THE OPERATOR CHOOSES TO SUBMIT THE NOT BY PAPER COPY, THE NOT SHALL BE SUBMITTED TO THE FOLLOWING ADDRESS:

NPDES STORMWATER NOTICES CENTER, MS# 2510
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400
 - PROJECTS THAT DISCHARGED STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY TO A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) SHALL SUBMIT A COPY OF THE NOT TO THE OPERATOR OF THE MS4.



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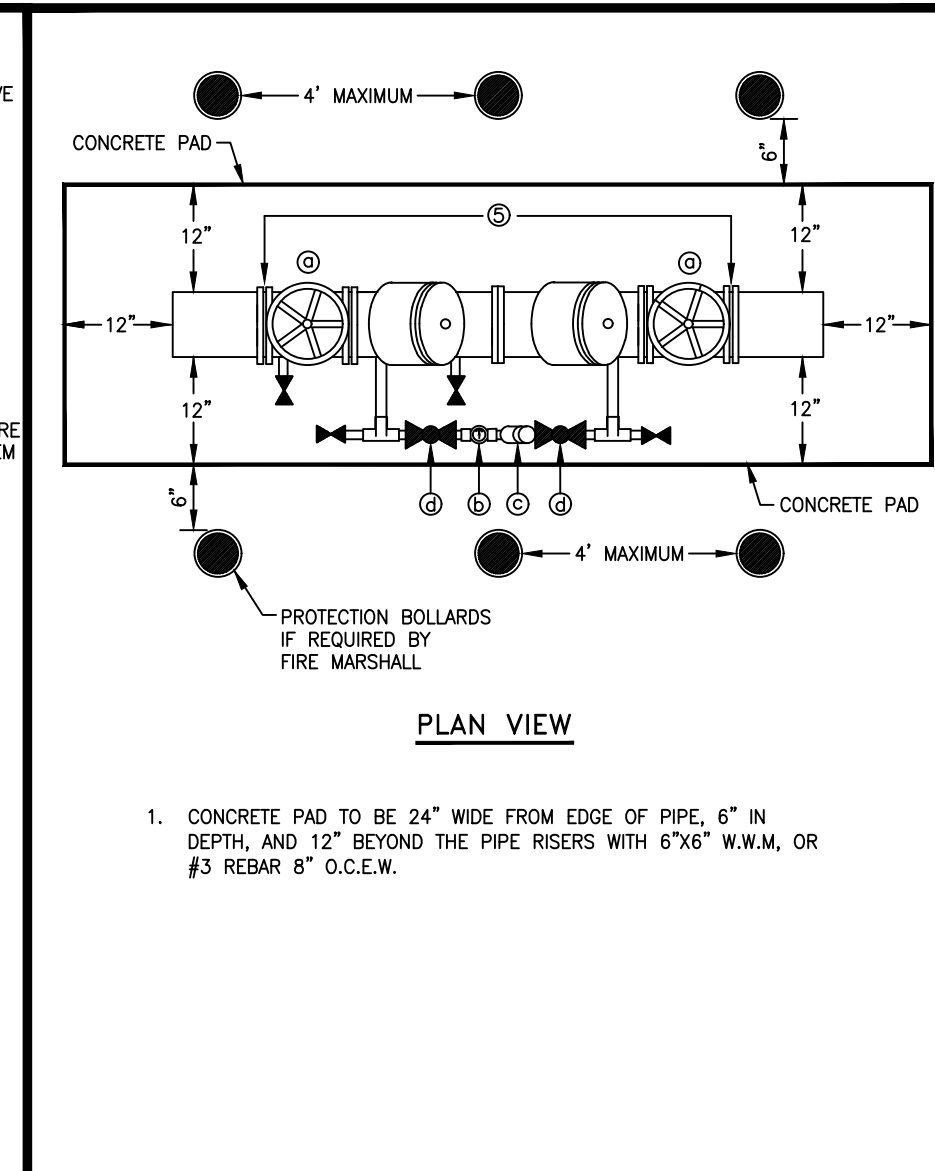
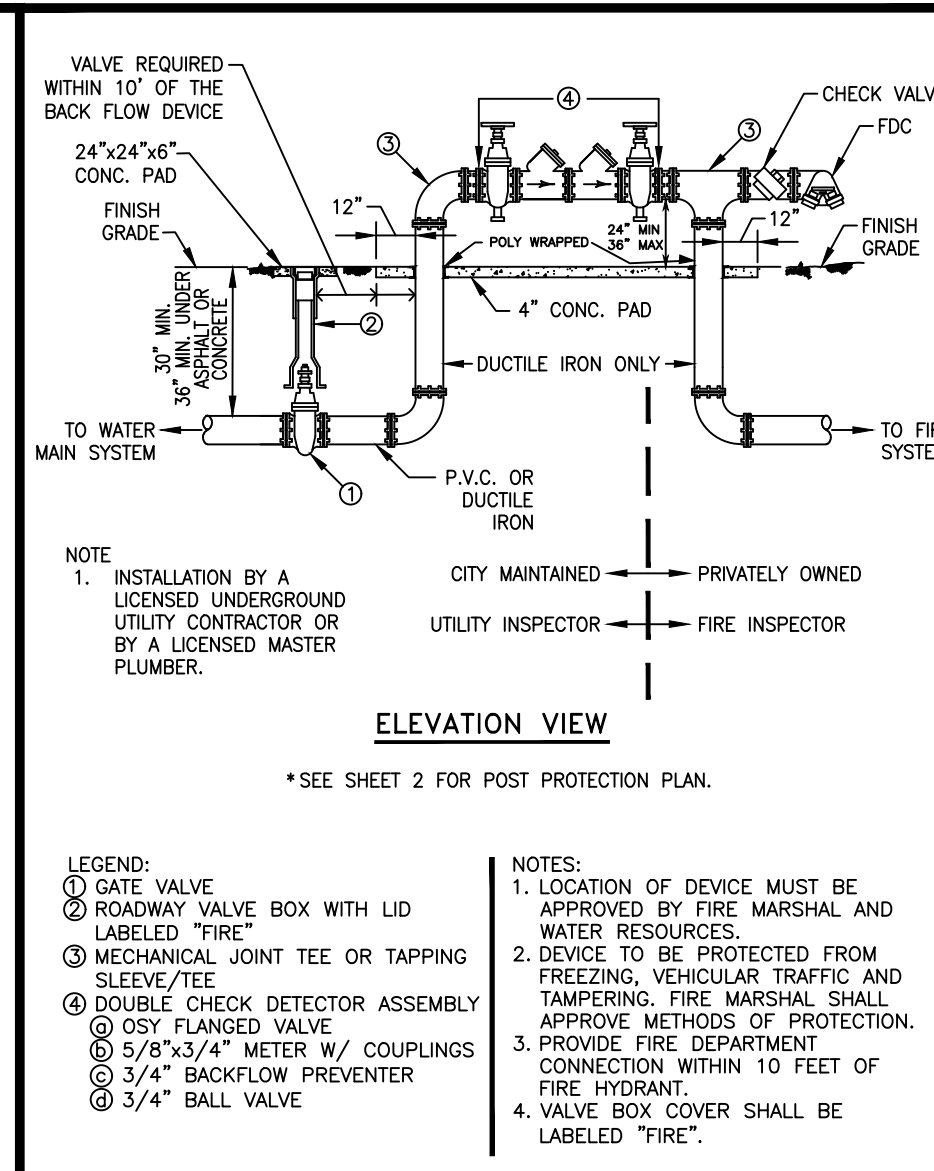
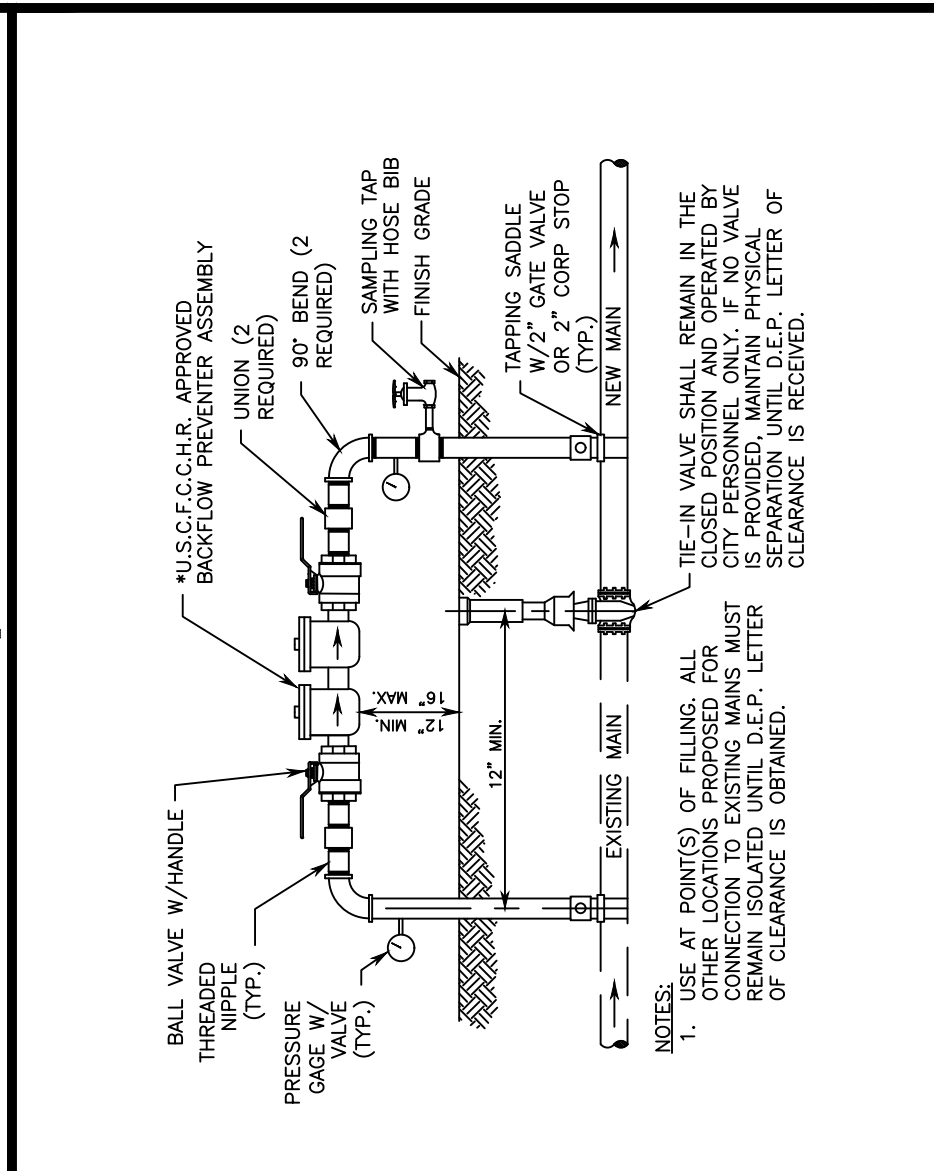
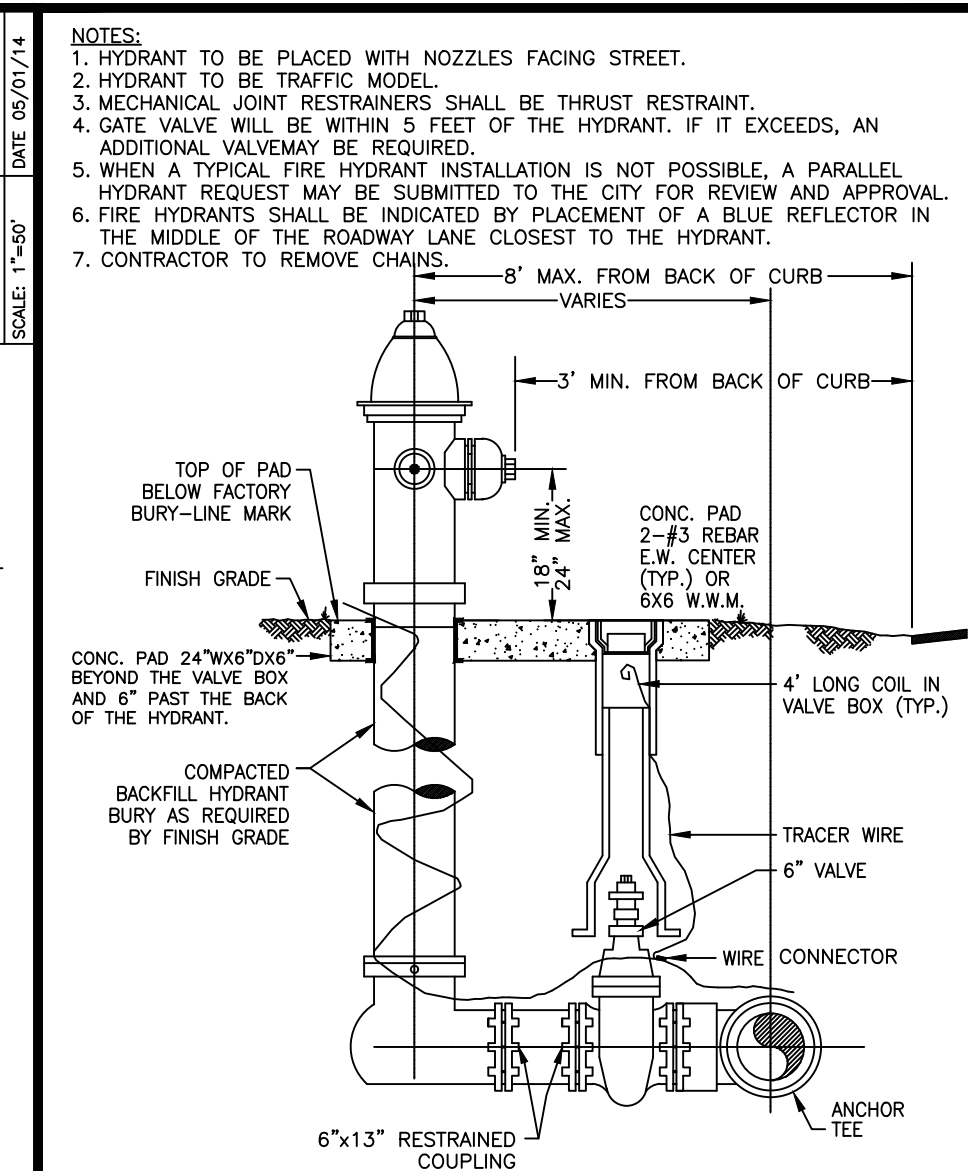
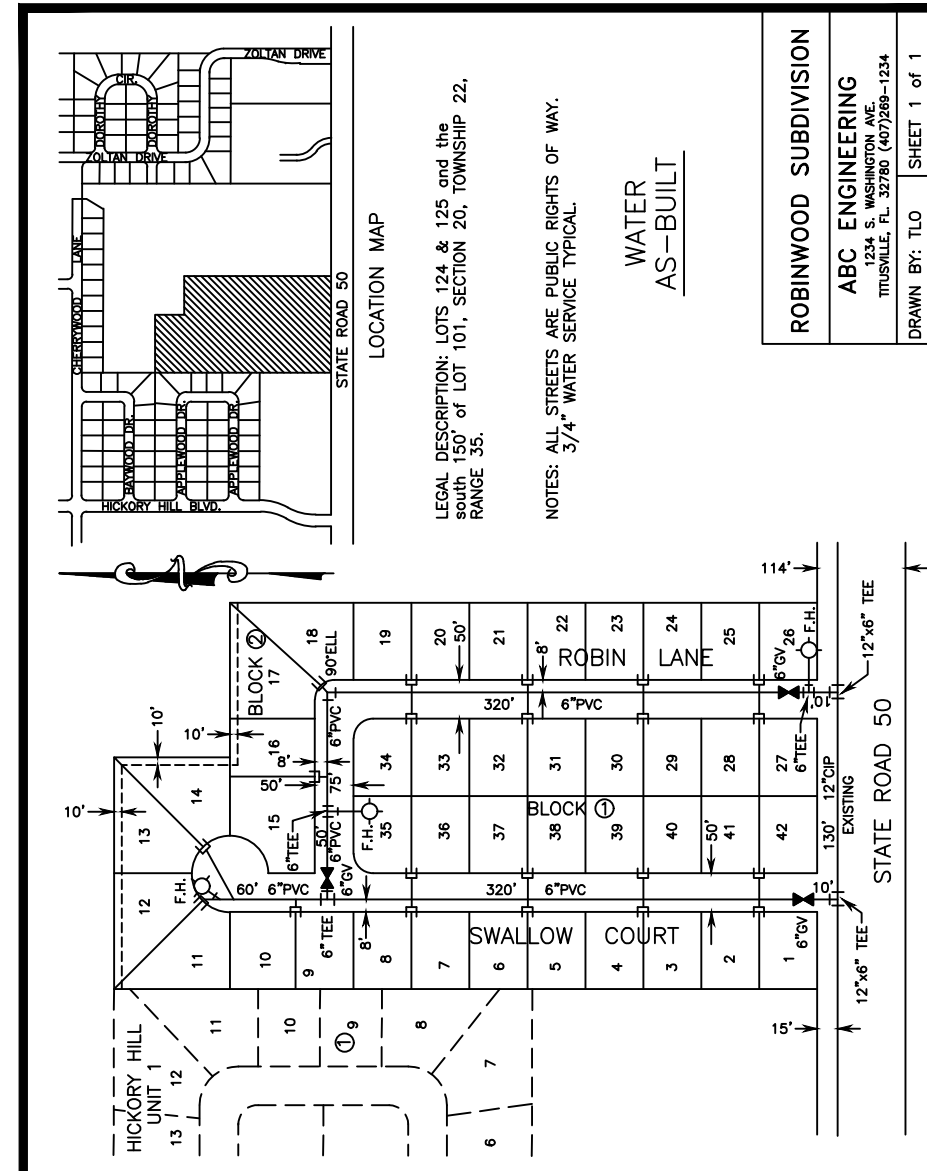
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No.	Revision	Date

EROSION CONTROL
DETAILS
AND SPECIFICATIONS

DEVELOPMENT SERVICES	DEPT. COT EC2
DECEMBER 2012	
N.T.S.	SCALE SHEET



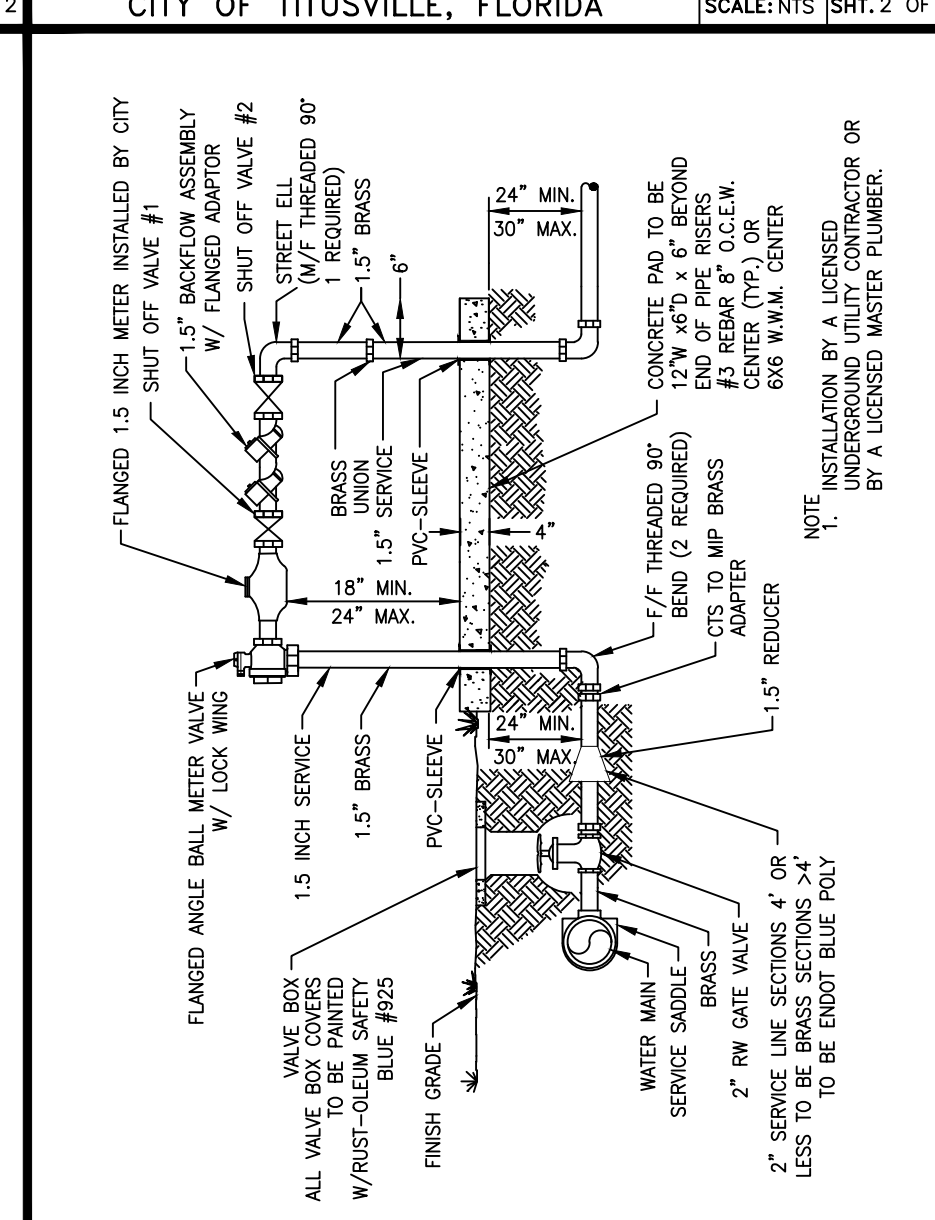
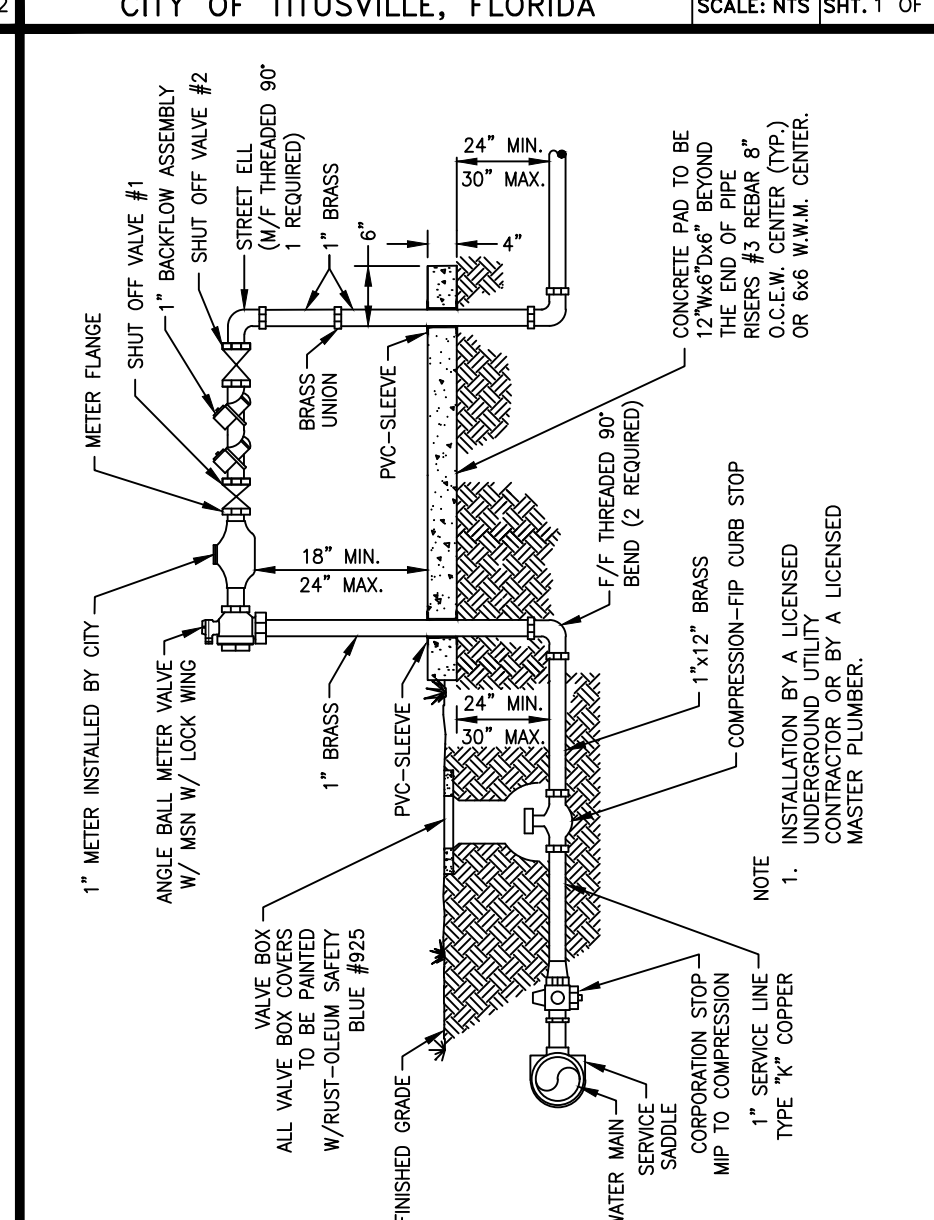
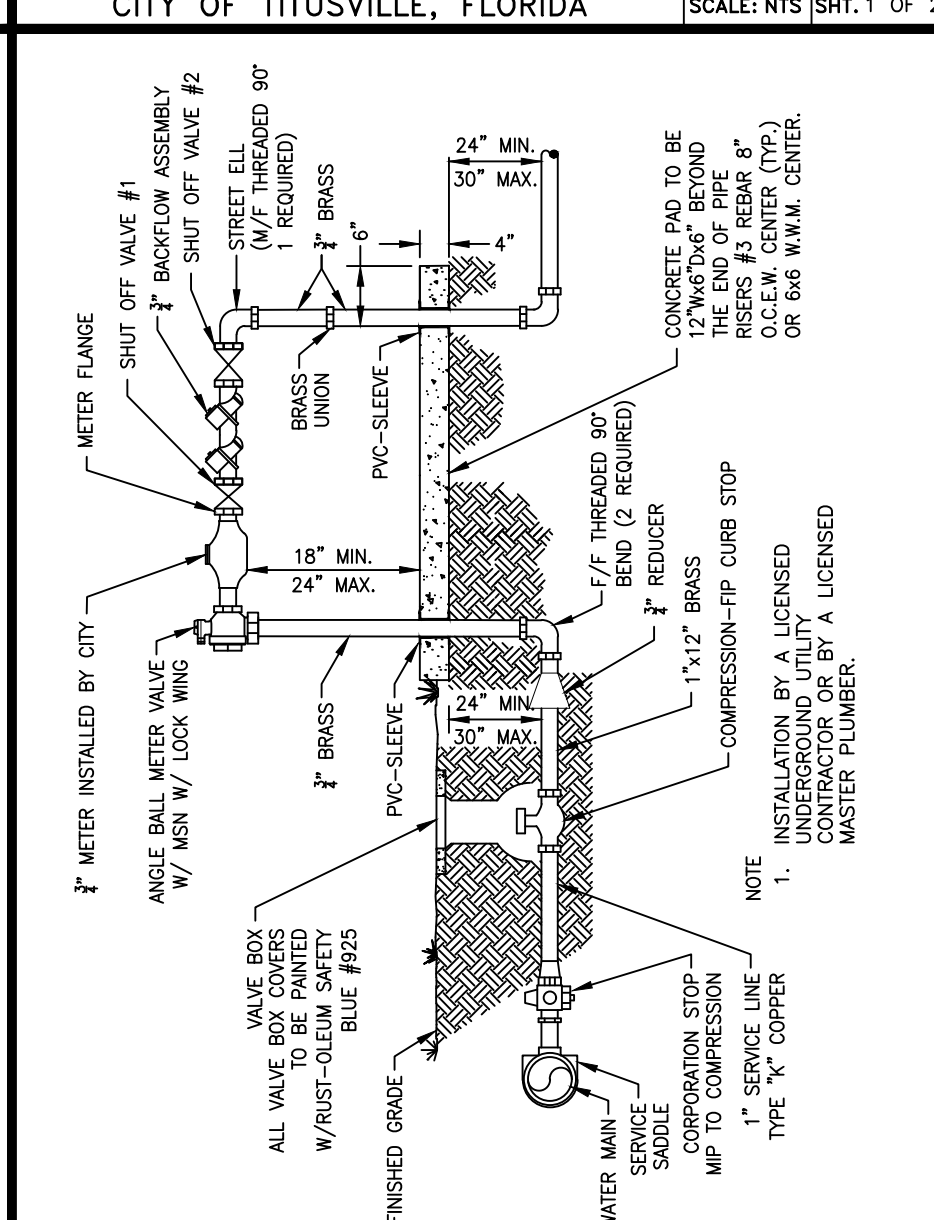
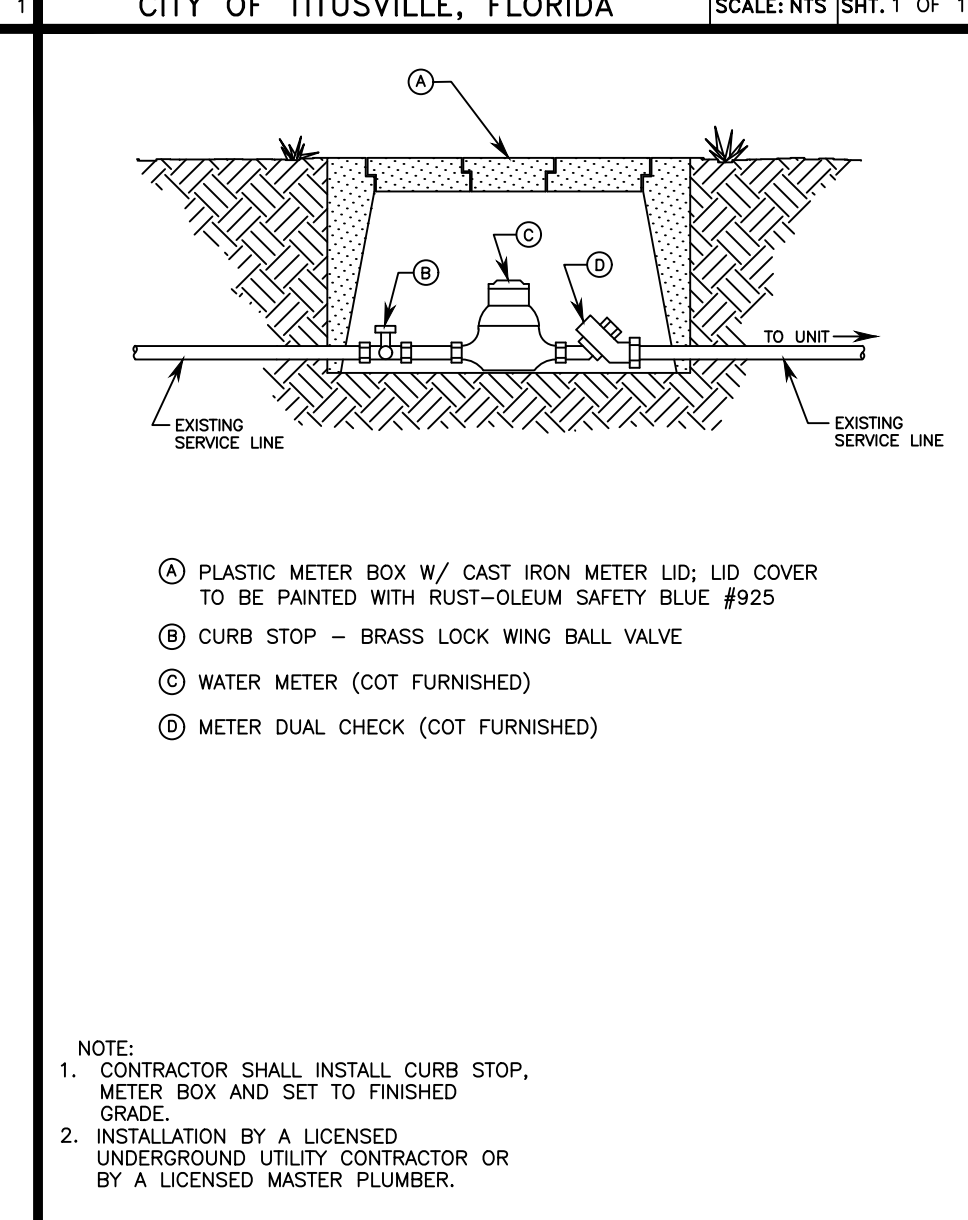
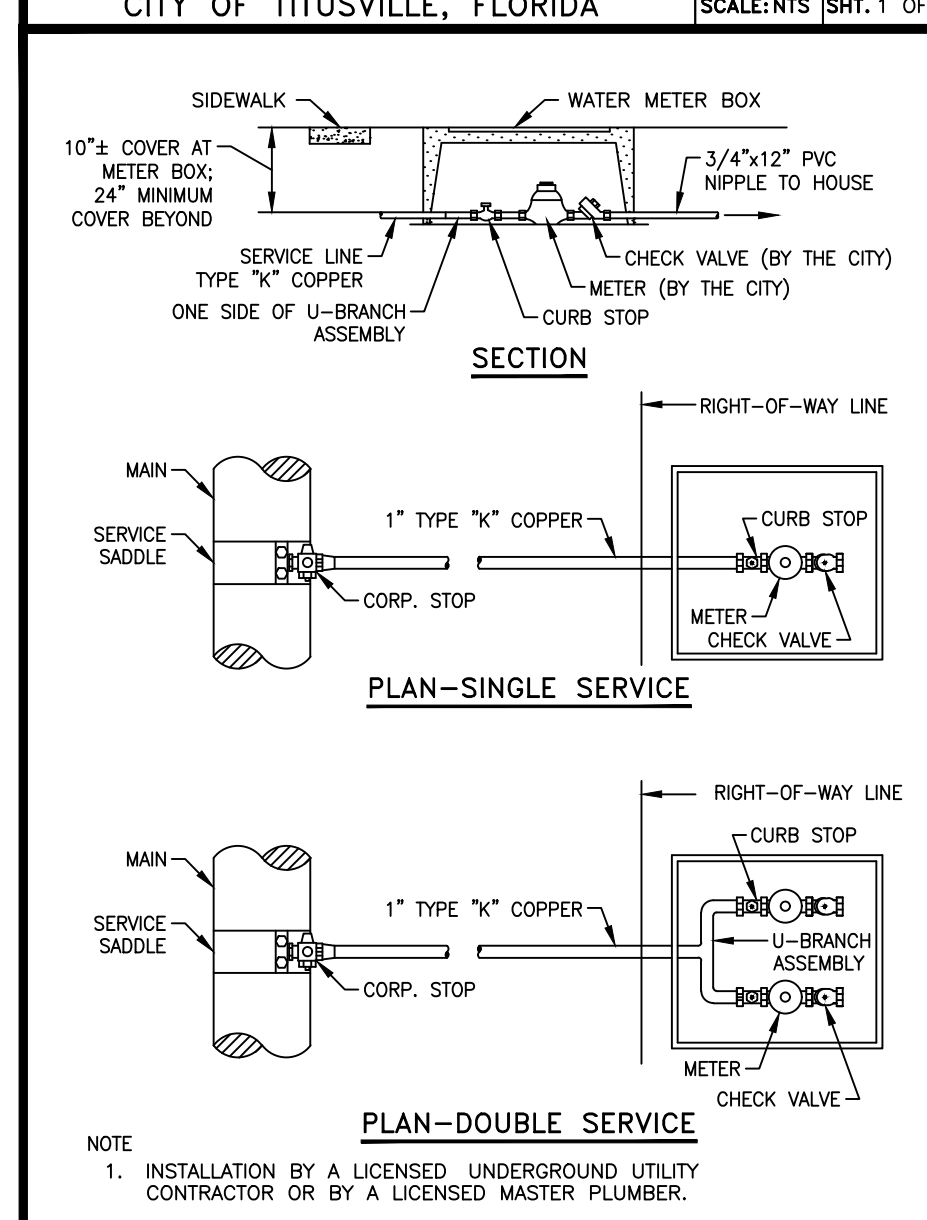
WATER DISTRIBUTION AS-BUILT SAMPLE
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TYPICAL FIRE HYDRANT & GATE VALVE INSTALLATION
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TEMPORARY JUMPER CONNECTION DETAIL
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 2

FIRE LINE BACKFLOW PREVENTER
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 2

FIRE LINE BACKFLOW PREVENTER
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 2 OF 2



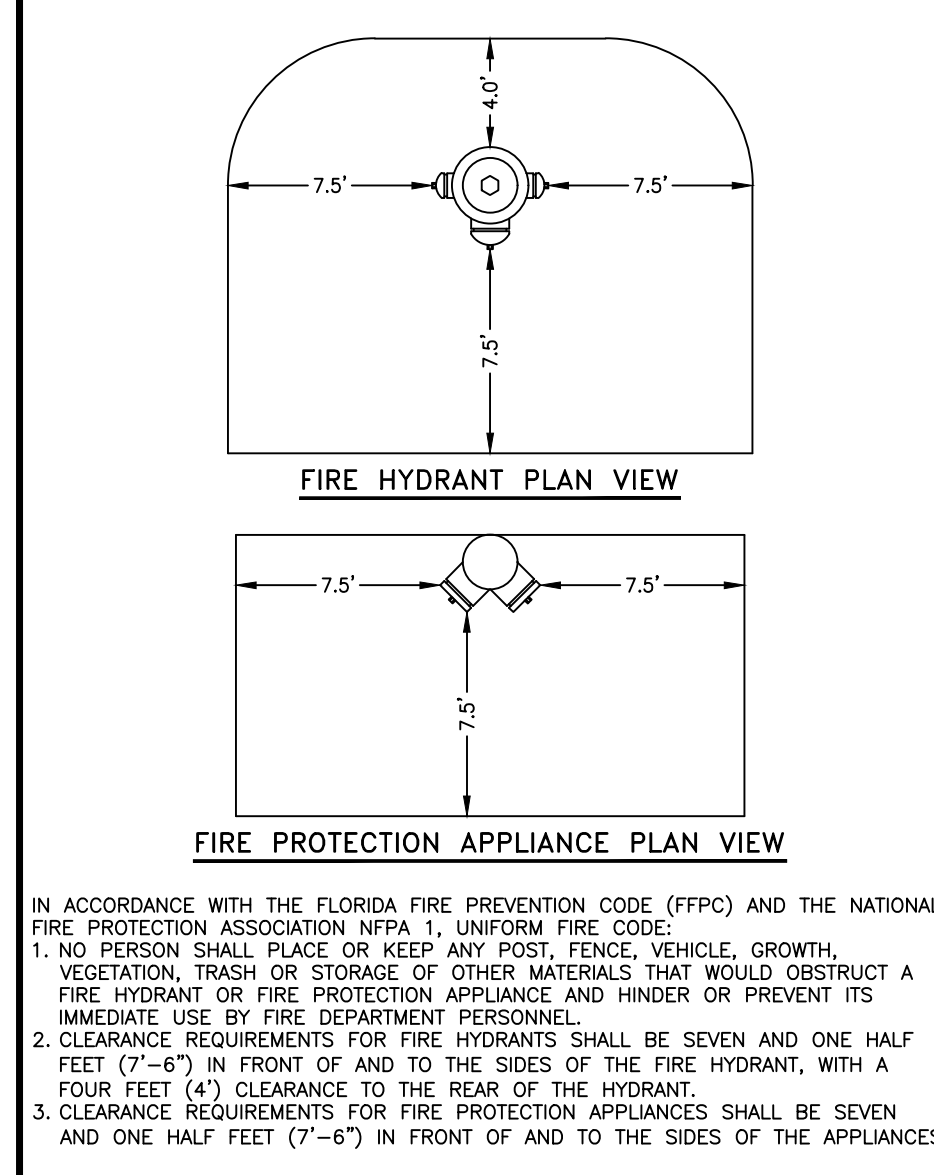
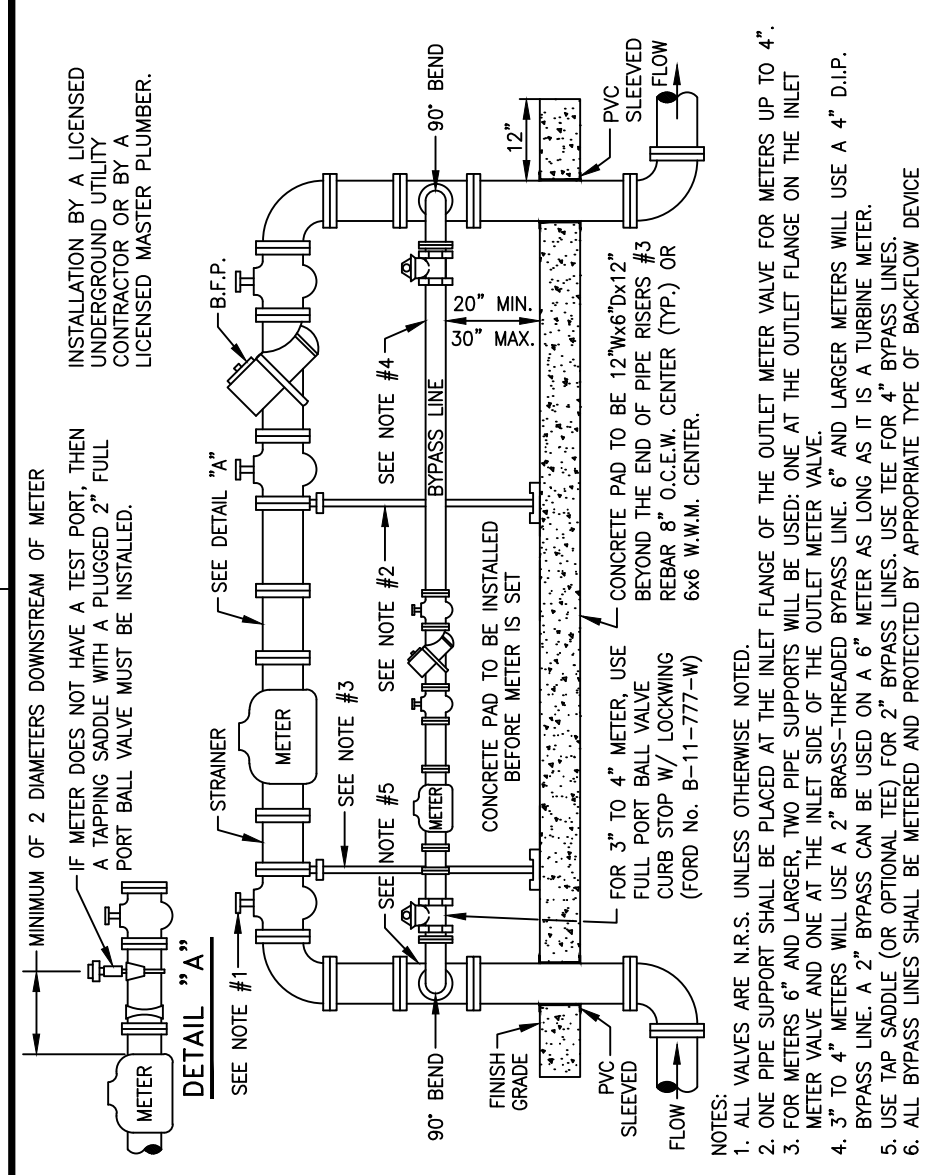
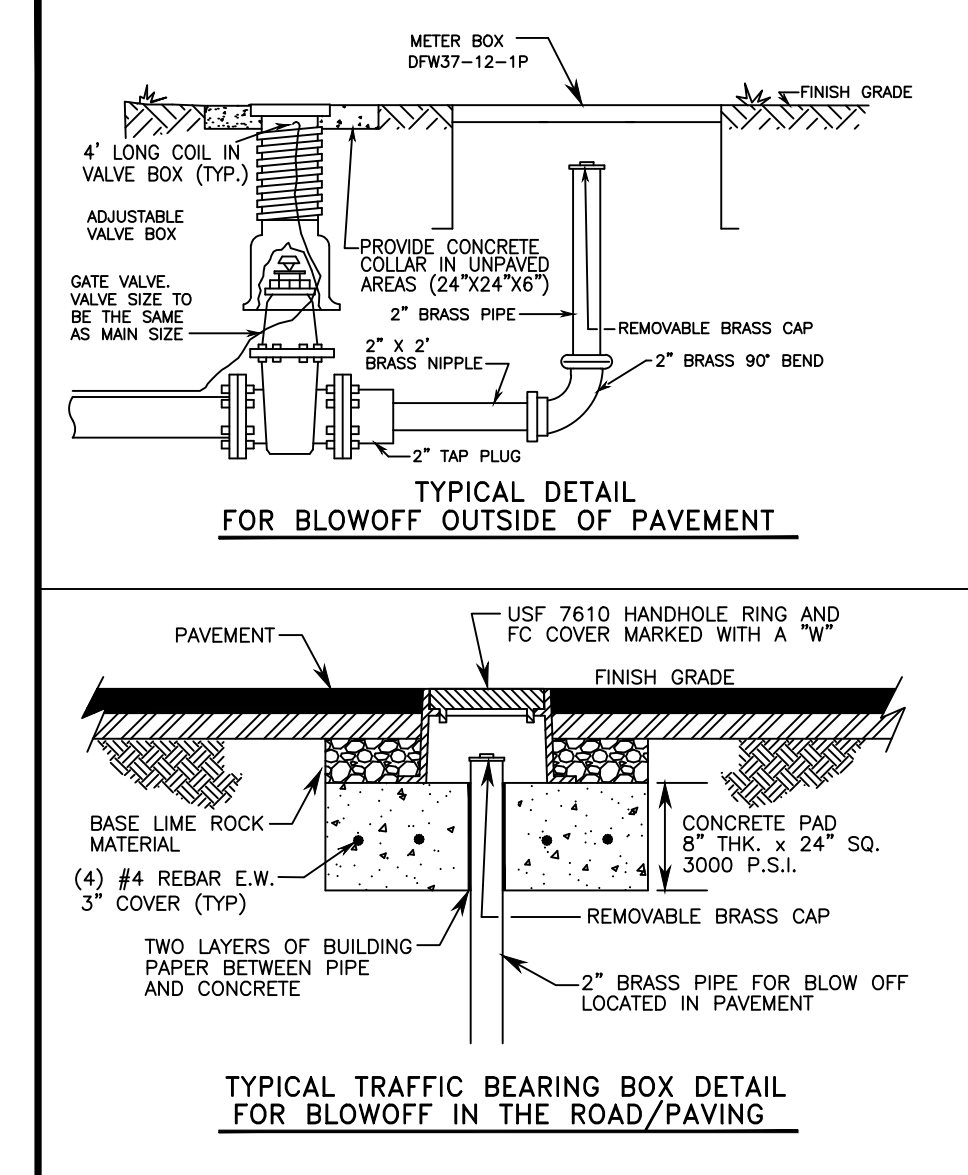
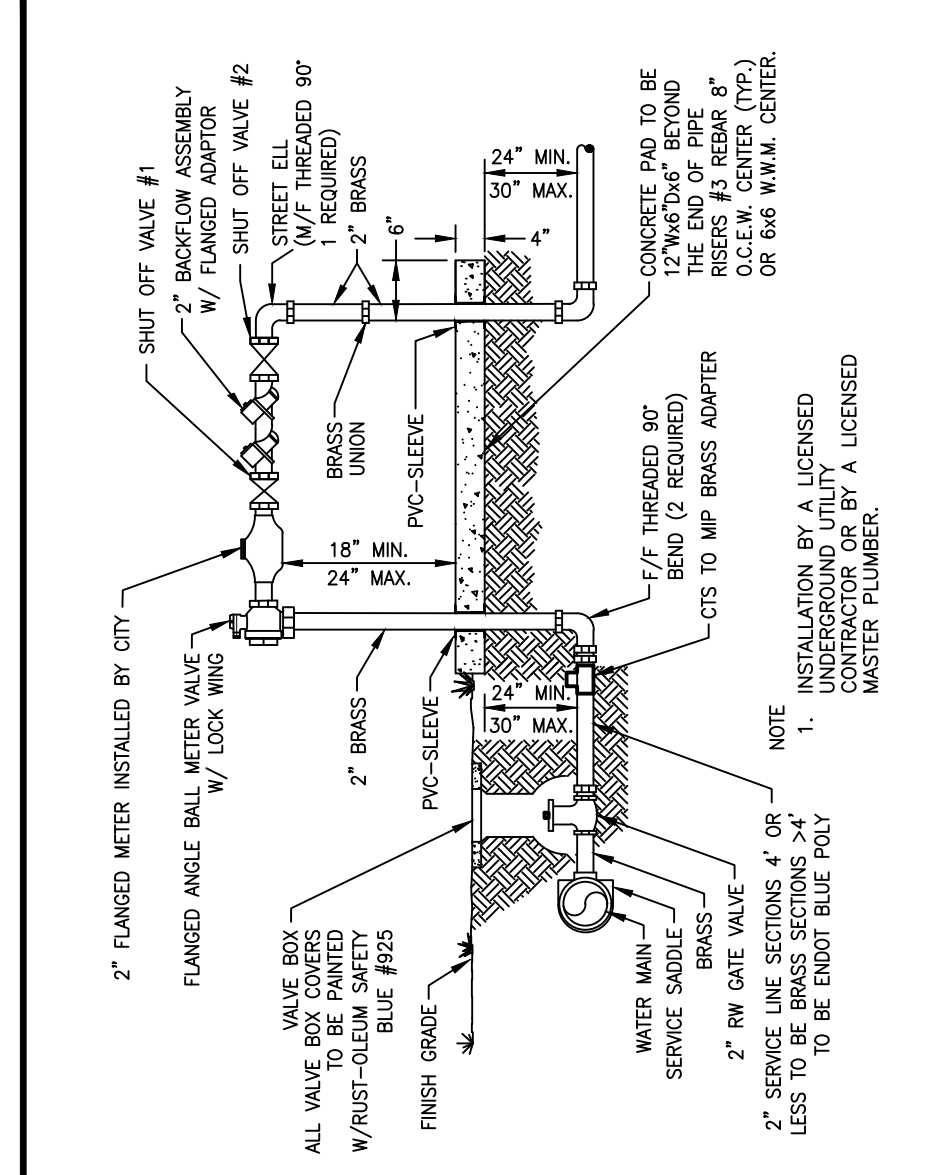
TYPICAL RESIDENTIAL SERVICE CONNECTIONS
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 2 OF 2

TYPICAL WATER METER INSTALLATION ON A SINGLE SERVICE LINE
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TYPICAL 3/4" BACKFLOW INSTALLATION
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TYPICAL 1" BACKFLOW INSTALLATION
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TYPICAL 1.5" BACKFLOW INSTALLATION
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1



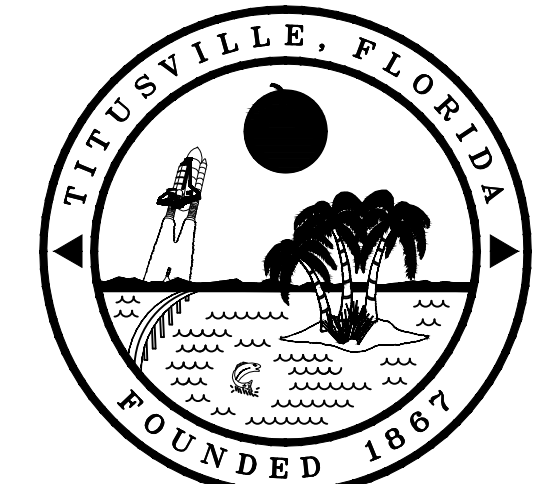
TYPICAL 2" BACKFLOW INSTALLATION
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TYPICAL 2" BLOWOFF DETAILS
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TYPICAL 3" OR LARGER METER INSTALLATION
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TYPICAL HYDRANT AND FDC DETAILS
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1

TYPICAL HYDRANT AND FDC DETAILS
CITY OF TITUSVILLE, FLORIDA
SCALE: N.T.S. SHEET 1 OF 1



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No.	Revision	Date

**POTABLE WATER
DETAILS
AND SPECIFICATIONS**

WATER RESOURCES	DEPT.	1
May 2022	DATE	of
N.T.S.	SCALE	2
	SHEET	

4.0. POTABLE WATER DESIGN AND CONSTRUCTION STANDARDS

- 4.1. The configuration and location of any proposed/extended water main and service line shall be at the sole discretion of the COT to maximize supply/service pressure, minimize maintenance, and ensure water quality. Water service connection points shall be located on water mains providing best water quality.
- 4.2. The City of Titusville shall own and maintain all public portions of the water system up to the water meter.
- 4.3. The water distribution system and/or water main extensions shall be designed and constructed in accordance with the fire protection requirements as approved by the Fire Department.
- 4.4. RIGHTS-OF-WAY: Water mains shall maintain a consistent alignment with respect to the centerline of the road. In residential developments, mains should be installed as illustrated on the City's detail. Exceptions will be made on a case-by-case basis. In all cases, mains shall be installed along one side of the road, with crossings kept to a minimum.
- 4.5. The minimum water line easement width shall be twenty (20) feet. Additional easement widths shall be provided at the discretion of the City based on the depth of the pipe.
- 4.6. SIZING WATER SERVICE LINES, METERS, AND BACKFLOW PREVENTERS: Sizing of water service lines and meters shall be per American Water Works Association "Manual of Water Supply Practices. Sizing Water Service Lines and Meters, AWWA M22", latest edition. In accordance with the table shown below, the sizing of water service lines, meters and backflow preventers shall be:

WATER SERVICE LINE SIZE	METER AND BACKFLOW PREVENTER SIZE	METER AND BACKFLOW PREVENTER SIZE
1"	3/8" x 3/4"	1"
2"	1-1/2"	1-1/2"
3"	2"	2"
4"	4"	4"
Larger than 4"	Larger than 4"	As approved by Water Resources Department

Note: Meter and backflow devices will be size on size.

- 4.7. Average Daily Flow: Average daily water flow shall be calculated by referencing the equivalent residential connection (ERC) flow rates as outlined in "Code of Ordinances City of Titusville, Florida, Land Development Regulations". Maximum daily water flow shall be calculated as two (2) times the average daily water flow, and the peak hourly flow shall be calculated as four (4) times the average daily water flow.
- 4.8. Fire flow requirements: All fire hydrants are to be designed to operate at a minimum of 1,000 gpm at 20 psi at the farthest fire hydrant from the initial point of connection to the residential development. Commercial and industrial fire flow requirements shall be determined in accordance with the Florida Fire Prevention Code which includes NFPA 1 and NFPA Life Safety Code 101. Where fire flow requirements exceed the anticipated available fire flow from the central water system, an on-site fire protection system, or other Fire Department approved mitigation, shall be utilized.
- 4.9. Design Calculations: The Project Engineer shall submit signed, sealed and dated design calculations with the plans for all water distribution projects. Calculations shall show that the water mains will have sufficient hydraulic capacity to transport peak hourly flows and the combination of maximum daily flows and fire flows while meeting the requirements of Section 5.11. Minor head losses through meters, backflow devices, fittings, valves, etc shall also be included in the calculations.
- 4.10. Pressure: All water mains shall be designed in accordance with Section 5.9 above. The system shall be designed to maintain a minimum pressure of 20 psi at all points in the distribution system under all conditions of flow. Higher pressures may be required at commercial, industrial and high-density residential areas. The design pressure within the system should be verified with the COT prior to beginning any calculations. For excessive pressures, pressure reducing provisions may be required.
- 4.11. Design Friction Loss: Friction losses through mains shall be based on the Hazen and Williams formula. In the use of the Hazen and Williams formula, the value for "C" shall be 120 for ductile iron pipe and 130 for PVC and HDPE pipe. "C" values greater than 130 shall not be allowed.
- 4.12. Potable water: All pipe and fittings for potable water distribution shall be ductile iron or polyvinyl chloride (PVC) pipe. High Density Polyethylene (HDPE) pipe can be used for directional boring purposes only. All fittings and appurtenances must be lead free.
- 4.13. TEST AND INSPECTION:
- 4.14. DISINFECTION- BACTERIOLOGICAL TESTING:
 - 4.14.1. All potable water pipe, fittings, valves and service lines shall be thoroughly disinfected prior to being placed in service. Disinfection shall follow the applicable procedure established as set forth in AWWA C651, latest revision. Samples shall be collected by a representative of an approved State Certified Testing Laboratory, with the City Utility Inspector, present from fittings provided by the Contractor for that purpose.
 - 4.14.2. Flows for chlorination purposes are to be controlled from the downstream or blow-off end of the water line. The location of sampling points shall comply with the conditions of the Florida Department of Environmental Protection (FDEP) permit. The sample points must have a stainless steel or brass non-threaded, smooth-nosed, downward spouted hose bib mounted on a rigid stand pipe at least three feet above the finished grade. Warning tags will be attached to each sample point by the City.
 - 4.14.3. The chlorine residual is to remain in all lines for a minimum period of 24 hours. After notification from the City Utility Inspector, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its lengths shows a free chlorine residual not in excess of that normally carried in the system.
 - 4.14.4. After flushing, water samples collected on two successive days from the treated piping system, as directed by the City Utility Inspector, shall show acceptable bacteriological results. All bacteriological testing shall be performed by a State Certified Laboratory contracted by the Contractor. Proper chain of custody procedures must be followed and samples shall only be collected by state certified laboratory personnel. Any samples collected by the Contractor will not be accepted.
 - 4.14.5. Should the initial treatment result in an unsatisfactory bacterial test, the original chlorination procedure and bacteriological testing shall be repeated by the Contractor until satisfactory results are obtained.
 - 4.14.6. Copies of all testing results and all related correspondence from the FDEP shall be submitted to the City of Titusville.

4.15. HYDRANTS

- 4.15.1. Hydrant spacing and location: Fire hydrants in single-family residential areas shall be located so that they are not over 500 feet apart (as measured along a street) and shall be connected to water mains no less than six (6) inches in diameter and to looped water mains whenever possible. Dead end streets or cul-de-sacs shall not have a length greater than 200 feet from the nearest fire hydrant. Fire hydrants in commercial (business, industrial, institutional, and apartment) districts shall be located so that they are not over 250 feet part (as measured along a street) and shall be connected to water mains no less than eight (8) inches in diameter and to looped water mains whenever possible. Hydrant valves shall be located at a distance not greater than 5 feet from the hydrant, unless otherwise approved by the Water Resources Department. Any valves that exceed 5 feet, will require an additional valve. All fire hydrant locations and fire line requirements shall be reviewed and approved by the Fire Department.
- 4.15.2. All hydrants shall meet or exceed ANSI/AWWA C502's latest edition for dry-barrel fire hydrants and shall, in addition, meet the specific requirements and exceptions which follow. Hydrants shall be assembled and tested in a certified manufacturing facility within the United States, unless otherwise stated. Hydrants shall be listed by Underwriters Laboratory and approved by Factory Mutual for fire line service. UL and FM trademarks shall be cast on the hydrant nozzle section.
- 4.15.3. Hydrant valve opening shall have an area equal to the area of a 5 1/4-inch minimum diameter circle and be obstructed only by the valve rod. Hydrant main valve closure shall be of the compression type opening against pressure and closing with pressure. Main valve shall be EPDM rubber.
- 4.15.4. All internal operating parts shall be removable without requiring excavation. Hydrants shall be hydrostatically tested as specified in AWWA C502 and shall be rated at 250 psi minimum working pressure. Hydrant bonnets, weather cover, nozzle section, caps and shoe shall be cast or ductile iron. Hydrants shall consist of one (1) 4.5" NST pumper nozzle and two (2) 2.5" NST hose nozzles. Nozzles threaded into the nozzle section shall have Never-Seez® White Food Grade, or COT approved equal, applied at the factory while being assembled. Cap threads shall be lubricated with Never-Seez® White Food Grade, or COT approved equal, before delivery.
- 4.15.5. Hydrant shoe shall have an electrostatic applied, fusion bonded, epoxy coating internally and externally. The coating shall meet or exceed the requirements of AWWA C550. Coating to be applied only at the manufacturer's facility. The standpipe shall be Blümen coated or fusion bonded epoxy coated internally and externally with a bury line present below the break flange to indicate proper installation depth. Bury depth shall be clearly marked on standpipe. All hydrants shall be clearly stenciled "Titusville" on the standpipe.
- 4.15.6. The hydrant's upper and lower stem, as well as its break coupling and internal pins and clips shall be manufactured of stainless steel. Type 304 with no measurable level of lead content. Breakaway coupling may be fusion bonded epoxy coated cast/ductile iron with stainless steel pins. All external bolting shall be manufactured of stainless steel, Type 316.
- 4.15.7. All hydrants shall be of the traffic breakaway type and allow 360-degree rotation to position the pumper nozzle in the desired direction after installation. A lubrication port shall be provided for the installation of lubrication without disassembly of the bonnet section. The reservoir shall be filled with NSF/FDA approved food grade grease at the manufacturer's facility.
- 4.15.8. The main valve shall not bottom out onto the shoe section. Travel stop nuts may be used in bonnet section to prevent this. Operating nut shall be a 1-1/2" pentagon bronze nut and shall open counter clockwise and have a protective weather cover. Drain holes will not be permitted. If hydrant is manufactured with drain holes, then drain holes shall be plugged with brass plugs.
- 4.15.9. All hydrants shall be covered by a Manufacturer's Ten (10) Year Limited Warranty from the date of purchase by the end user and delivered within thirty (30) days from receipt of purchase order.
- 4.15.10. All hydrants will have an external sprayed on epoxy coating applied at the factory. Epoxy coating shall be Sherwin-Williams Acrolon 218 HS, an Aliphatic Acrylic Polyurethane, or Water Resources Department approved equal. The color for all City owned and maintained hydrants shall be #95-8002 Safety Yellow (Color #3330). The color for all privately owned and maintained hydrants shall be painted with Sherwin-Williams Acrolon 218 HS, an Aliphatic Acrylic Polyurethane, or Water Resources Department approved equal in Red. **All hydrants are to receive an additional field coating prior to acceptance by Water Resources Department.**
- 4.15.11. Non-operational hydrants shall be clearly identified by the Contractor as being out of service. The non-operational hydrant will have an out of service tag on the hydrant provided by the Contractor. The out of service tag shall be placed on the 4.5 inch pumper nozzle upon installation.
- 4.15.12. 1.1.1.All hydrants shall stand plumb with the pumper nozzle facing the street curb and the bury line of the hydrant at the finished grade. The break-away flange and bolts must not be in contact with the ground or the concrete hydrant protection pad. A 24" x 24" x 6" pad must be poured around the barrel bury line and valve box at finished grade. Proper soil compaction shall be done before pouring pad. In unstable soil as determined by the City Utility Inspector, the hydrant shoe shall be placed directly on a concrete pad, 18" x 18" x 6", prior to mechanical restraining. Various means of mechanical blocking are acceptable, re: hydrant tees, M.J. anchor couplings or retainer glands. (see City standard detail).
- 4.15.13. All hydrant leads shall be a minimum of six (6) inches inside diameter and be provided with a six (6) inch valve between the hydrant and the main. The hydrant valve shall be installed within five (5) feet of the hydrant. Any valves exceeding 5 feet, will require an additional valve. Fire hydrants shall be located as shown on the approved plans in a completely accessible location, maintaining a minimum of three (3) feet and a maximum of eight (8) feet from the back of curb to the centerline of the hydrant. In residential locations, hydrants are usually to be located at intersections or property corners. Hydrant locations on or near state highways shall be in accordance with Department of Transportation requirements. City of Titusville personnel, Brevard County Fire Department, and Department of Transportation have the final authority to mandate fire hydrant placements and/or locations. The centerline pumper nozzle must be a minimum of 18 inches or a maximum of 24 inches above finished grade. Parallel hydrants are approved on case by case basis by the Water Resources Department.
- 4.15.14 No hydrant extensions are permitted on new construction.
- 4.15.15 Fire hydrant locations shall be indicated by placement of a blue reflector in the middle of the roadway lane closest to the hydrant.

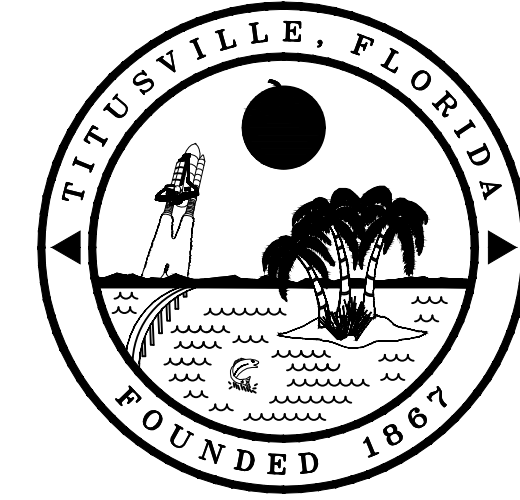
4.16. WATER SERVICES

- 4.16.1. All installations shall be in accordance with City of Titusville Specification details for single and double service lines. All water service lines one (1) inch in diameter shall be constructed of Type "K" soft copper, which shall conform to the requirements of AWWA Standard C800. Two (2) inch diameter service lines shall be constructed of Type "K" copper tubing or SDR 9 EndoTrace blue polyethylene with racer wire as manufactured by Endot Industries, Inc., Rockaway, NJ, utilizing copper tube sizes (CTS) and compression adapters. All brass parts and materials are to be domestic unless otherwise noted by the Water Resources Department.
- 4.16.2. Location: All utility appurtenances will be located in the right-of-way. Service lines shall not be terminated in the sidewalk or within five (5) feet adjacent to driveways. Location of service lines in single family and townhouse developments shall be at alternating lot lines. Multiple service line installations shall be located in common areas, and curb stops spaced no more than 18-20 inches apart in single file. Curb stops shall be mounted in a horizontal position at a depth of no greater than ten (10) inches from finished grade.
- 4.16.3. Meter boxes must be installed at the time of service line installation, prior to final inspection. Meter box face is to be 12" from the back edge of sidewalk.
- 4.16.4. Service saddles: Service saddles shall be used for all connections to PVC pipe. Saddle body for C900 pipe shall be nylon/epoxy coated ductile iron and tapped for AWWA/CCC threads. Body and bands must be factory pre-sized for C900 pipe diameter. Bands shall be stainless steel.
- 4.16.5. Curbs shall be etched with the letter "W", three (3) inches in height, to designate the location of the water service. The curb etching should be painted blue for potable water.
- 4.16.6. Water service lines crossing paved roadways shall be installed by horizontal directional drilling method. The Contractor shall furnish all material, equipment, transportation, tools and labor, and shall be responsible for all regulations of the governing authority to install the service lines.
- 4.17. TAPPING:
 - 4.17.1. Service saddle placement on main shall be at least 45 degrees off vertical and not to exceed horizontal positioning. No vertical tapping will be allowed except at temporary jumper connections.
 - 4.17.2. Corporation stops must be full port and shall be CC thread to CTS. Corporation stops will be used only for one (1) inch taps. See Appendix A for approved vendor list for acceptable materials.
 - 4.17.3. Curb stops must be full port and shall be CTS to meter swivel nut. No H pattern or roundway type will be permitted. Curb stops will be used only for one (1) inch service lines. See Appendix A for approved vendor list for acceptable materials.
 - 4.17.4. Meter protection boxes shall be according to size of service line. Meter boxes are to be injection molded of structural foam recycled polyolefin material with cast iron reader cover. When new service lines are installed, meter boxes shall be placed over curb stops with space for the installation of the water meter by the City. The top of the meter box shall be adjusted to grade and shall be in undamaged condition. Water meters will not be installed by the City unless all requirements of service line concrete pad and meter box installations are acceptable. If it is necessary to locate meter boxes near concrete or paved areas, steel meter box covers with reader lids shall be required. See Appendix A for approved vendor list for acceptable materials.
 - 4.17.5. Large meter installations: All meters three (3) inches and larger shall be constructed with Class 125 flange fittings and shall be installed above ground. All flange fittings and valves will be restrained and tested prior to the large meter installation. The meter will be installed by the City. All meter valves are to be non-rising stem, hand wheel operation. Meters up to four (4) inches are to have a two (2) inch bypass line; meters six (6) inches and larger are to have a three (3) inch bypass line. All items including the concrete pad must be installed prior to meter set. No wet taps are allowed to be done on Fridays.
- 4.18. TAPPING SLEEVES: Tapping sleeves and valves will be field tested at 150 PSI for 15 minutes with no allowable leakage as witnessed by the Inspector. Field disinfection procedures shall be utilized for the installation of tapping sleeves and tapping valves to the existing water mains. The tap sleeve and valve shall be disinfected immediately prior to the installation of the appliances to the potable water main. The application of a concentrated solution of hypochlorite (minimum, 1% available chlorine) shall be applied to the inside of the sleeve and valve. Methods of application of disinfection solution shall be by swabbing or by pressure spraying.
- 4.19. FIRE LINES: Fire lines for commercial, industrial, residential or other buildings may be required by the City of Titusville Fire Department. All new fire line systems connected to the City of Titusville water distribution system shall have an approved backflow prevention device installed at the water source. This device shall be a Double Detector Check Valve Assembly with OSY resilient gate valves with a bypass monitor meter. As per the Water Resources requirements, the device shall be installed above ground and outside FDOT right-of-way, when applicable. If the device is installed inside FDOT right-of-way, it must comply with FDOT specifications. The installation of the DDCVA device will be inspected by the City Utility Inspector, and test results shall be submitted to the Water Resources Department. All device locations shall be reviewed for approval by the Water Resources Department. If a foam fire system or high hazard (pump) is installed then a RPDA is needed instead of a DDCVA. Inspection and testing of the fire line by the Fire Inspector shall begin at the outlet valve connection. Fire line paint is specified per the Florida fire code. Stainless steel, meters, and other appurtenances will not be painted.
- 4.20. BACKFLOW PREVENTERS: The City of Titusville has the primary responsibility of protecting the potable water distribution system against possible contamination or pollution resulting from a source of cross connection or backflow conditions. In consonance with the above, the City shall require backflow preventer as needed.
 - 4.20.1. All construction and all major modification will be reviewed for the requirement of a backflow preventer. The determination of the type of backflow preventer required will be based upon the "degree of hazard" of on-site facilities or equipment. When a required backflow preventer device is not installed, or is removed or by-passed, non-compliance with these requirements by law may result in the termination of water services to the premises. Two main types of backflow preventers are acceptable: the Double Detector Check Assembly and the Reduced-Pressure Zone Backflow Preventer. All commercial businesses are at a minimum Double Detector Check Assembly. All multi-unit facilities are at a minimum a Double Detector Check Assembly.

- 4.20.2. These devices shall meet the requirements of AWWA Standard C510, "Double Check Valve Backflow Prevention Assembly", or AWWA Standard C511, "Reduced-Pressure Zone Backflow Prevention Assembly", as applicable, and be approved by the Foundation for Cross Connection Control and Hydraulic Research. See approved vendor list in Appendix "A".
- 4.20.3. Following is a partial list of facilities requiring backflow preventer installation at the water meter: manufacturing, processing, and fabricating plants; supermarkets and food processing businesses (restaurants), schools, laundries, piers, medical, health or beauty businesses; booster pump and other pressure systems (water and sewer); boilers, water-cooled A/C systems, irrigation systems, multi-story buildings over two stories, etc. Contact the City's Field Operations Division with questions.
- 4.20.4. These requirements are in compliance with laws and regulations of the E.P.A. Safe Drinking Water Act of 1974; the Florida Statutes, Rules of the Department of Environmental Protection (DEP) Section 62-555-360; Florida Building Code; and the City of Titusville Water Resources Department Cross-Connection Control Program Manual". All devices 3/4" through 1-1/2" shall have threaded ends. All BFP devices are to have ball valve or resilient seated inlet and outlet valves. All devices must be testable in-line. Two (2) backflow prevention assemblies in a parallel mounting system may be installed for facilities that require full-time, uninterrupted water service during device testing or maintenance. It is the City's responsibility to ensure installation, as well as operate and maintain the approved backflow prevention device, as directed by the Water Resources Department. The City's Field Operations Division shall only install the devices in the case of retro-fitting existing customers. The devices shall be installed only by a licensed Underground Utility Contractor, Master Plumber or by a Certified Backflow Prevention Device Technician. Refer to City standard details. Backflow prevention concrete pad has to be installed before a meter is set.
- 4.20.5. All services are required to have as a minimum a dual check.

- 4.21. A temporary jumper connection, with an approved, tested and certified backflow preventer assembly, is required at all connections between existing active water mains and proposed new water main improvements. Certification is required on site even if certified by the manufacturer. In addition, any relocation or disassembly of the temporary jumper connection will require recertification. All filling of new mains of any size from existing active water mains shall be completed through the jumper connection. All flushing of new mains less than ten (10) inches in diameter shall be completed through the jumper connection. If greater than 10 inches in diameter, a main valve may be used but may only be operated by a City Employee. The jumper connection shall be maintained until after filling, flushing, testing and disinfection of the new main has been successfully completed and clearance for use from the Florida Department of Environmental Protection (FDEP) has been received. The jumper connection shall also be used to maintain a minimum pressure of 20 psi in new mains at all times after disinfection and until the FDEP clearance letter is received. (See appendix C, Exhibit W-4 for temporary jumper connection.)

- 4.22. VALVES: On straight run mains, valves shall be placed no more than 800 feet apart and at intersections, or as determined by the Water Resources Department. Additional valve placement for operation or maintenance purposes may be required by the Water Resources Department. At tees, 3 valves are required. One in each direction. At a cross, 4 valves are required. One in each direction. The distance between the valves in each direction are to be between 5 to 10 feet.



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Any detail that is not required for the specific development that these details have been included in the permit set may be crossed out on this drawing sheet but may not be removed. No additional detail and or specification may be added to this drawing sheet.

No.	Revision	Date
	TLO, KM, WM, AS	1-10-19
	AS	5-9-22

**POTABLE WATER
DETAILS
AND SPECIFICATIONS**

WATER RESOURCES	DEPT.	2 of 2
May 2022	DATE	
N.T.S.	SCALE	
		SHEET

1.0 GENERAL

1.1. These specifications cover the design, review of plans, and specifications for water main extensions, sanitary sewage collection systems, sewage transmission force mains, sewer line extensions, reclaimed water distribution systems, and all appurtenant items, which are to be owned and maintained by the City of Titusville. In these specifications "COT" will refer to the Water Resources Department.

1.2. All improvements and modifications made to the Titusville Municipal Water System, Titusville Municipal Sewage Collection and Transmission System, and/or Titusville Reclaimed Water System shall be completed in accordance with the City approved site plans. Material and workmanship shall conform to the specifications that appear in this document as well as the approved drawings. No deviations from the approved specifications and drawings are permitted except for minor field changes in location and/or materials approved and documented in the field by the City Utility Inspector. Any significant change must be approved by the Water Resources Department. Any change made without prior approval is subject to rejection. If a situation arises where the plans and specifications are in conflict, the more restrictive requirement shall prevail.

1.3. The Contractor shall not remove any thrust block or mechanical restraint connected to any water mains or any sewage transmission force mains or operate water control valves, except under the direction and observation of the City Utility Inspector. NO WORK SHALL COMMENCE UNTIL THE CITY HAS BEEN NOTIFIED AT LEAST 48 HOURS IN ADVANCE.

1.4. Unless otherwise noted or approved by the City of Titusville (COT), all materials shall be manufactured in the United States.

1.5. An Underground Utility Contractor licensed in the State of Florida shall perform all underground utility work.

1.6. Approved product list takes precedence over Technical Specifications.

2.0 GENERAL PLANS PREPARATION

2.1. All water distribution systems, extensions, sanitary sewer (gravity), sewage transmission systems, reclaimed water distribution systems, reclaimed water extensions and appurtenant items, shall be designed in accordance with the applicable regulations of the City of Titusville, the Florida Department of Environmental Protection (FDEP), and the standards established herein. In addition, all distribution systems, transmission mains and system improvements shall be designed and constructed for a serviceable life of not less than 50 years.

2.2. LOCATION: Mains shall be located within dedicated rights-of-way or utility easements. The City reserves rights to prescribe and approve the route of a proposed utility extension so it is consistent with regional public utility master planning conventions.

2.3. Mains shall extend at least ten (10) feet beyond the farthest point of ingress/egress to a subdivision, property site, or to property limits.

2.4. Easements: If piping is to be constructed within an easement, the centerline of the pipe shall be located within two (2) feet of the centerline of the easement. Mains and easements shall not be placed under buildings, retention ponds, courts, swimming pools, fountains, or other structures. Placement of mains under pavement shall be kept to a minimum. Placement of mains along interior side or rear lot lines or stormwater retention pond berms are not approved. Exceptions may be allowed on a case-by-case basis if such configuration results in efficient placement and utilization of the system as determined by the Water Resources Department. Services, air release valves, and other valves shall not be placed along interior side or rear lot lines or stormwater retention pond berms. Additional easement widths may be required on a case-by-case basis.

2.5. Foundations: All mains up to eight (8) inches in size shall be located at least ten (10) feet from any building foundation, or as determined by the City. Mains greater than eight (8) inches shall be located at least fifteen (15) feet from any building foundation, or as determined by the City.

2.6. REVIEW AND PERMIT STANDARDS

2.6.1. GENERAL: For all developments (subdivisions, condominiums, townhouses, etc.), the Developer shall comply with the City's Land Development Regulations.

2.6.2. All drawings must include a location map referencing established landmarks to establish clearly the project location.

2.6.3. FDEP PERMITTING: The developer shall submit per the latest FDEP submittal requirements including but not limited to:

2.6.3.1. Two (2) signed and sealed sketches of plans, calculations and specifications.

2.6.3.2. Two (2) executed Florida Department of Environmental Protection (FDEP) permit applications.

2.6.3.3. Appropriate filing fees.

2.6.4. All utility work, connections, etc, performed in the Brevard County right-of-way must have an approved utility right-of-way permit from that agency prior to start of any utility work in the right-of-way.

2.6.5. All utility work, connections, etc, performed in the Florida Department of Transportation (FDOT) right-of-way must have an approved utility right-of-way permit from that agency prior to start of any utility work in the right-of-way.

2.6.6. A Site Permit will be obtained prior to any work, extension, repair, rehabilitation or modification of any main owned and maintained by the City of Titusville.

2.6.7. No changes to the City approved plans and specifications shall be made without the express written approval of the Water Resources Department.

2.6.8. For all development related submittals to the City, a developer planning a utility extension needs to include an engineering assessment of the hydraulic impact upon the existing City utility network, based on accepted master planning and engineering conventions.

3.0. GENERAL DESIGN AND CONSTRUCTION STANDARDS

3.1. VALVES: All valves will meet or exceed all requirements of AWWA C509 and/or C515 Standards, latest revision. All valves shall be resilient wedge gate valves with stainless steel (SS) stems and handwheels. All valves larger than 12 inches, with the exception of tapping valves, shall have bell gears with side actuators.

3.2. TEST AND INSPECTION

3.2.1. Laboratory or Plant Test: Pipe and materials shall be tested in accordance, and for conformity, with the latest editions of the following:

ITEM	SPECIFICATIONS
Ductile Iron Fittings	ANSI 121.10 (AWWA C111)
Ductile Iron Pipe	ANSI A21.51 (AWWA C151)
Polyethylene Encasement	ANSI A21.5 (AWWA C105)
Polyvinyl Chloride (PVC)	AWWA C900/DR 18 or C905/DR 18
Pipe 4" & Larger	AWWA C906/Min. Pressure Class 160
High Density Polyethylene (HDPE) Pipe 4" – 60"	Type "K" soft copper
Copper Pipe 1" – 2"	AWWA C901/SDR 9
EndoTrace 2" Polyethylene	AWWA C901/SDR 9
Gate Valves 2" & larger	Resilient seated AWWA C509/C515

All pieces and parts are to be domestic unless otherwise noted.

3.2.2. Upon request, the Contractor shall submit to the City, a certificate of inspection stating that the materials furnished have been inspected at the plant, meet the requirements of these specifications, and that the pipe is marked in accordance with Section 3.19.

3.2.3. The entire product of any manufacturer may be rejected when, in the opinion of the City, the methods of manufacture fail to secure uniform results acceptable to the requirements of these specifications.

3.2.4. All pipe, valves and fittings shall be subject to inspection at time of delivery and in the field just prior to installation. All pipe, valves or fittings, which, in the opinion of the City, do not conform to these specifications, will be rejected and shall be removed by the Contractor at their expense.

3.2.5. HYDROSTATIC AND LEAKAGE TESTING:

3.2.5.1. All pipe installed for the purpose of conveying under pressure shall be tested after installation in accordance with the applicable portions of the hydrostatic tests as set forth in the latest revision of Section 5 of AWWA Standard C600 for ductile iron mains and Section 7.3 of AWWA Standard C605 for PVC mains, with leakage limited to that shown in equation below.

L= (SDP)⁵/148,000
L=Testing allowance in gallons per hour
S= Length of line being tested in feet
D= Nominal Internal diameter in inches
P= Average test pressure in pounds per square inch (gauge)

Force mains are tested at 100 psi for 2 hours. All other pipes are tested at 150 psi for 2 hours.

3.2.5.2. The maximum length of water main to be pressure tested shall be limited to 2,000 linear feet of main, sectioned by control valves in the closed position. More than one section may be tested simultaneously. All service lines and appurtenances shall be tested.

3.2.5.3. All lines shall be tested to the required test pressure for two (2) hours duration. The Contractor shall furnish all necessary pumps, gauges, and appurtenances.

3.2.5.4. Contractors are required to pressure test all lines prior to scheduling the verification test witnessed by the City Utility Inspector. If the verification test fails with the City Utility Inspector, (present), the Contractor shall be required to pay a retest fee, prior to the scheduling of a retest.

3.3. SEPARATION OF WATER AND SEWER LINES

3.4. DESIGN: The proximity of sewer lines and water mains (including appurtenances) and the type of material used for each system are important design considerations for minimizing the chance of contaminants entering the water distribution system. Refer to AWWA, Prevention of Groundwater and Sewer Backflow into Distribution Systems.

3.5. Refer to Appendix B with Table titled "Location of Public Water System Mains in Accordance with FAC 62-555.314".

3.6. At the utility crossings described above, one full length of water main pipe shall be centered above or below the other pipeline so the water main joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipes shall be arranged so that all water main joints are at least three (3) feet from all joints in storm sewers, stormwater force mains, or pipelines conveying reclaimed water regulated under Part III of Chapter 62-610, F.A.C., and at least six (6) feet from all joints in gravity- or pressure-type sanitary sewers, wastewater force mains, or pipelines conveying reclaimed water not regulated under Part III of Chapter 62-610, F.A.C. For visual representation, see Table titled "Location of Public Water System Mains in Accordance with FAC Rule 62-555.314" in Appendix B.

3.7. HOUSE SEWER LATERALS: The above requirements shall apply to house sewer laterals that cross above a water line, but not to those laterals that cross at least six (6) inches below a water line.

3.8. WATER SERVICE LINES: Water services with an inside diameter of 3 inches or greater shall be separated in accordance with the above guidelines for water mains and sewer mains. The minimum separation shall be maintained and in no case shall they be laid in the same trench.

3.9. RECLAIMED WATER SERVICE LINES: Reclaimed water services and sewer lines shall be separated in accordance with the above guidelines. The minimum separation shall be maintained and in no case shall they be laid in the same trench.

3.10. PIPE INSTALLATION

3.11. TRENCH EXCAVATION

3.11.1. Make all excavations by open cut with banks of trenches at no greater than the maximum allowable slope as defined in OSHA 1926, Subpart P. Sheeting and shoring, if required for depth of trench, will conform to OSHA safety standards. A trenching box or shield may be used in place of sheeting and shoring. Make trenches wide enough to allow approximately eight (8) inches clearance on each side of the main, bottom uniform to provide accurate and uniform bearing for as nearly the full length of pipe section as practical. Excavate bell holes after trench has been graded. Perform all excavations of whatever substance encountered to the depths shown or indicated on plans. In the event unsuitable or unstable soil is encountered, such as refuse or organic material, it shall be removed and replaced with approved material in six-inch compacted layers at a depth of twelve (12) inches below main. All excavated material shall be piled in a proper manner that will not obstruct sidewalks, roads or driveways. Fire hydrants, valve boxes and other utility controls shall be left unobstructed and accessible until work is completed. Street drainage shall not be obstructed.

3.16. A 15-foot wide access road stabilized to a Florida Lime rock Bearing Ratio (LBR) value of 40 must be provided to access any utility line not directly accessible from paved surfaces. The size of this easement may be increased at the discretion of the City based on pipe size and depth of cover. The contractor shall provide density tests from a Florida Department of Transportation (FDOT) certified testing laboratory for the stabilized access road.

3.17. BACKFILL

3.17.1. Excavated materials that are deemed unsuitable by the City Utility Inspector, shall not be used for backfilling purposes. The Contractor shall procure additional material, as necessary, with no additional cost to the City. The material used for backfill shall be fine, loose earth, free from clods, stones, refuse and organic material; subject to the approval of the City Utility Inspector.

3.17.2. Backfilling: After pipe and conduit have been inspected and approved, backfill the trench, carefully, to the top of the fill and compacting to the center line of the pipeline on both sides. Place the remainder of the backfill in maximum one-foot layers and compact in conformance to AWWA C600, Section 3.5. After backfilling, dress trenches to conform to adjacent contours. If trenches are improperly filled or if settlement occurs, they shall be refilled and re-dressed. All valves, fittings and restrained joints shall be left uncovered for inspection and acceptance by the City Utility Inspector. The Inspector has the authority to require excavation of any appurtenances for verification of construction techniques.

3.18. COMPACTION REQUIREMENTS: Place backfill in equal layers, compatible with equipment used, and compact each layer in accordance with Table below and ASHTO T-180.

LOCATION OF BACKFILL	PERCENT OF MAX. DENSITY AT OPTIMUM MOISTURE
Under paved areas:	
upper 12 inches	98
below 12 inches	95
Outside paved surfaces	95

3.19. PIPE AND FITTINGS – MARKING: All main pipes, including fittings, shall be color-coded or marked using the predominant color of the respective utility to differentiate drinking water from reclaimed or sewer. Underground plastic pipe shall be solid-wall pipe, shall have a co-extruded external skin, or shall be black pipe with stripes incorporated into, or applied to, the pipe wall. Pipe striped during manufacturing of the pipe shall have continuous stripes that run parallel to the axis of the pipe, that are located at no greater than 90-degree intervals around the pipe, and that will remain visible after installation of the pipe. Potable pipe is to be blue, raw water is to be white (stripes to be olive/light green with stenciled "RAW WATER MAIN"), wastewater pipe is to be green and reclaim is to be pantone purple.

3.20. PIPE AND FITTINGS – RESTRAINT: Provide mechanical restraint fittings at each valve, fire hydrant connection, and on pipe joints as required (see Exhibit C3, in Appendix B). See Appendix A for the approved product list for acceptable materials. All Brass fittings and appurtenances shall be lead free and manufactured in America.

3.21. DUCTILE IRON PIPE AND FITTINGS

3.21.1. PIPE: All sizes of pipe shall be a laying length of 18'-0" to 20'-0". Ductile iron (DI) pipe shall conform to the latest revision of ANSIAWWA C150/A21.50. When the installation of a main will cross storm drains, open ditches, or other pipelines, or in abnormal laying conditions, an increased pressure class of pipe may be required by the City on a case-by-case basis. Placement of mains along interior side or rear lot lines or stormwater retention pond berms are not approved. Jacket and bore carrier pipe shall be provided. Polyethylene encasement (thickness: eight (8) mils; color: black or blue for potable) conforming to the latest revision of AWWA/ANSI C105/ A21.5 shall be required on all DIP mains used for fire line backflow prevention. Polymerizing vinyl chloride (PVC) sewer encasement (thickness: eight (8) mils; color: black or blue for potable, green for wastewater, pantone for reclaim) is required on all DIP mains.

3.21.2. FITTINGS: Cast iron fittings are not acceptable. Ductile iron fittings and special castings shall conform to the type of pipe for minimum working pressure of 150 psi. Fittings shall conform to ANSI standard A-21.10 (AWWA C111). Short body pattern shall normally be installed unless otherwise approved by COT. Nuts and bolts shall be high tensile strength stainless steel for flanged fittings and COR-TEN® on mechanical joints with each type marked as such on the nuts and bolts.

3.21.3. LININGS AND COATINGS: All ductile iron pipe and fittings shall be thin cement lined. The lining shall comply with ANSIAWWA C10/A21.4, latest revision. The exterior of all buried pipe shall have a standard asphaltic coating as provided by the manufacturer.

3.21.4. GASKETS: Lubricants which support microbiological growth shall not be used. EPDM rubber shall be used for gasket material.

3.21.5. Flanged joints shall conform to ANSI A21.15 (AWWA C115) NSI B16.1, faced, and drilled 125 pounds. Nuts and bolts shall be made of high tensile strength type 316 stainless steel having a minimum yield strength of 45,000 psi, and shall contain sufficient chromium to resist corrosion, oxidation and rust. U.S. manufacturers only unless otherwise specified. Threads shall be in accordance with ANSI B1.1, Unified Inch Screw Threads, and with B1.2, Screw Threads, Gauges and Gauging, conforming to the course thread series (UNC) Unified Coarse, with threads Class 2A external and Class 2B internal. Bolts 3/4" and smaller shall be furnished with heavy hex heads conforming to ANSI B18.2.1. Bolts larger than 3/4" may have either standard or heavy hex heads conforming to the ANSI B18.2.1. Tee head or hex head shall be made of high tensile strength type 316 stainless steel having a minimum yield strength of 45,000 psi and comply with the dimensions outlined in ANSIAWWA C111/A.21.11.

3.21.6. Sleeve type couplings: Provide couplings where needed to make piping connections. Provide full-length mechanical joint ductile iron solid sleeve with 12" minimum length.

3.22. POLYVINYL CHLORIDE (PVC) PIPE

3.22.1. Four (4) inch through twelve (12) inch PVC pipe shall conform to the requirements found in AWWA Standard C900 (PVC Pressure Pipe), and fourteen (14) inch through forty-eight (48) inch PVC pipe shall conform to the requirements found in AWWA Standard C905. The pipe shall be Class 150 (DR 18), and shall bear the seal of a testing agency verifying the suitability of the pipe material for service. The pipe shall have the following markings: Manufacturer's name or trademark and production code or manufacturing date (day, month, and year); DR 18; Class 150; C900 or C905, as applicable; ASTM D-1784; NSF-PW for potable and raw water; NSF-DWV for wastewater and NSF-RW for reclaimed water.

3.22.2. All PVC pipe and fittings used in the sanitary sewer system shall meet extra strength requirements conforming to the latest ASTM D3034 standard, maximum SDR .35, for six inch (6") through fifteen inch (15") PVC and ASTM F876 standard, minimum SDR .46 for eighteen inch (18") through forty eight inch (48") PVC. The minimum pipe stiffness at five percent (5%) deflection shall be 46 psi. Pipe and fittings shall be marked in accordance with ASTM D3034 and ASTM F879, as applicable. The bell shall consist of an integral wall section with solid cross-section rubber ring factory assembled, which securely locks in place to prevent displacement and meets the requirements of the latest revision of ASTM D3212. Joints shall be factory tested in accordance with ASTM D3212 and all physical and chemical requirements of pipe and fittings are to pass all tests at 73 degrees (F).

3.22.3. All PVC pipe, fittings and adapters shall bear the seal of NSF International Standard No. 14 certification.

3.22.4. Bell and spigot PVC pipe shall have rubber ring gaskets, which conform to manufacturer's standard dimensions and tolerances, which meet the requirements of AWWA Specifications. Integral wall bell must meet the ASTM D-2122 (C900) requirement.

3.22.5. Solvent center jointing of PVC pipe is not permitted on City owned mains.

3.22.6. All PVC mains shall have a suitable conductive location wire. The wire shall be 10-gauge single-conductor copper clad with the respective insulation color. Only blue (potable), olive/light green (raw water), green (wastewater) and magenta (reclaim water) are acceptable. The wire shall be continuous between fittings. Shall be in series or service lines join the main, the wire shall be secured to each line direct bury, self-striping, locking connector specifically used for making connections to underground wire systems; see approved vendor list for approved products. Wire is not to be fixed/taped to pipe or wrapped around the barrel section to grade level and connected to the wire on the main. All valves shall have a minimum of four (4) feet of wire into each valve box, connected to the main wire. See reference detail in Appendix B.

3.22.7. All mains shall have caution tape.

3.23. HIGH DENSITY POLYETHYLENE (HDPE) PIPE

3.23.1. Four (4) inch through sixty (60) inch diameter HDPE pipe shall conform to the requirements found in AWWA Standard C906, utilizing ductile iron pipe size (DIPS). The pipe shall be Pressure Class 160 at a minimum, and shall bear the seal of a testing agency verifying the suitability of the pipe material. The pipe shall have the following markings: Nominal size and diameter base (DIPS); Dimension Ratio (such as DR 11); manufacturer's name or trademark and production code or manufacturing date (day, month, and year); standard material codes designation (such as PE 3408); Pressure Class; AWWA C906; NSF-PW for potable and raw water; NSF-DFW for wastewater and NSF-RW for reclaimed water.

3.23.2. All HDPE pipe, fittings and adapters shall bear the seal of NSF International Standard No. 14 certification.

3.23.3. All HDPE mains shall have two (2) separate strands of a suitable conductive location wire installed with the main. The wire shall be 10-gauge solid copper clad wire with the respective insulation color. Potable water is blue, sewer is green and reclaim water is pantone purple. Wire is not to be fixed/taped to pipe or wrapped around megalugs or bolts. Wire is to be designed to be used for horizontal directional bore applications with a minimum break load of 1,940 lbs. and a 45 mil HDPE protective jacket.

3.23.4. Butt fusion shall be used for pipe joints using HDPE. For joints between HDPE and PVC pipe, a fused MJ adaptor shall be used.

3.24. GATE VALVES

3.24.1 All valves will meet or exceed all requirements of AWWA C509 or C515 Standards, latest revision. All valves shall be resilient wedge gate valves. All valves shall be equipped with a non-rising stem. All iron body parts will be full wall ductile iron conforming to the requirements of ASTM A395 or ASTM A536 and contain no more than 0.08 percent phosphorus and valves will be cast with a flat bottom design to allow them to stand upright during installation or storage. Outer valve body will have raised lettering cast in providing manufacturer's name, valve size, year of manufacture, pressure rating, location of casting, and each part is to be clearly marked with either "D.I." or "ductile iron". All valves will be electro-statically fusion-bonded; epoxy coated; minimum either (8) mil thickness inside and out, conforming to ANSIAWWA C550-01 Standards or latest revision. Resilient wedge to be ductile iron fully encapsulated with the US Food and Drug Administration approved for potable water and have an EPDM visible marking. All valves will have 250-psig working pressure and a 500-psi static test pressure. Valve stem material will be Grade 18-8 stainless steel, Type 304, ANSI 420/ASTM A276 with no measurable level of lead content. Valves will have two upper o-ring seals on the stem above the thrust collar and at least one o-ring seal below the collar so designed to allow for replacement of the upper o-rings with the valve under full operating pressure. Valves will have thrust washers located above and below the thrust collar to insure a smooth frictionless operation. All valves are to be opened Left (counter-clockwise). All valves will have a 2" Ductile Iron wrench nut with the direction of valve operation clearly visible when looking down on the nut. Hold down nut or bolt will be Type 316 stainless steel. All exterior bonnet and thrust collar bolting, whether recessed or exposed, is to be Type 316 Stainless Steel and marked by type. The pathway seat area will be smooth without ridges or cavities and valves will have full size bore throughout the flow-way. All valves will be hydrostatically pressure tested prior to shipment in compliance with AWWA C509 or C515 Standards and will be covered by the manufacturer's Ten Year Limited Warranty from date of purchase by the end user. Joint connections as specified will conform to ANSIAWWA Standards as follows:

3.24.1.1 Flanged outlets will conform to dimensions and drillings of ANSI B16.1 Class 125 or ANSIAWWA C110/A21.10 and will not be considered equal to Tapping Outlets.

3.24.1.2 Mechanical Joint outlets shall conform to ANSIAWWA C111/A21.11

3.24.1.3 Tapping Valves shall have an alignment boss on the flanged outlet with a mechanical joint outlet conforming to ANSI B16.1, Class 125 and ANSIAWWA C111/A21.11. (Flanged outlets are not an acceptable substitute for tapping purposes.)

3.24.1.4 Threaded outlets will be NPT threads conforming to ANSI B1.20.1.

3.24.2. Provide stem extensions on all valves where the top of the operator nut is located greater than thirty-six (36) inches below the top of the valve box and shall be bolted onto valve nut.

3.24.3. All valves installed in the distribution system and main extensions shall be protected by an adjustable 5-1/4" cast iron valve box similar or equal, to Industry Standard #461-S or #62-S. Covers will be marked and painted appropriately. The box must be full length with bell end over operating nut. Cut pipe sections will not be allowed as valve box extensions. Paint type (Rust-Oleum) as shown in Exhibit W-12, typical 2" blow off detail, shall be used.

3.24.4. Future access line valves, located at a temporary dead end, shall conform to the City of Titusville standard blow-off detail.

3.24.5. VALVE LOCATION MARKING: Curbs shall be etched with the letter "V", three (3) inches in height, with the point of the "V" facing the valve, to designate location. The curb etching should be painted the corresponding appropriate color; blue for potable water, green for sewer, and pantone purple for reclaim.

3.25. TAPPING SADDLES

3.25.1. Tapping PVC Pipe: Only shell cutters will be used to tap PVC pipe and must be disinfected for water taps. The removal of the tapping coupon is required. No other tapping methods will be accepted.

3.25.2. The tapping saddle and corporation stop must be installed by the Contractor and inspected by the City Utility Inspector prior to making the tap.

3.25.3. No reverse taps are allowed unless approved by the Water Resources Department.

3.25.4. All tapping coupons are to be turned over to the Water Resources Department including service taps, jumpers, tapping and include labels on the coupons.

3.26. TAPPING SLEEVES

3.26.1. These specifications are according to application, size and engineering requirements.

3.26.2. Acceptable tapping sleeves shall be all stainless steel Type 304/ Grade 18-8 for sleeve, body (shell), branch, bolts and nuts. All fitting parts are heli-arc welded. Full 360 pipe coverage gasket sealing. Flange is to be recessed per MSS SP-60. Notification to the City Utility Inspector, is required before installation for material inspection. After application of the tapping sleeve and valve, pressure test verification is required prior to drilling. Saddles will be tested at 150 PSI for 15 minutes with no allowable leakage witnessed by the Inspector. Foreman may be tested to 100 psi for 15 minutes. See Appendix "A" for approved vendor list for acceptable materials.

3.27. TAPPING VALVES

3.27.1. Tapping valves shall be field disinfected as required in Section 5.18 for potable water.

3.27.2. Tapping valves shall be resilient seated, non-rising stem, open left, two (2) inch square operating nut, for vertical mounting in gasketing level setting on buried water lines. The valves shall conform to AWWA Standard C509 or C515, latest edition. All resilient seat tapping valves shall be full port size watertway.

3.27.3. The valve inlet shall be flange Class 125, with ring guide as per MSS SP-60. Outlet shall be mechanical joint as per AWWA C110.

3.27.4. Proper trench support of the tap valve is required during the drilling operation.

3.28. FINAL ACCEPTANCE BY THE CITY

3.28.1. Final acceptance of the water distribution, reclaimed distribution, force main distribution, sanitary gravity systems, lift station and pervious concrete systems will be made only after:

3.28.1.1. All tests have been completed, passed, and approved by the City Utility Inspector,

3.28.1.2. A final walk-through with the Water Resources Department has been completed and the improvements are found to be in accordance with the applicable regulations of the City, the Florida Department of Environmental Protection, Florida Department of Transportation, Brevard County and the standards contained herein.

3.28.2. The City is furnished with all of the following applicable items:

3.28.2.1. Drawings by a Florida Registered Surveyor or Engineer, with elevations based on the NAVD 1988, and an electronic copy in PDF and AutoCAD format, in state plane coordinates, in accordance with the Water Resources Department.

3.28.2.2. Executed Easement(s).

3.28.2.3. Executed Right-of-Way Deed.

3.28.2.4. Certification of Substantial Completion noting any deviations from the Engineer of Record.

3.28.2.5. A maintenance bond, based on 10% of the construction cost. It shall be the responsibility of the Developer/Contractor to rectify any and all deficiencies which occur within two (2) years after the date of acceptance by the City of Titusville.

3.28.2.6. Warranty Deed for City owned lift stations.

3.28.2.7. Private Lift Station agreement for all privately owned lift stations.

3.28.2.8. Pretreatment Agreement for all grease traps and oil/water separators.

3.28.2.9. A Bill of Sale transferring ownership of the city utilities to the City of Titusville.

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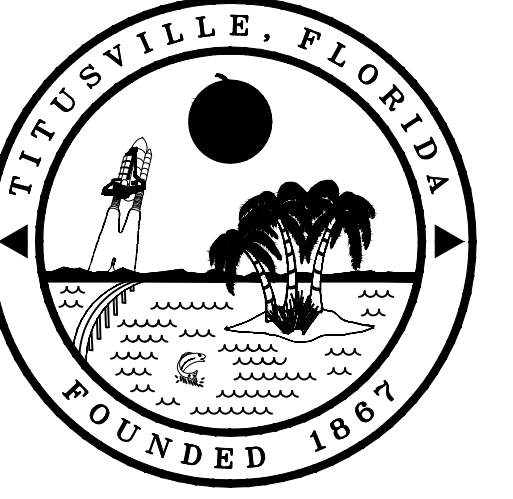
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No.	Revision	Date
	AS, WILL, KM, TLO,	1-31-19
	AS	5-6-22

COMMON DETAILS AND SPECIFICATIONS

WATER RESOURCES	DEPT.	2
May 2022	DATE	of
N.T.S.	SCALE	2
	SHEET	



City of Titusville

555 South Washington Avenue
Titusville, Florida 32796
PH: (321) 383-5823 Fax: (321) 383-5700

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No.	Revision	Date
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	AS	5-11-22

**SANITARY SEWER
DETAILS
AND SPECIFICATIONS**

WATER RESOURCES DEPT.	1
May 2022 DATE	of
N.T.S. SCALE	2
	SHEET

**STANDARD ECCENTRIC
PRECAST MANHOLE**

DEPARTMENT OF WATER RESOURCES
DATE: 05/22 EXHIBIT NO. S1
CITY OF TITUSVILLE, FLORIDA SCALE: NTS (SHT. 1 OF 1)

**SANITARY SEWER
AS-BUILT SAMPLE**

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. S2
CITY OF TITUSVILLE, FLORIDA SCALE: NTS (SHT. 1 OF 1)

**TYPICAL SECTION
THROUGH GREASE INTERCEPTOR**

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. S3
CITY OF TITUSVILLE, FLORIDA SCALE: NTS (SHT. 1 OF 1)

**TYPICAL EXTERIOR
DROP MANHOLE DETAIL**

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. S4
CITY OF TITUSVILLE, FLORIDA SCALE: NTS (SHT. 1 OF 1)

**TYPICAL TRAFFIC BEARING
CLEANOUT DETAIL**

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. S5
CITY OF TITUSVILLE, FLORIDA SCALE: NTS (SHT. 1 OF 1)

**SANITARY SEWER MANHOLE
FRAME (RING) & COVER DETAIL**

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. S6
CITY OF TITUSVILLE, FLORIDA SCALE: NTS (SHT. 1 OF 1)

**TYPICAL INSPECTION TEE/
CLEAN OUT CONNECTION**

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. S7
CITY OF TITUSVILLE, FLORIDA SCALE: NTS (SHT. 1 OF 1)

**TYPICAL SEWER
SERVICE CONNECTION**

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. S8
CITY OF TITUSVILLE, FLORIDA SCALE: NTS (SHT. 1 OF 1)

**SANITARY SEWER
DETAILS
AND SPECIFICATIONS**

WATER RESOURCES DEPT.	1
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5.0 SEWER AND FORCE MAIN DESIGN AND CONSTRUCTION STANDARDS

5.1. The COT will approve plans for new sewage collection and transmission systems and extensions only when designed as separate systems in which precipitation, runoff, groundwater and other prohibited discharge types are excluded, as specified in the City of Titusville Code of Ordinances Section Sec. 21-101, Prohibited Discharge Standards.

5.2. Sanitary sewer and sewage transmission systems shall be designed for the estimated ultimate tributary wastewater flows, based on acreage density as delineated in the City of Titusville Sanitary Sewer Master Plan (latest edition).

5.3. When a Developer desires to construct a project in phases, a master development plan is required and the wastewater system shall be designed for the estimated ultimate build out, as approved by the COT.

5.4. Sewage transmission force mains shall not connect to gravity manholes except as approved in accordance with section 5.18.1 of this document.

5.5. If a sanitary sewer or sewage transmission force main is located adjacent to a road right-of-way, a minimum fifteen (15) foot additional easement shall be provided. Additional easement widths shall be provided at the discretion of the City based on the depth of the pipe.

5.6. DAILY FLOWS: Average daily sewer flow shall be calculated by referencing the Equivalent Residential Connection (ERC) flow rates as outlined in the City of Titusville Land Development Regulations (LDR) Sec. 63-133. In addition, the Water Resources department's "Water Demand, Meter Sizing and Sewer Demand Calculations" sheets shall be completed and submitted.

5.7. Peak flow demands shall be based on the following:

Flow Range (ADF)	Peak Factor
0 to 0.100 MGD	4.0
0.101 to 0.250 MGD	3.5
0.251 to 1.000 MGD	3.0
1.001 to 4.000 MGD	2.5

5.8. If the above design criteria is not used, the Project Engineer will be required to submit signed, sealed and dated design calculations with the plans for sanitary sewer projects, with sufficient detail to show that the sanitary sewers will provide sufficient cleansing velocity at peak flow to avoid creation of specific conditions resulting in the formation of hydrogen sulfide, as well as have sufficient hydraulic capacity to transport all design flows.

5.9. MINIMUM COVER: The minimum cover over sanitary sewer and sewage transmission force mains shall be no less than thirty (30) inches, calculated from the finished grade. In special cases, any gravity main less than thirty (30) inches deep shall be ductile iron pipe, but at least twenty-four (24) inches.

5.10. SLOPE

5.10.1. All sanitary sewers shall be designed and constructed to give minimum velocities at the ultimate designed capacity of not less than 2.0 feet per second (fps) nor greater than 10 fps based on Manning's formula using an "n" value of 0.012 for PVC and 0.013 for other pipe materials. The following minimum slopes shall be provided:

Sanitary Sewer Size (in.)	Minimum Slope Tolerances
8	0.40%
10	0.28%
12	0.22%
18	0.17%
21	0.12%
24	0.10%
27	0.08%
30	0.07%
36	0.06%
30	0.04%

5.10.2. Approval of slopes less than those shown above will only be considered if the Project Engineer provides detailed calculations showing the velocity attained at minimum, average and peak flow conditions and where the depth of flow will be 0.3 times the diameter or greater for design average flow.

5.10.3. Sanitary sewers shall be laid with uniform slope between manholes.

5.11. FUTURE EXTENSIONS

5.12.1. All sanitary sewer extensions for future connections shall terminate at a manhole.

5.12. VALVES: On straight run force mains valves shall be placed no more than 800 feet (same as water) apart and at intersections, or as determined by the Water Resources Department. Additional valve placement at the right-of-way for isolation operation or maintenance purposes may be required by the Water Resources Department.

5.13. MANHOLES

5.13.1. Manholes shall be installed at distances no greater than every 400 feet, at all changes in grade, size or alignment, at all sewer intersections, and at the end of each sanitary sewer line.

5.13.2. Manholes shall be constructed of precast reinforced concrete sections and shall conform to ASTM C478 and ASTM C76 specifications. The base section of the manhole shall be monolithic.

5.13.3. Manholes will be eccentric.

5.13.4. The casting shall be fully bedded in mortar with adjustment brick courses placed between the frame and manhole. Bricks shall be a maximum of five (5) courses. The brick shall be solid, sound, hard and uniform in size, meeting the requirements of ASTM standard specification for sewer brick designation C-32, grade M4. All manholes must have an APM I&I barrier sealed to the manhole cone prior to raising to grade to prevent infiltration. Install and adjust I&I Barrier as required per manufacturer specifications. See Appendix A for approved vendor list.

5.13.5. Mortar shall be composed of one part Portland cement (ASTM C150, Type I) and two parts washed silica sand (ASTM C144). No lime shall be used.

5.13.6. The top of manhole castings located in pavement, shouldered areas, and sidewalks shall be set flush with grade. The top of manhole castings located outside these areas shall be placed three (3) inches above grade and surrounded with a concrete pad that slopes down to ground level.

5.13.7. After curing, and before the installation of the I&I barrier, as manufactured by either GPT Riser Wrap Enpro industries or Wrapeal Seal, Canusa-CPS, The Woodlands, TX, the plaster shall be carefully checked for bond and soundness by being tapped. Unbonded or unsound plaster shall be removed and replaced.

5.13.8. Residential sanitary sewer manholes shall have all interior surfaces coated with two coats of red-gray acrylic epoxy ConSeal CS-55 paint, including adjusting bricks, bench, and inverts. Each coat shall have a dry film thickness of 8-mils for a total of 16-mils dry. There will be no inside exposed raw concrete.

5.13.9. Commercial or industrial sewer manholes shall have a fiberglass liner. See the City's approved vendor list for acceptable materials. Depending on the operating conditions, the City may require additional liners in downstream manholes.

5.13.10. The exterior shall be coated with two coats of ConSeal CS-55. Each coat shall have a dry thickness of 3/8 mils.

5.13.11. WrapealSeal®, GPT Riser Wrap or Water Resources Department approved equal, must be used on all joints. WrapealSeal® and GPT riser wrap must be used in accordance with manufacturer's recommendations. Wraps for manholes and lift stations must be at a minimum of 11 inches in width.

5.13.12. For sanitary sewer mains ten (10) inches in diameter and smaller, the minimum inside diameter of manholes shall be forty-eight (48) inches. A minimum access lid diameter of twenty-seven (27) inches shall be provided. For sanitary sewer mains greater than ten (10) inches in diameter the minimum manhole inside diameter shall be five (5) feet.

5.13.13. Manholes twelve (12) feet or deeper, shall be five (5) feet in diameter with a six (6) inch wall thickness.

5.13.14. Where the difference in elevation between the incoming sewer invert and the manhole invert is less than twenty-four (24) inches, the manhole invert shall have a built-up flow channel from the higher invert to the lower invert to provide a smooth flow transition and prevent solids deposition.

5.13.15. The flow channel through manholes shall be made to conform in shape and slope to that of the connecting sanitary sewer main.

5.13.16. Flow direction changes in excess of ninety (90) degrees shall not be included in sanitary sewer alignments without special consideration. Minimum flow line elevation drop of 0.1 feet across manholes shall be provided.

5.13.17. A bench, constructed of Type II Portland Cement mortar at least two (2) inches thick over brick, shall be provided, which shall have a minimum slope of two (2) inches per foot.

5.14. DROP MANHOLES

5.14.1. Drop manhole connections shall be used on an incoming sanitary sewer whenever the invert of the incoming sanitary sewer is at least two (2) feet higher than the outgoing sanitary sewer invert.

5.14.2. Drop manhole connections shall be constructed as shown in the City standard detail on Sheet COT-SS1.

5.14.3. All drop manholes shall be external only.

5.15. SEWER LATERALS

5.15.1. All service laterals and fittings shall be a minimum of six (6) inches in diameter and are not to exceed seventy five (75) feet in length as measured from the sewer main or terminus manhole, and shall be of the same material as that specified for the trunk sanitary sewer (i.e., ductile iron or PVC).

5.15.2. Double and multiple (manifold) service wyes are not allowed. All service laterals must be single service laterals directly connected to either a sanitary sewer main or a terminal manhole.

5.15.3. All laterals to single-family residential lots shall be centered on the lot.

5.15.4. Each lateral shall be supplied with a wye fitting and a forty-five (45) degree bend at the main and laid at a minimum slope of one (1) percent.

5.15.5. The depth of the lateral at the property line shall be at least thirty (30) inches and not greater than four (4) feet.

5.15.6. The ends of the laterals shall be securely sealed with a factory manufactured watertight cap.

5.15.7. An inspection/site tee shall be required at the property line. See the City's "Typical Sewer Connection", (Appendix D, Detail S-8).

5.15.8. All laterals located within driveways are to have traffic bearing inspection tee covers.

5.15.9. Service laterals shall not be allowed to discharge directly into sanitary manholes except at the invert of terminal manholes. A maximum of three (3) laterals are allowed in terminal manholes.

5.15.10. Curbs are to be etched with the letter "S", three (3) inches in height, to designate the location of the sewer lateral. The curb etching should be painted green for wastewater.

5.15.11. Any party who desires to build on privately owned property shall be required to expose and install a water-tight cap or plug on any existing laterals that will not be connected to a building, and shall request the City to inspect the unused lateral prior to covering. Sewer lateral abandonments are to be cut and capped at right-of-way line and inspected by building department. Any abandoned lines will be as-built and have a marker (EMS) provided.

5.16. ELECTRONIC PIPE MARKER (EMS)

5.16.1. The 3M™ EMS 1258 as manufactured by Minnesota Mining and Manufacturing Company, or COT approved equal, shall be placed eight (8) inches over the end of every lateral within the right-of-way in a level position and over other sewer facilities as required.

5.17. CONNECTIONS TO EXISTING SEWAGE SYSTEMS

5.17.1. Force Main Connections: Force mains shall not terminate directly into a sanitary sewer line. Force mains shall connect directly to force mains. Connection of a force main to a sanitary sewer system may be approved only when the Project Engineer demonstrates to the satisfaction of the City that a force main connection is not feasible. Any such requests shall be submitted to the City and approved by the COT, and shall include the following design considerations:

5.17.1.1 Detailed construction plans must include plan and profile details of the excavation, connection, backfilling and restoration.

5.17.1.2 The receiving manhole, two (2) downstream manholes, and one (1) upstream manhole shall be lined with a COT approved liner.

5.17.2 Sanitary Sewer or Force Main Connections: The City shall inspect the receiving wastewater pump station to determine if it has capacity for additional flows. Any required upgrades shall be the responsibility of the Developer.

5.17.3. Connection of Private Sanitary Sewer Systems: Private sanitary sewer systems must be separated from the City sanitary sewer system by a manhole located at the right-of-way line. If the manhole separating the private system from the public system is required to be located on private property, a twenty (20) foot wide easement centered on the manhole will be required.

5.18. SANITARY SEWER SYSTEM CONNECTIONS

5.18.1 Sanitary sewer mains connecting to other sanitary sewer mains shall include the installation of a new manhole added to an existing sanitary sewer main and shall be constructed of precast concrete and remain plugged until FDEP clearance. The backfilling around the new base shall be performed and compacted in such a manner that the existing sanitary sewer pipe is adequately supported and protected from settlement of adjacent or nearby backfill.

5.18.2 No doghouse or mouse hole manholes are allowed.

5.18.3. Connection to an existing manhole shall be made by core drilling the manhole and utilizing a Kor-N-Seal® flexible pipe to manhole connector as manufactured by NPC, Inc., Milford, NH, or COT approved equal. The condition of the existing manhole will be evaluated by the City prior to approval of the connection and any repairs or upgrades to the manhole will be the responsibility of the reoperator as part of the conditions of approval of the connection.

5.19. OWNERSHIP

5.19.1. Single-family subdivision sanitary sewer systems shall be owned and maintained by the City.

5.19.2. Privately owned systems that connect to the City sewage system shall meet City standards for the connection in the right-of-way and must be approved by the Water Resources Department.

5.19.3. If an Owner/Developer wants to keep a system private, they must submit a written request to the City prior to submitting an FDEP Application Permit Package. The Owner/Developer will be advised in writing by the COT. If a private system is to be given to the City, all City standards must be met, including the most current City standards, prior to acceptance.

5.19.4. If the property will not remain under single ownership, the Owner/Developer shall provide documentation that the private sewage system is specifically included as the maintenance responsibility of the owners.

5.19.5. If a proposed utility system will connect to a privately-owned utility system to obtain service, the Developer shall obtain a contractual agreement with the Owner of the existing system, providing perpetual rights to service through the property. An executed agreement shall be submitted to the City with the plans.

5.19.6. It is the responsibility of the Owner/Developer to obtain the necessary easements for private sewer lines. Private sewer lines shall not be installed in public easements or rights-of-way.

5.20 No sanitary sewer main conveying wastewater shall be less than eight (8) inches in diameter nor shall any City owned force main be less than four (4) inches in diameter.

5.21 FORCE MAIN TESTING AND INSPECTION:

5.21.1 All force mains shall be pressure and leakage tested in conformance with the requirements of Section 13- Hydrostatic tests of AWWA Specifications C600 using a hydrostatic gauge pressure of 100 PSI.

5.21.2 No force main will be acceptable to the City unless the leakage is less than the amounts determined by the following formula.

$$L = \frac{S \times D \times P^{0.5}}{148,000}$$

L = Testing Allowance (quantity of makeup water) in gallons per hour.
 S = Length of line being tested, in feet.
 D = Nominal internal diameter (in inches) of the pipe.
 P = The average test pressure during the pressure test, in pounds per square inch (gauge). This actual pressure shall be determined by finding the difference between the average elevation of all tested pipe joints and the elevation of the pressure gauge and adding the difference in elevation head to the authorized test pressure.

Note: This table is based upon an allowable leakage of 23.3 GPD per mile of pipe per inch of nominal diameter for mechanical and push-on joints.

5.21.2.1 Polyvinyl chloride (PVC) pipe force mains shall be tested in general, the same as ductile iron force mains, and specifically in accordance with the testing requirements as established by the pipe manufacturer.

5.21.2.2 No force mains will be accepted by the City unless the leakage is less than the amounts determined by the formula above; or, less than the maximum allowable leakage requirement established by the pipe manufacturer, whichever of the leakage requirements is more stringent shall apply.

5.22 TEST AND INSPECTION:

5.23 All newly installed and modified sanitary sewer systems will be tested by the Contractor utilizing the following tests and video inspections. The Contractor shall perform testing of all sanitary gravity sewers, as set forth in the following, and shall conduct said tests in the presence of City of Titusville personnel with a minimum of two (2) business days advance notice provided. All newly installed and modified sanitary sewer systems shall remain plugged until Department of Environmental Protection (DEP) clearance.

5.24 LEAKAGE TESTING

5.24.1 Air testing can be requested at the City discretion. Testing will conform with 10 psi for a period of 5 minutes. The air test, if used, shall be conducted in accordance with one of the following Standards:

5.24.1.1 ASTM F1417, "Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air."

5.24.1.2 UNI-B-6, "Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe," published by the Uni-Bell PVC Pipe Association.

5.24.2 If the test section does not pass the test as defined in the above Standards, the Contractor shall repair or replace all defective materials and/or workmanship at no additional cost to the City.

5.24.3 If the installation fails to meet these requirements, the Contractor shall, at no additional cost to the City, determine the source of leakage, make necessary repairs or replacements, and retest the failed section(s).

5.25 CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION

5.25.1 After completion of the pipe installation and all backfill and base work is compacted and has passed density testing, the Contractor will perform a video inspection of the sanitary sewer pipe(s). The following procedures will be followed:

5.25.2. The Contractor shall be required to use a pan and tilt color camera.

5.25.3. At the beginning of the inspection, the Contractor is to announce the name of the company performing the video inspection work, the operator name, date, project, street, manhole number(s), length of sections of pipe, length of total run footage, the size and type of pipe material, weather conditions (sunny, raining, etc), and the purpose of the inspection.

5.25.4. Each run is to include audio commentary with the street, manhole number(s), length of total run, and is to include an accurate ongoing footage counter that displays on the monitor the exact distance of the camera (to the nearest tenth of a foot) from the centerline of the starting manhole.

5.25.5. All video inspection runs are to begin at the center of the upstream manhole, and shall be continuous.

5.25.6. As the video inspection progresses, the Contractor shall make audio and video log recordings of any defects, sags or low points in the pipe, service connections, laterals, joint repairs, and joint misalignments, and shall include station numbers.

5.25.7. The camera operator shall slowly pan and tilt at each service connection, visible defect, and at pipe material transitions.

5.25.8. Noted defects shall be documented with numbered color digital files (.jpg) and color hard copy print-outs submitted with the inspection report. A sample inspection report with the minimum required information and a classification table for reporting observations is included in the exhibits.

5.25.9. The determination of a defined defect is at the sole discretion of the City. Defined defects include, but are not limited to, cracks, broken or defective pipe, pipe misalignment, vertical sags, or deviations from true grade alignment. The Contractor shall be required to repair or replace identified deficiencies.

5.25.10. Upon completion of all required repairs, the Contractor will again perform an internal video inspection of the sanitary sewer pipe to verify that the repairs meet the specifications.

5.25.11. Prior to repair or replacement of defective workmanship or material, the method of repair or replacement shall be submitted to the City for review and approval.

5.25.12. Acceptance of the CCTV inspection of the sanitary sewer main shall be given by the City in writing only after all defects have been corrected, retested and inspected to the satisfaction of the City. Approval from the COT stating that the CCTV is acceptable is required before an FDEP Sewer Clearance Request form will be signed by the COT and forwarded to the FDEP.

5.26 PIPE CLEANING

5.26.1 Prior to the video inspection, the Contractor must clean all sanitary sewer lines. If sand/debris is encountered upon CCTV inspection contractor required to reclean and resubmit CCTV footage.

5.26.2 Debris shall not be allowed to enter any pump station, wet well, or any portion of the existing sanitary sewer system. Any such debris shall be removed from the sanitary sewer system.

5.27 MANHOLE INSPECTION

5.27.1 No visible leakage in the manhole or pipe connections will be permitted.

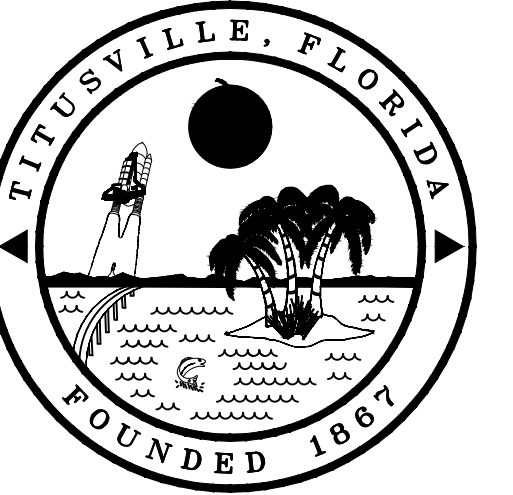
5.27.2. Manholes shall also be vacuum tested at the discretion of the City. The vacuum test shall pass if the vacuum remains at 10" Hg or drops to 9" Hg in a time greater than one minute. If the manhole fails the initial test, the Contractor shall locate the leak and make proper repairs.

5.27.3. All manholes failing to meet specifications, whether visual or vacuum, shall be reconstructed or replaced by the Contractor. Pressure grouting and lining of manholes may be allowed on a case-by-case basis at the discretion of the COT.

5.28 SUBMITTALS

5.28.1. The Contractor shall submit to the City one digital file of the CCTV inspection, one digital copy of each sheet of the inspection report, and one digital file of a schematic plan of the inspected sanitary sewer system.

5.28.2. At the sole discretion of the City, if the digital file presented for review is found to be of poor quality (i.e. dim lighting, grainy and/or foggy picture, inconsistent data, speed of run distracts from inspection, or dry pipe) the CCTV inspection will be rejected and shall be performed again.



City of Titusville

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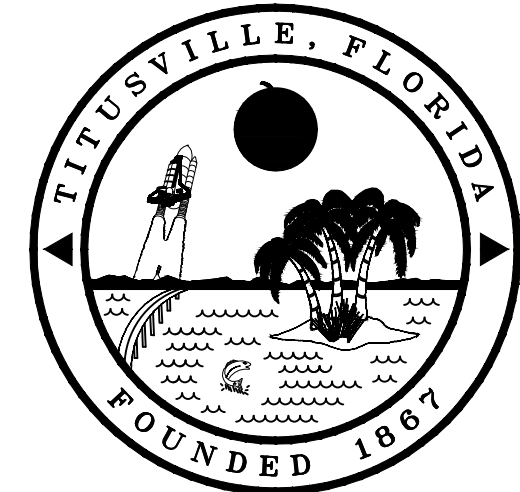
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**SANITARY SEWER
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Any detail that is not required for the specific development that these details have been included in the permit set maybe crossed out on this drawing sheet but may not be removed. No additional detail and/or specification may be added to this drawing sheet.

No.	Revision	Date
	AS, WILL, KM, TLO,	12-31-19
	AS	5-9-2022

UTILITIES COMMON DETAILS

WATER RESOURCES	DEPT.	1
May 2022	DATE	of
N.T.S.	SCALE	2
	SHEET	

TYPICAL TRENCH DETAIL

DEPARTMENT OF WATER RESOURCES
DATE: 05/22 EXHIBIT NO. C1
SCALE: NTS SHT. 1 OF 1

PIPE DIAMETER (INCHES)	TEE BRANCH (Size on Size)	22 1/2" BEND	45" BEND	90" BEND	DEAD END
4	54	4	8	20	58
6	85	6	12	27	82
8	118	7	15	35	107
10	146	9	18	42	128
12	176	10	21	49	151
14	203	11	23	55	171
16	231	13	26	62	193
18	258	14	28	67	213
20	285	15	31	73	234

AERIAL CROSSING DETAIL

DEPARTMENT OF WATER RESOURCES
DATE: 05/22 EXHIBIT NO. C2
SCALE: NTS SHT. 1 OF 1

TYPICAL HORIZONTAL MECHANICAL THRUST RESTRAINT

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. C3
SCALE: NTS SHT. 1 OF 1

TYPICAL GATE VALVE INSTALLATION

DEPARTMENT OF WATER RESOURCES
DATE: 05/22 EXHIBIT NO. C4
SCALE: NTS SHT. 1 OF 1

UTILITY PLACEMENT WITHIN A 50' PUBLIC ROAD RIGHT-OF-WAY

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. C5
SCALE: NTS SHT. 1 OF 1

ABOVE GROUND AIR RELEASE VALVE DETAIL

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. C6
SCALE: NTS SHT. 1 OF 1

TYPICAL CITY DIRECTIONAL BORE CONFLICT RESOLUTION

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. C7
SCALE: NTS SHT. 1 OF 1

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

DEPARTMENT OF WATER RESOURCES
DATE: 01/19 EXHIBIT NO. C8
SCALE: NTS SHT. 1 OF 1