

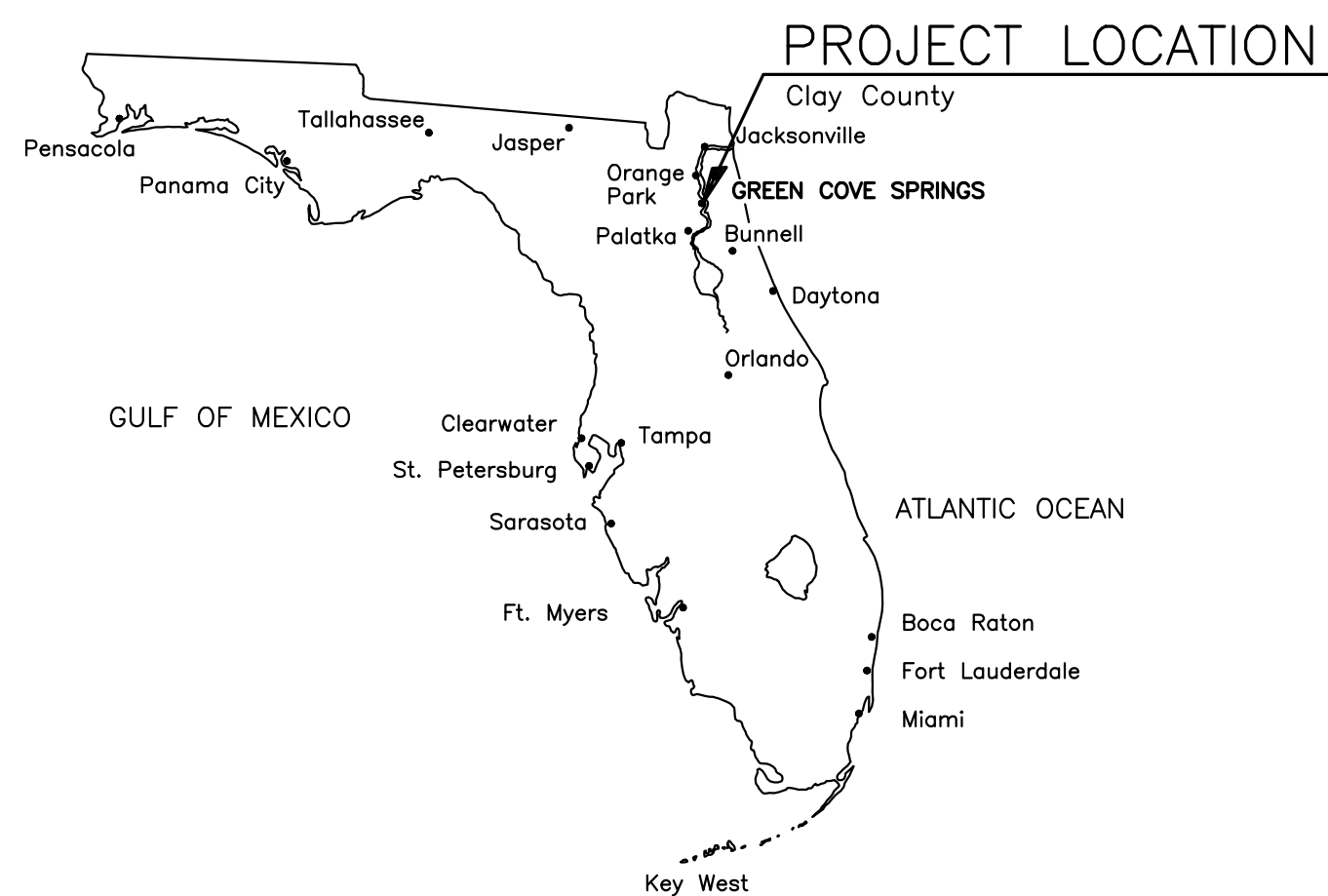
DEP SRF HARBOR ROAD WWTF EXPANSION

FOR

CITY OF GREEN COVE SPRINGS, FLORIDA

M & A Project No. 8905-34-1

DRAWING INDEX



CONSTANCE BUTLER
MAYOR

STEVEN KELLEY
VICE MAYOR

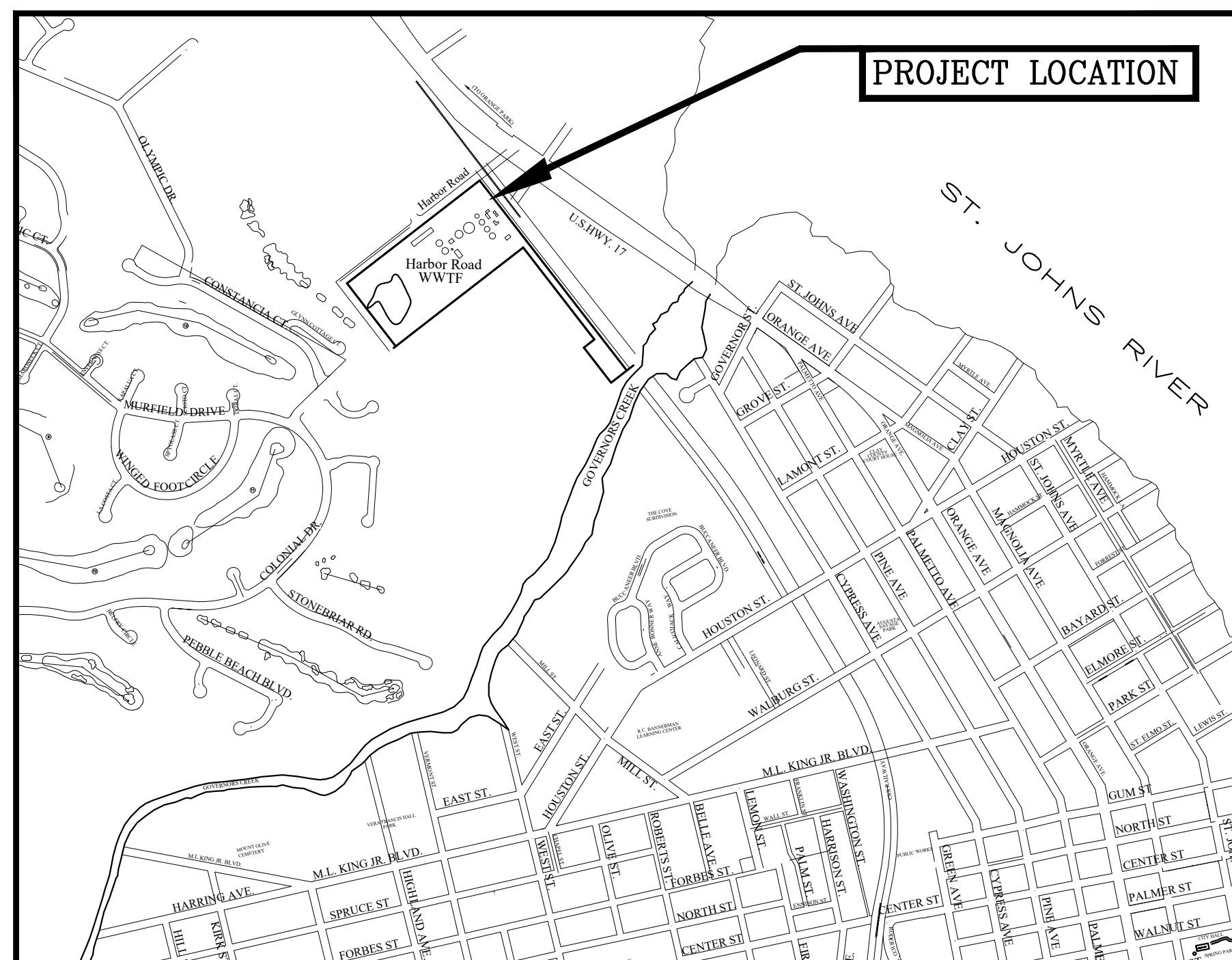
PAMELA LEWIS
COUNCIL MEMBER

VAN ROYAL
COUNCIL MEMBER

MITCH TIMBERLAKE
COUNCIL MEMBER

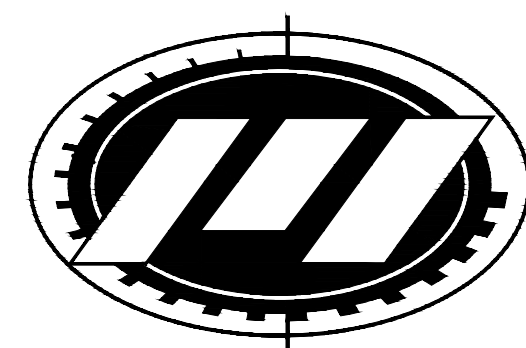
DANIELLE JUDD
CITY MANAGER

MIKE NULL
ASSISTANT CITY MANAGER /PUBLIC WORKS DIRECTOR



VICINITY MAP

SHEET No.	SHEET TITLE	SHEET No.	SHEET TITLE
G1	COVER SHEET	E1	ELECTRICAL - LEGEND, LUMINAIRE SCHEDULES & CALCULATIONS
G2	GENERAL NOTES, LEGEND & ABBREVIATIONS	E2	ELECTRICAL - CONDUIT AND CABLE SCHEDULE
C1.1	EXISTING CONDITIONS & DEMOLITION PLAN	E3	ELECTRICAL - PANEL SCHEDULES
C1.2	SITE MASTER PLAN	E4A	ELECTRICAL - 23KV ONE-LINE DIAGRAM
C1.3	SITE PLAN - HORIZONTAL CONTROL	E4B	ELECTRICAL - 480V ONE-LINE DIAGRAM
C1.4	GRADING & DRAINAGE PLAN	ESA	ELECTRICAL - MCC BUCKET WIRING DIAGRAMS
C1.5	YARD PIPING PLAN	ESB	ELECTRICAL - MCC BUCKET WIRING DIAGRAMS
C2.1	SITE DETAILS	E6	ELECTRICAL - EXISTING CONDITIONS SITE PLAN
C2.2	SITE DETAILS	E7A	ELECTRICAL - NEW WORK SITE PLAN - WEST
C2.3	GRADING & DRAINAGE DETAILS	E7B	ELECTRICAL - NEW WORK SITE PLAN - EAST
C2.4	GRAVITY WALL - PLAN, SECTION & DETAILS	E8	ELECTRICAL - ELECTRICAL DETAILS
D1	PROCESS FLOW SCHEMATIC - HYDRAULIC PROFILE	EC1	ELECTRICAL - CONTROLS LEGEND & CABLE SCHEDULE
D2.1	INFLUENT STRUCTURE - UPPER & LOWER MECHANICAL PLAN	EC2	ELECTRICAL - INSTRUMENT SCHEMATIC
D2.2	INFLUENT STRUCTURE - MECHANICAL SECTIONS	EC3	ELECTRICAL - SCADA SCHEMATIC
D2.3	INFLUENT STRUCTURE - MECHANICAL SECTIONS	EC4	ELECTRICAL - MASTER CONTROLLER PLC & BOM
D2.4	INFLUENT STRUCTURE - MECHANICAL SECTIONS	EC5	ELECTRICAL - I/O DIAGRAMS
D2.5	INFLUENT STRUCTURE - STRUCTURAL PLANS	EC6	ELECTRICAL - FIBER SCHEMATIC
D2.6	INFLUENT STRUCTURE - UPPER & LOWER STRUCTURAL SECTIONS	ED2.1	ELECTRICAL - INFLUENT
D2.7	INFLUENT STRUCTURE - STRUCTURAL SECTIONS	ED2.2	ELECTRICAL - INFLUENT
D2.8	INFLUENT STRUCTURE - ELEVATIONS	ED3.1	ELECTRICAL - OXIDATION DITCH
D2.9	INFLUENT STRUCTURE - STAIRS	ED4.1	ELECTRICAL - CLARIFIER FLOW SPLITTER
D3.1	OXIDATION DITCH - PLAN & ELEVATION	ED4.4	ELECTRICAL - CLARIFIER FLOW SPLITTER ACCESS STAIRS
D3.2	OXIDATION DITCH - MECHANICAL DETAILS	ED5.1	ELECTRICAL - CLARIFIERS NO. 1 & 2
D3.3	OXIDATION DITCH - MECHANICAL & DETAILS	ED5.5	ELECTRICAL - CLARIFIERS ACCESS STAIR
D3.4	OXIDATION DITCH - STRUCTURAL SECTIONS & DETAILS	ED6.1	ELECTRICAL - RAS/WAS PUMPS
D3.5	OXIDATION DITCH - STRUCTURAL SECTIONS & DETAILS	ED7.1	ELECTRICAL - FILTERS PLAN
D3.6	OXIDATION DITCH - STRUCTURAL SECTIONS & DETAILS	ED7.2	ELECTRICAL - FILTERS PLAN
D3.7	OXIDATION DITCH - STAIRS	ED8.1	ELECTRICAL - CHLORINE CONTACT CHAMBER PLAN
D4.1	CLARIFIER FLOW SPLITTER - PLANS & SECTIONS	ED9.1	ELECTRICAL - 1.25 MG RECLAIMED WATER STORAGE TANK
D4.2	CLARIFIER FLOW SPLITTER - SECTIONS & DETAILS	ED10.0	ELECTRICAL - REUSE PUMPING STATION PLAN
D4.3	CLARIFIER FLOW SPLITTER - STRUCTURAL PLANS & SECTIONS	ED11.1	ELECTRICAL - CHEMICAL FEED & STORAGE FACILITIES PLAN
D4.4	CLARIFIER FLOW SPLITTER - STRUCTURAL SECTIONS & DETAILS	ED14.1	ELECTRICAL - OPERATIONS BUILDING FLOOR PLAN
D4.5	CLARIFIER FLOW SPLITTER - STAIRS & WALKWAY	ED14.2	ELECTRICAL - ENLARGED ELEC MCC BUILDING
D5.1	CLARIFIERS - MECHANICAL PLAN	ES1A	ELECTRICAL - CAMERA LOCATIONS SITE PLAN - WEST
D5.2	CLARIFIERS - MECHANICAL PLAN & SECTION	ES1B	ELECTRICAL - CAMERA LOCATIONS SITE PLAN - EAST
D5.3	CLARIFIERS - SECTIONS & DETAILS		
D5.4	CLARIFIERS - SECTIONS & DETAILS		
D5.5	CLARIFIERS - STAIRS & WALKWAY		
D6.1	RAS/WAS PUMPS - PLAN & SECTION		
D7.1	FILTERS - PLAN		
D7.2	FILTERS - SECTIONS & DETAILS		
D7.3	FILTERS - STRUCTURAL PLAN		
D7.4	FILTERS - STRUCTURAL SECTIONS		
D8.1	CHLORINE CONTACT CHAMBER - PLAN		
D8.2	CHLORINE CONTACT CHAMBER - SECTIONS		
D8.3	CHLORINE CONTACT CHAMBER - SECTIONS & DETAILS		
D9.1	RECLAIMED WATER STORAGE TANK - PLAN		
D9.2	RECLAIMED WATER STORAGE TANK - SECTIONS & DETAILS		
D9.3	RECLAIMED WATER STORAGE TANK - SECTIONS & DETAILS		
D10.1	REUSE PUMPING STATION - PLAN		
D10.2	REUSE PUMPING STATION - SECTIONS & DETAILS		
D10.3	REUSE PUMPING STATION - BUILDING		
D11.1	CHEMICAL FEED & STORAGE FACILITIES - PLAN		
D11.2	CHEMICAL FEED & STORAGE FACILITIES - ELEVATIONS		
D11.3	CHEMICAL FEED & STORAGE FACILITIES - FOUNDATION PLAN & ROOF ELEVATION PLAN		
D11.4	CHEMICAL FEED & STORAGE FACILITIES - SECTIONS & DETAILS		
D11.5	CHEMICAL FEED & STORAGE FACILITIES - SECTIONS & DETAILS		
D12.1	IN-PLANT PUMP STATION - PLAN & DETAIL		
D13.1	AEROBIC DIGESTER No. 1 & 2 - DEMOLITION		
D13.2	AEROBIC DIGESTER No. 1 & 2 - MODIFICATIONS		
D13.3	AEROBIC DIGESTERS - SECTIONS & DETAILS		
D14.1	OPERATIONS BUILDING - FLOOR PLAN		
D14.2	OPERATIONS BUILDING - ELEVATIONS		
D14.3	OPERATIONS BUILDING - FOUNDATION & ROOF PLANS		
D14.4	OPERATIONS BUILDING - SECTIONS & DETAILS		
D14.5	OPERATIONS BUILDING - STRUCTURAL DETAILS		
D14.6	OPERATIONS BUILDING - LIFE SAFETY, REFLECTED CEILING		
D14.7	OPERATIONS BUILDING - PLUMBING PLAN - NOTES, DETAILS & SCHEDULE		
D14.8	OPERATIONS BUILDING - MECHANICAL PLAN		
D15.1	MISCELLANEOUS DETAILS - YARD PIPING DETAILS		
D15.2	MISCELLANEOUS DETAILS - MECHANICAL & STRUCTURAL DETAILS		
D15.3	MISCELLANEOUS DETAILS - STRUCTURAL DETAILS		
D16.1	ELECTRICAL BUILDING AND GENERATOR		



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JULY, 2018

SITE PLAN REVIEW
NOT FOR CONSTRUCTION

07/25/18

GENERAL NOTES

A. GENERAL CONSTRUCTION NOTES

- Existing underground utilities have been shown from the best available information. Contractor shall determine the location, size, and depth of all existing utilities. Contractor shall provide complete piping system including all fittings necessary to interconnect piping systems and to avoid conflicts with existing and proposed pipes/structures.
- It shall be the sole responsibility of the Contractor to locate and avoid all utilities, structures and obstructions both above and below the ground surface. All damages resulting from the Contractor's failure to comply with this requirement shall be repaired at the Contractor's expense.
- Contractor is responsible for supporting/protecting all existing improvements (i.e., utilities, utility poles, structures, pavement, sidewalks, monitoring wells, foundations, etc.) which may be damaged/undermined as a result of his operations. Contractor may be required to shore, sheet, brace, or support work to protect existing improvements. All costs associated with supporting/protecting existing improvements shall be borne by the Contractor.
- All existing facilities (e.g., pipes, roadways, sidewalks, landscaping, structures, etc.) not indicated to be disturbed/restored which are disturbed/damaged as a result of Contractor's operations shall be restored to a condition equal to or better than that which existed prior to construction, at Contractor's expense.
- Horizontal and vertical controls are subject to adjustments in the field if necessary to avoid utility conflicts upon approval of the Engineer or his representative. Contractor shall not adjust location of pipe or other facilities (either vertically or horizontally) without approval of Engineer or his representative.
- Contractor shall provide constant slope between indicated pipe invert elevations unless otherwise directed by Engineer.
- All pipe shall be properly restrained using mechanical type joint restrainers (see specifications). No thrust blocking will be allowed unless specifically indicated on drawings or directed by Engineer. All exposed piping 3" in diameter and smaller shall be properly wrapped with foam insulation to prevent freezing.
- All pipe shall have the following minimum cover unless otherwise directed by Engineer:

Pipe Type	Minimum Cover
PVC (\leq 3-inch)	30-inches
PVC ($>$ 3-inch)	36-inches
DIP (All Sizes)	30-inches
Steel (All Sizes)	30-inches
- All aboveground piping shall be properly supported and/or secured to tanks, buildings, or other structures using 3/16 S.S. straps and fasteners.
- Contractor shall be responsible for maintaining service to the existing treatment plant facilities. He shall perform all bypass pumping necessary to keep the plant operating properly during construction. He shall coordinate all diversions of flow, draining of tanks, demolition of existing facilities, etc. closely with Owner to avoid potential treatment violations and operating problems. Contractor may be required to perform some work during low demand hours (e.g. 12:00 a.m. to 5:00 a.m.). All arrangements for bypass pumping, diversion of flow, draining of tanks, demolition, etc. shall be subject to approval of Owner and Engineer. All costs associated with bypass pumping and other temporary facilities shall be borne by the Contractor.
- Contractor shall provide all fill required to achieve proposed grades at his expense.
- During any construction activity, including stabilization and revegetation of disturbed surfaces, the Contractor is responsible for the selection, implementation, and operation of all erosion and sediment control measures required to retain sediment on-site and prevent violations of the water quality standards in Chapters 62-3 and 62-4, FAC. The Contractor is encouraged to use appropriate Best Management Practices described in the Florida Land Development Manual: A Guide to Sound Land and Water Management (DER, 1988).
- All grassed areas disturbed by construction shall be resodded unless otherwise directed by Engineer or his representative.
- The Contractor shall employ a land surveyor, registered in the State of Florida to reference and restore property corners and land markers which may be disturbed as a result of Contractor's operations.
- The Contractor shall be responsible for laying out the work and for establishing project temporary bench marks; elevation lines and grades; and right-of-way and property boundary limits for construction.
- Owner has the option of claiming any equipment/materials identified for removal by the Contractor. Contractor shall deliver any removed equipment/materials claimed by Owner to an onsite location as directed by Owner. Any equipment/materials identified for removal which are not claimed by the Owner shall become the property of the Contractor and shall be disposed of by the Contractor at his expense.
- Project Benchmark Location: See Sheet No.

B. GENERAL STRUCTURAL NOTES

- All construction shall be in accordance with the local Building & Zoning Department requirements and the 2017 Florida Building Code with all Revisions. All design shall be in accordance with the 2017 Florida Building with all Revisions, ACI318, ACI350 and ASCE 7-16.

Live Loads (minimum):

Roofs & Canopies	-	20 psf
Storage Spaces	-	150 psf
Stairs & Walkways	-	100 psf

Dead Loads: Actual Material Weights

Geotechnical: Design Load Bearing Value of Soil - 2,000 psf

Flood Zone: X; Map No. 12019C0170E

Windload Design Criteria

Items per Florida Building Code Section 1603.1.4:

Basic Wind Speed: (Vult) = 134 MPH
(Vasd) = 104 MPH

Building Risk Category: IV

Wind Exposure Category: C

Mean Roof Height: N/A

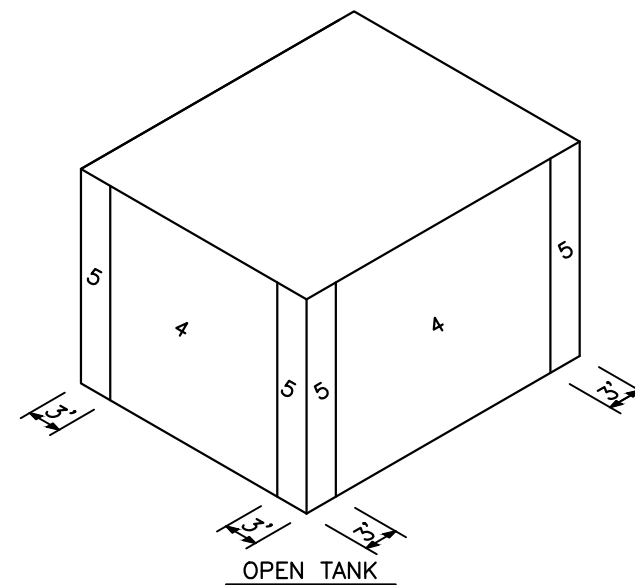
Roof Slope: N/A

Internal Pressure Coefficients: +/- 0.00 (open tanks)
+/- 0.18 (electrical bldg., operations bldg.)
+/- 0.56 (chemical feed bldg.)

B. GENERAL STRUCTURAL NOTES (continued)

COMPONENT & CLADDING PRESSURE

ZONE	EFFECTIVE AREA (SF)	WIND PRESSURE (PSF)	
		POSITIVE	NEGATIVE
1	10	N/A	-52.4
	20	N/A	-49.0
	50	N/A	-44.3
2	10	N/A	-82.3
	20	N/A	-77.8
	50	N/A	-72.5
3	10	N/A	-112.1
	20	N/A	-105.9
	50	N/A	-98.7
4	10	35.8	-35.8
	20	33.0	-33.0
	50	31.6	-31.6
5	10	29.8	-29.8
	20	27.4	-27.4
	50	21.5	-21.5



- All structural concrete shall have a min. compressive strength of 4,000 psi after 28 days unless otherwise noted.
- All reinforcing steel shall conform to ASTM A615 Grade 60, except bars to be welded shall conform to ASTM A706.
- For size and location of embedded items and openings, the Contractor must refer to mechanical, structural, piping and vendors drawings.
- Equipment anchor bolts and rods shall be set from templates made to fit holes in equipment according to approved manufacturers shop drawings.
- Contractor shall verify all dimensions and existing conditions at the site before proceeding with construction.
- Unless otherwise shown on drawings, min. cover for reinforcing steel shall be as follows:
Concrete Cast Against Earth - 3"
Slabs on Grade - Centered
All Other - 2"
Note: 6 mil polyethylene membrane required under all building base slabs.

- All reinforcing steel shall be fabricated and held securely in position with standard accessories in accordance with ACI 315 "Details and Detailing Concrete Reinforcement", latest edition.

- Splices in reinforcing, where permitted, shall be as noted, or as follows:

- 9.1. Welded Wire Fabric - Two Mesh or 12" (min.)
- 9.2. Temperature Reinforcing - 44 bar diameters but not less than 12"
- 9.3. All Other Bars - Class "B" lap.
- 9.3.1. For Top Bars (12" or more concrete below steel) multiply table lengths by 1.3
- 9.3.2. For lightweight concrete multiply table lengths by 1.3.

Bar Size	Class B Lap Length in Inches (Fy=60ksi)		
	fc = 3,000 psi	fc = 4,000 psi	fc = 5,000 psi
#3	22	19	17
#4	29	25	23
#5	36	31	28
#6	43	38	34
#7	63	54	49
#8	72	62	56
#9	81	70	63

- Splices in top reinforcing shall be made at midspan, bottom reinforcing at support, or as noted on drawings.

- Provide 3/4" chamfer on all exposed edges of concrete.
- Provide 1/2" premolded expansion joint material where slab on grade is cast around columns or against walls.
- All masonry shall utilize standard precast masonry units and be laid true and plumb.
- All concrete lintels shall be reinforced with 2-#5 bars top and bottom as a minimum and have a masonry end bearing each end of 2" per foot of span with a minimum of 8."
- Compaction: unless otherwise noted, the required percentage of maximum compaction shall be as follows: (per modified proctor max. Dry density)
Under Structures and Slabs - 95%
Under Paved Areas (subgrade) - 98%
Under Paved Areas (below 12") - 95%
Landscaped Areas and Other - 90%
Adjacent to Walls and Above Footing - 92%
The more stringent requirement shall govern between any conflict of these compaction requirements & those listed within the specifications.

- Coating: Apply asphalt point coating between different metals and for aluminum set against concrete.

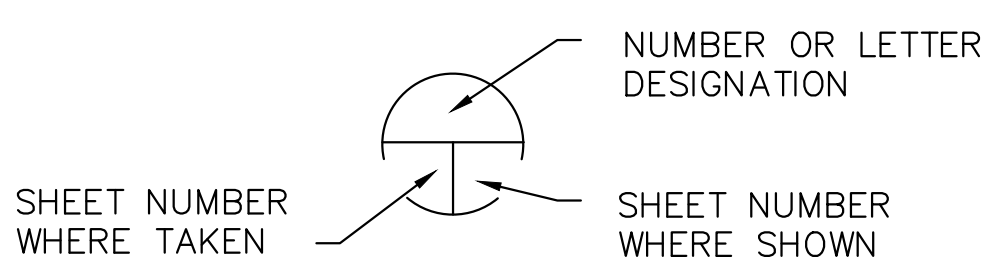
- The design of all structural concrete for tanks conforms to ACI 350: Code Requirements for Environmental Engineering Structures.

- Location of construction joints, proposed by the Contractor, shall be submitted to the Engineer for approval prior to initiating any construction or fabrication which could be affected by the location. All construction joints below either the plant liquid or ground level shall incorporate a properly designed and fabricated PVC waterstop.

- All structural anchoring systems shall be hot-dipped galvanized or 316 S.S. as noted or specified.

LEGEND

PROPOSED	EXISTING	DESCRIPTION
8"S	8"SAN	SANITARY SEWER
8"FM	4"FM	SANITARY FORCE MAIN
○	MH	SANITARY MANHOLE
○	○	CLEANOUT
8"W	6"W	WATER MAIN
○	○	VALVE
○	○	FIRE HYDRANT
○	○	WATER SERVICE (SIZE VARIES)
○	○	TELEPHONE PEDESTAL
○	○	MAIL BOX
18"SD	18"SCP	STORM DRAIN PIPE
○	○	STORM DRAIN INLET/MES
84.00	84.00	GRADE CONTOURS
63.00	63.00	SPOT ELEVATIONS
PP	PP	POWER POLE/ W/ANCHOR
○	○	WIRING PULL BOX
○	○	ELECTRICAL METER
○	○	ELECTRICAL CABINET
○	○	TRANSFORMER
○	○	BOLLARD
○	○	UTILITY POLE, LIGHT POLE
○	○	BURIED TELEPHONE
○	○	FIBER CABLE
○	○	CABLE TELEVISION
○	○	OVER HEAD ELEC
○	○	SWALE
○	○	RIGHT-OF-WAY
○	○	FENCING
○	○	BUILDING OR STRUCTURE
○	○	ASPHALT PAVED DRIVE
○	○	CONCRETE SLAB OR SIDEWALK
○	○	DEMOLISH, REMOVE & DISPOSE OF
○	○	LIMITS OF WOODS
○	○	TREE
○	○	TEST PIT (SEE S.U.E. REPORT)



DETAIL/SECTION KEY

ABBREVIATIONS

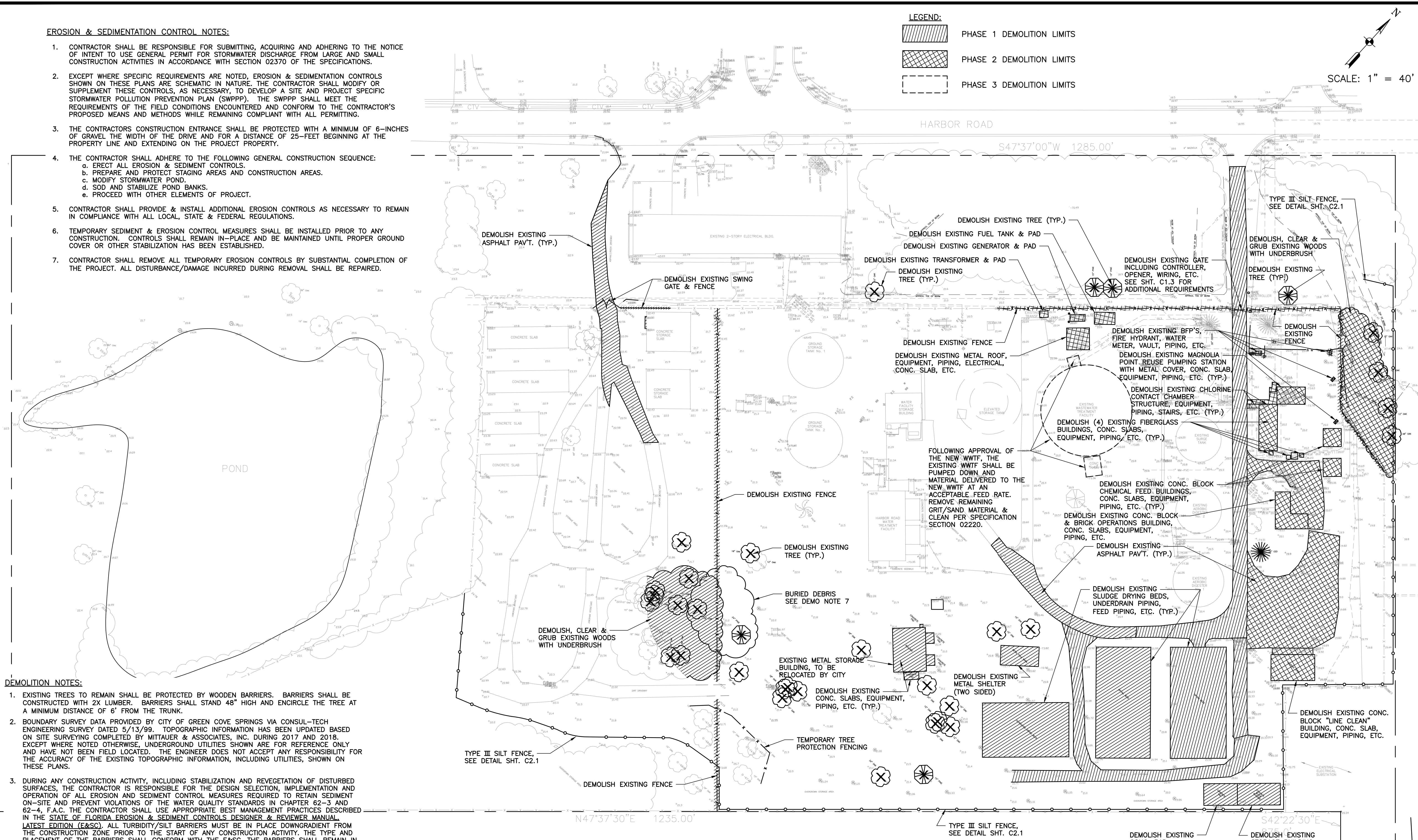
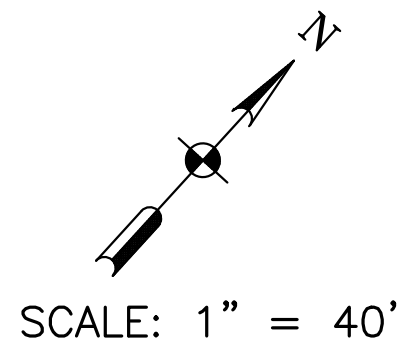
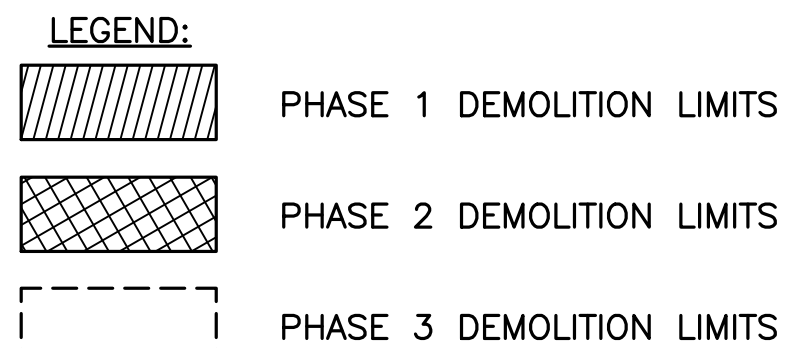
ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
ABS	ACRYLONITRILE BUTADIENE STYRENE	MAN	MAINTAIN OR MAINTENANCE
ABV	ABOVE	MAX	MAXIMUM
ACP	ASBESTOS CEMENT PIPE	MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISH FLOOR (REF. ELEV.)	MES	METERED END SECTION
ALUM	ALUMINUM	MECH	MECHANICAL
ALT	ALTERNATE	MFR	MANUFACTURE
APRX	APPROXIMATE(LY)	MG	MILLION GALLON(S)
ARCH	ARCHITECT(URAL)	MGD	MILLION GALLONS PER DAY
ARV	AIR RELEASE VALVE	MH	MANHOLE
ASPH	ASPHALT	MIN	MINIMUM; MINUTE(S)
ASSY	ASSEMBLY	MISC	MISCELLANEOUS
AV	BURIED ELECTRIC	MJ	MECHANICAL JOINT
BFO	BOTTOM FACE	MON	MONUMENT
BM	BURIED FIBER OPTIC	MPH	MILES PER HOUR
BY	BUTTERFLY VALVE	MPT	MALE PIPE THREAD
BTUM	BUTYRUS OR BITUMASTIC	MTD	MOUNTED
B	BASELINE	NW	NORTHWEST
BLD	BUILDING	N	NORTH
BLK	BLOCK	NC	NORMALLY CLOSED
BM	BENCH MARK	NE	NORTHEAST
BOC	BACK OF CURB	NIC	NOT IN CONTRACT; NOT INCLUDED
BOT	BOTTOM	NO	NORMALLY OPEN
BT	BURIED TELEPHONE-CABLE	NOM	NOMINAL
BV	BALL VALVE	No	NUMBER
BW	BOTH WAYS	NPT	NATIONAL PIPE THREAD
C	CONDUIT	NPW	NON-POTABLE WATER
C AND	CAP	NTS	NOT TO SCALE
CAP	CAPACITY	NW	NORTHWEST
CATV	CABLE TELEVISION	OA	NOT APPLICABLE
CCUA	CLAY CLAY UTILITY AUTHORITY	OA	OVERALL DIMENSION
CFM	CUBIC FEET PER MINUTE	OC	ON CENTER
CFS	CUBIC FEET PER SECOND	OD	OUTSIDE DIAMETER
CST	CAST IRON	OH	OVER HEAD
CIP	CAST IRON PIPE, CAST-IN-PLACE	OHE	OVER HEAD ELECTRIC
CL	CENTERLINE	OH	OPTIONAL
CLF	CHAIN LINK FENCE	OAM	OPERATION AND MAINTENANCE
CLR	CLEAR OR CLEARANCE	PAVT	PAVEMENT
CONC	CONCRETE MONUMENT	PC	POINT OF CURVE
CONC	CONCRETE MASONRY UNIT	PE	POINT OF INTERSECTION
CONC	CONCRETE	PL	PLATE
CONC	CONCRETE	PL	POUNDS PER LINEAR FOOT
COORD	COORDINATE	POB	POINT OF BEGINNING
CPVC	CHLORINATED POLYVINYL CHLORIDE	PP	POUNDS PER SQUARE INCH
CUL	CULVERT	PPD	POUNDS PER DAY
CURB	CURB	PPM	PARTS PER MILLION
CY	CUBIC YARD	PPRES	PRESSURE REDUCING VALVE
C/C	CENTER TO CENTER	PRV	PUMP STATION
DEM	DEMOLITION	PS	POUNDS PER SQUARE FOOT
DEMO	DEMOLITION	PSI	POUNDS PER SQUARE INCH
DI	DUCTILE IRON	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
DIA	DIAMETER	PSIG	POUNDS PER SQUARE INCH GAGE
DIM	DIMENSION	PT	POINT OF TANGENCY
DOT	DEPARTMENT OF TRANSPORTATION	PV	POLYVINYL VALVE
DR	DRAIN	PVC	POLYVINYL CHLORIDE
DR	DRIVEWAY	PW	POWER
DWG	DRAWING	Q	QUANTITY
E	EAST	R, RAD	RADIUS
EACH	EACH	RC	REINFORCED CONCRETE PIPE
ECC	ECCENTRIC	RD	REDUCER
ELEC	ELECTRIC	REBAR	REINFORCING STEEL BARS
ELEV	ELEVATION	REF	REFERENCE
ELEC	ELECTRICAL	REIN	REINFORCE(D)(ING)(MENT)
EMER	EMERGENCY	REQD	REQUIRED
EPDM	ETHYLENE PROPYLENE DIENE MONOMER	RES	RESTRICTED
EQUIP	EQUIPMENT	RM	ROOM
ESMT	EASEMENT	RPM	REVOLUTIONS PER MINUTE
ESTIM	ESTIMATE	RR	RAILROAD
EW	EACH WAY	RT	RIGHT
EXP	EXPANSION	RW	RAW WATER
EXT	EXTERIOR	RWM	RAW WATER MAIN
FB	FLAT BAR	R/W	RIGHT-OF-WAY
FBR	FLOOR BRAN	R/W	SEWER, SOUTH
FDN	FOUNDATION	S	SANITARY SEWER
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION	SAN	SCHEDULE
FIN	FINISH FLOOR	SCHED	SCHEDULE
FH	FIRE HYDRANT	SECT	SECTION
FIGURE	FIGURE	SECT	SQUARE FOOT OR FEET
FIN	FINISHED	SHT	SHEET(ED)(ING)
FIN GR	FINISH GRADE	SJ	SLIP JOINT
FL	FLANGE	SLV	SLEEVE
FL	FLANGE	SP	SERVICE POLE, DROP POLE
FM	FORCE MAIN	SPEC	SPECIFICATION
FM	FEET PER MINUTE	SQ	SQUARE
FM	FEET PER MINUTE	SR	STATE ROAD
FPS	FEET PER SECOND	SS	STAINLESS STEEL, STAINLESS STEEL
FPT	FEMALE PIPE THREAD	ST	STATION
FRP	FIBERGLASS REINFORCED PLASTIC	STD	STANDARD
FT	FOOT OR FEET	STRUC	STRUCTURAL
FW	FINISHED WATER	SW	SOUTHWEST
F/F	FACE TO FACE	SWD	SIDEWATER DEPTH
G	GAS MAIN	SYM	SYMBOL
GAL	GALLON(S)	SYMM	SYMMETRICAL
GALV	GALVANIZED	S/W	SIDEWALK
GIP	GALVANIZED IRON PIPE	TAN	TANGENT
GRD	GROUND	TBM	TEMPORARY BENCH MARK
GPD	GALLONS PER DAY	TC, TOC	TOP OF CONCRETE
GPH	GALLONS PER HOUR	TDH	TOTAL DYNAMIC HEAD
GPM	GALLONS PER MINUTE	TEL	TELEPHONE
GPS	GALLONS PER SECOND	TEMP	TEMPERATURE
GR	GRADE	TF	TOP FACE
GAS	GALVANIZED STEEL	TG	THREADED JOINT
GSP	GATE VALVE	THD	THREADED
GV	GATE VALVE	THK	THICK(NESS)
HB	HOSE BIBB	TOB	TOP OF BANK
HDPE	HIGH-DENSITY POLYETHYLENE	TOE	TOE OF SLOPE
HGT	HEIGHT	TOS	TOE OF SLOPE, TOP OF STEEL
HR	HAND RAIL	TP	TELEPHONE POLE, TOP OF PAVEMENT
HOA	HAND-OFF-AUTO SWITCH	TV	TELEVISION
HORIZ	HORIZONTAL	TYP	TYPICAL
HP	HORSEPOWER	T&B	TOP AND BOTTOM
HR	HOUR	UG	UNDERGROUND
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING	UG	UNDERGROUND ELECTRIC
HWH	HIGH WATER LEVEL	UN	UNION
HIGHWAY	HIGHWAY	UTL	UTILITY
ID	INSIDE DIAMETER	V	VOLT(S)
IF	INSIDE FACE	VAC	VACUUM
IN	INCHES	VAR	VARIABLE
INF	INFLENT	VCP	VITRIFIED CLAY PIPE
INT	INTERSECTION	VEL	VELOCITY
INTR	INTERIOR	VERT	VERTICAL
INV	INVERT	VFD	VARIABLE FREQUENCY DRIVE
IP	IRON PIPE	VOL	VOLUME
IPS	INTERNATIONAL PIPE STANDARD; IRON PIPE SIZE	W	WEST
JB	JUNCTION BOX	WL	WATER LINE
J	JOINT	WM	WATER MAIN
K	KIP(1,000 LB)	WP	WATER PIPES
KVA	KILOVOLT-AMPERE	WTP	WATER TREATMENT PLANT
KW	KILOWATT	WT	WEIGHT
L	LEFT	WWF	WELDED WIRE FABRIC
LAB	LABORATORY	WWM	WELDED WIRE MESH
LAV	LAVATORY	WWTP	WASTEWATER TREATMENT PLANT
LB	POUND	W/	WITH
LF	LINEAR FEET	W/O	WITHOUT
LP	LIGHT POLE	XFR	TRANSFER
LR	LONG RADIUS	XFMR	TRANSFORMER
LS	LUMP SUM	YD	YARD(S)
LWL	LOW WATER LEVEL	YR	YEAR(S)

PROJECT CONTACTS

TYPE	COMPANY	ADDRESS	PHONE	CONTACT PERSON
CABLE	COMCAST CABLE COMMUNICATIONS	5934 RICHARD STREET JACKSONVILLE, FL 32216	(904) 380-7574	LARRY WINBURN
TELEPHONE	AT&T	2315 GEES MILL BUSINESS PKWY NE CONYERS, GA 30013-1578	(770) 918-5424	NANCY SPENCE
WATER, SEWER & ELECTRIC	CITY OF GREEN COVE SPRINGS	321 WALNUT ST. GREEN COVE SPRINGS, FL 32043	(904) 297-7500	MIKE NULL
OWNER	CITY OF GREEN COVE SPRINGS	321 WALNUT ST. GREEN COVE SPRINGS, FL 32043	(904) 297-7500	MIKE NULL
DESIGN ENGINEER	MITTAUER & ASSOCIATES, INC.	580-1 WELLS ROAD ORANGE PARK, FL 32073	(904) 278-0030	JASON SHEPLER, P.E. TIM NORMAN,

EROSION & SEDIMENTATION CONTROL NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING, ACQUIRING AND ADHERING TO THE NOTICE OF INTENT TO USE GENERAL PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH SECTION 02370 OF THE SPECIFICATIONS.
- EXCEPT WHERE SPECIFIC REQUIREMENTS ARE NOTED, EROSION & SEDIMENTATION CONTROLS SHOWN ON THESE PLANS ARE SCHEMATIC IN NATURE. THE CONTRACTOR SHALL MODIFY OR SUPPLEMENT THESE CONTROLS, AS NECESSARY, TO DEVELOP A SITE AND PROJECT SPECIFIC STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE SWPPP SHALL MEET THE REQUIREMENTS OF THE FIELD CONDITIONS ENCOUNTERED AND CONFORM TO THE CONTRACTOR'S PROPOSED MEANS AND METHODS WHILE REMAINING COMPLIANT WITH ALL PERMITTING.
- THE CONTRACTORS CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MINIMUM OF 6-INCHES OF GRAVEL THE WIDTH OF THE DRIVE AND FOR A DISTANCE OF 25- FEET BEGINNING AT THE PROPERTY LINE AND EXTENDING ON THE PROJECT PROPERTY.
- THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING GENERAL CONSTRUCTION SEQUENCE:
 - ERECT ALL EROSION & SEDIMENT CONTROLS.
 - PREPARE AND PROTECT STAGING AREAS AND CONSTRUCTION AREAS.
 - MODIFY STORMWATER POND.
 - SOD AND STABILIZE POND BANKS.
 - PROCEED WITH OTHER ELEMENTS OF PROJECT.
- CONTRACTOR SHALL PROVIDE & INSTALL ADDITIONAL EROSION CONTROLS AS NECESSARY TO REMAIN IN COMPLIANCE WITH ALL LOCAL, STATE & FEDERAL REGULATIONS.
- TEMPORARY SEDIMENT & EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION. CONTROLS SHALL REMAIN IN-PLACE AND BE MAINTAINED UNTIL PROPER GROUND COVER OR OTHER STABILIZATION HAS BEEN ESTABLISHED.
- CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROLS BY SUBSTANTIAL COMPLETION OF THE PROJECT. ALL DISTURBANCE/DAMAGE INCURRED DURING REMOVAL SHALL BE REPAIRED.



DEMOLITION NOTES:

- EXISTING TREES TO REMAIN SHALL BE PROTECTED BY WOODEN BARRIERS. BARRIERS SHALL BE CONSTRUCTED WITH 2X LUMBER. BARRIERS SHALL STAND 48" HIGH AND ENCIrcLE THE TREE AT A MINIMUM DISTANCE OF 6' FROM THE TRUNK.
- BOUNDARY SURVEY DATA PROVIDED BY CITY OF GREEN COVE SPRINGS VIA CONSUL-TECH ENGINEERING SURVEY DATED 5/13/99. TOPOGRAPHIC INFORMATION HAS BEEN UPDATED BASED ON SITE SURVEYING COMPLETED BY MITTAUER & ASSOCIATES, INC. DURING 2017 AND 2018. EXCEPT WHERE NOTED OTHERWISE, UNDERGROUND UTILITIES SHOWN ARE FOR REFERENCE ONLY AND HAVE NOT BEEN FIELD LOCATED. THE ENGINEER DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE ACCURACY OF THE EXISTING TOPOGRAPHIC INFORMATION, INCLUDING UTILITIES, SHOWN ON THESE PLANS.
- DURING ANY CONSTRUCTION ACTIVITY, INCLUDING STABILIZATION AND REVEGETATION OF DISTURBED SURFACES, THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN SELECTION, IMPLEMENTATION AND OPERATION OF ALL EROSION AND SEDIMENT CONTROL MEASURES REQUIRED TO RETAIN SEDIMENT ON-SITE AND PREVENT VIOLATIONS OF THE WATER QUALITY STANDARDS IN CHAPTER 62-3 AND 62-4, F.A.C. THE CONTRACTOR SHALL USE APPROPRIATE BEST MANAGEMENT PRACTICES DESCRIBED IN THE STATE OF FLORIDA EROSION & SEDIMENT CONTROLS DESIGNER & REVIEWER MANUAL, LATEST EDITION (E&SC). ALL TURBIDITY/SILT BARRIERS MUST BE IN PLACE DOWNGRADIENT FROM THE CONSTRUCTION ZONE PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY. THE TYPE AND PLACEMENT OF THE BARRIERS SHALL CONFORM WITH THE E&SC. THE BARRIERS SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN PROPERLY STABILIZED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING & INSTALLING ANY PEDESTRIAN AND MOTORIST/ROADWAY TEMPORARY TRAFFIC CONTROL IN ACCORDANCE WITH FDOT STANDARDS AND THE LATEST EDITION OF THE MUTCD.
- CONTRACTOR SHALL SALVAGE AND STORE EXISTING SIGNS FOR LATER USE. ONLY STRUCTURALLY SOUND AND READABLE SIGNS SHALL BE SALVAGED.
- SEE YARD PIPING PLAN FOR REMOVAL OF EXISTING UNDERGROUND PIPING AND OTHER PROJECT DEMOLITION REQUIREMENTS.
- BURIED DEBRIS HAS BEEN IDENTIFIED IN THE SOIL BORING LOGS FOR THIS AREA. THE CONTRACTOR SHALL PERFORM TEST PITS ON A 10' GRID TO IDENTIFY THE LIMITS OF THE DEBRIS. ANY DEBRIS BENEATH A PROPOSED STRUCTURE SHALL BE REMOVED AND REPLACED WITH SUITABLE FILL. THE LIMITS OF DEBRIS REMOVAL SHALL EXTEND 10' BEYOND THE EXTERIOR OF THE STRUCTURE. ALL FILL SHALL BE COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

CONSTRUCTION PHASING REQUIREMENTS:

THE EXISTING WWTF SHALL REMAIN IN SERVICE AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR WILL BE REQUIRED TO SEQUENCE CONSTRUCTION ACTIVITIES TO ENSURE THE CITY CAN MAINTAIN WASTEWATER TREATMENT OPERATIONS. THE CRITICAL SEQUENCING REQUIREMENTS ARE OUTLINED AS FOLLOWS:

- PHASE 1 WORK** - CLEAR & GRUB AND DEMOLISH EXISTING DRYING BEDS AND DENOTED STRUCTURES TO CONSTRUCT THE OXIDATION DITCH, CLARIFIER SPLITTER BOX, CLARIFIER Nos. 1 & 2, FILTERS, CHLORINE CONTACT CHAMBER, CHEMICAL FEED FACILITIES, RECLAIMED WATER STORAGE TANK, REUSE PUMPING STATION, ELECTRICAL IMPROVEMENTS, AND ASSOCIATED WORK. THE OPERATIONS BUILDING WITH ASSOCIATED CLEARING & GRASSING SHALL BE COMPLETED WITH TEMPORARY PARKING AREA. THE OPERATIONS BUILDING WITH ALL SCADA, ELECTRICAL AND CONTROL CAPABILITIES SHALL BE COMPLETED PRIOR TO PHASE 2 WORK.

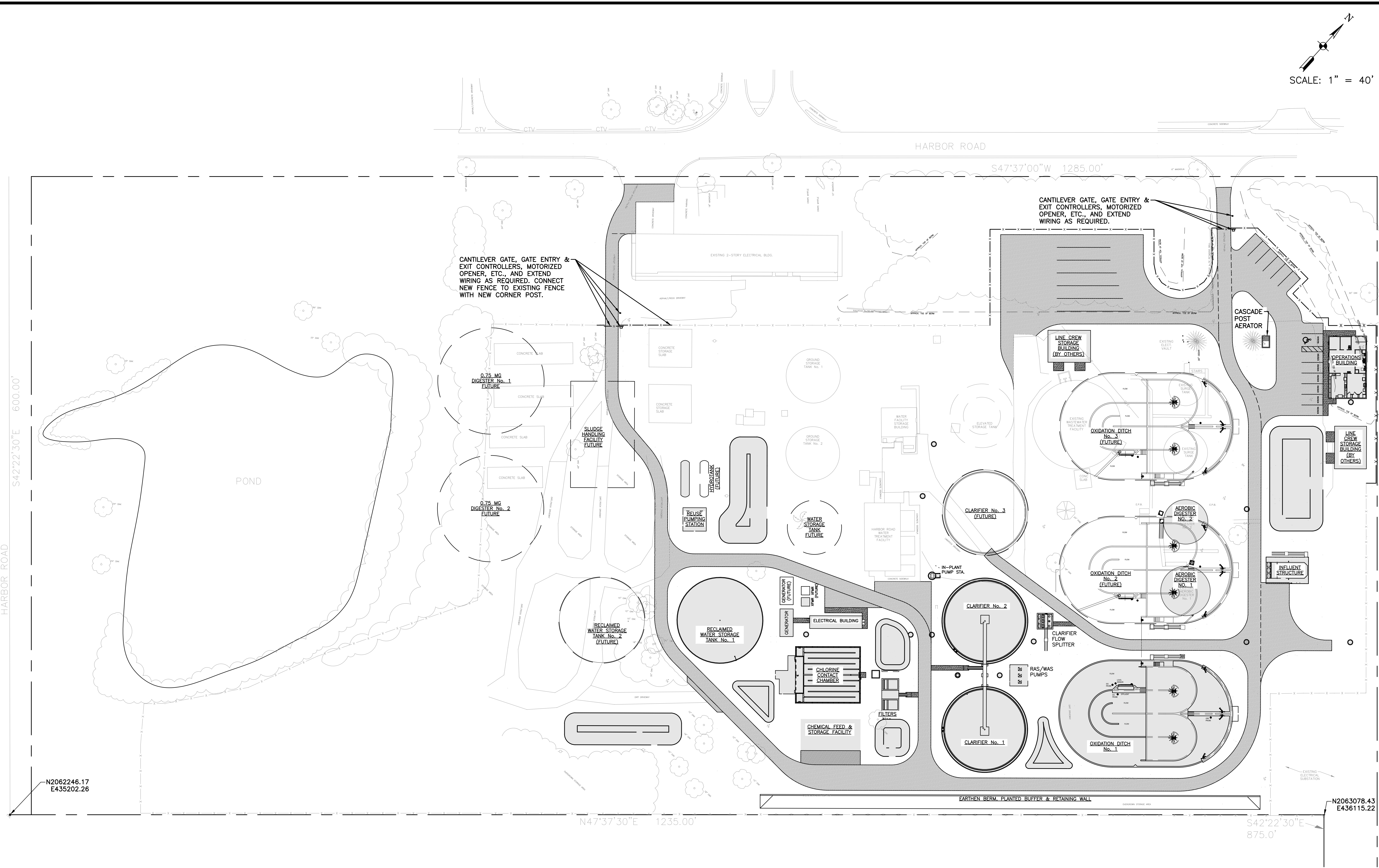
CONSTRUCTION PHASING REQUIREMENTS (CONTINUED):

- PHASE 2 WORK** - AFTER THE OPERATIONS BUILDING HAS RECEIVED ITS CERTIFICATE OF OCCUPANCY AND IS FULLY FUNCTIONAL WITH ALL NEW SCADA AND RELOCATED WATER PLANT SCADA COMPONENTS, THE DEMOLITION OF THE EXISTING OPERATIONS BUILDING AND LINE CREW BUILDING CAN OCCUR. THE EXISTING CHLORINE CONTACT CHAMBER & CHEMICAL FEED FACILITIES CAN ONLY BE DEMOLISHED AFTER THE NEW WWTF IS IN OPERATION AND ACCEPTED BY THE FDEP, OWNER & ENGINEER.
- PHASE 3 WORK** - AFTER THE NEW WWTF IS APPROVED FOR OPERATION, THE DECOMMISSIONING OF THE EXISTING WWTF CAN BEGIN AND BE COMPLETED PER SPECIFICATION SECTION 02220.

SITE PLAN REVIEW
NOT FOR CONSTRUCTION
 07/25/18

<p>REVISION DESCRIPTION</p>	
NO.	DATE
BY	
<p>1 INCH = 10 FEET</p>	
DATE	7/25/18
PROJ. MGR.	JRS
DRWN.	KDH
DESC.	MPT
<p>MITTAUER & ASSOCIATES, INC. CONSULTING ENGINEERS</p>	
<p>580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073 TEL. (904) 278-0030 FAX. (904) 278-0840</p>	
<p>CITY OF GREEN COVE SPRINGS DEP. SRF Harbor Road WWTF Existing Conditions & Demolition Plan Clay County, Florida</p>	
SHEET NO.	8905-34-1
JOB NO.	C1.1

SCALE: 1" = 40'



CANTILEVER GATE, GATE ENTRY & EXIT CONTROLLERS, MOTORIZED OPENER, ETC., AND EXTEND WIRING AS REQUIRED. CONNECT NEW FENCE TO EXISTING FENCE WITH NEW CORNER POST.

CANTILEVER GATE, GATE ENTRY & EXIT CONTROLLERS, MOTORIZED OPENER, ETC., AND EXTEND WIRING AS REQUIRED.

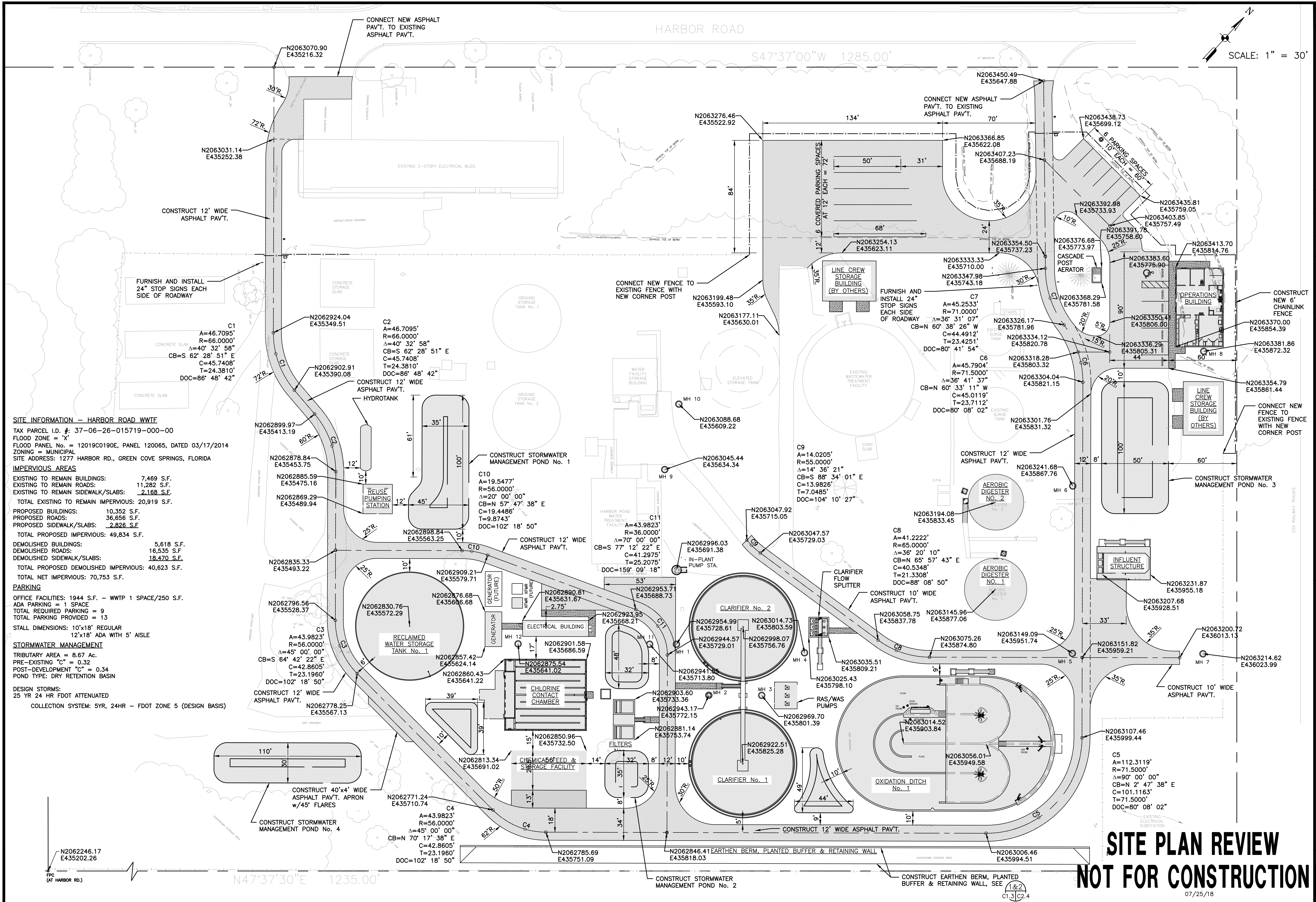
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E435202.26

N2063078.43
E436115.22

SITE PLAN REVIEW
NOT FOR CONSTRUCTION

07/25/18

<p>MITTALAJER & ASSOCIATES, INC. CONSULTING ENGINEERS</p> <p>580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073 TEL. (904) 278-0030 FAX. (904) 278-0840</p>		<p>REVISION DESCRIPTION</p>
<p>DESC: _____</p> <p>DRWN: KDH</p> <p>PROJ MGR: JRS</p>	<p>DATE: 7/25/18</p> <p>SCALE: 1" = 40'</p>	<p>NO. _____</p> <p>DATE _____</p> <p>BY _____</p>
<p>CITY OF GREEN COVE SPRINGS DEP SRF Harbor Road WWT Site Master Plan Clay County, Florida</p>		
<p>JOB NO. 8905-34-1 SHEET NO. C1.2</p>		



HARBOR ROAD

S47°37'00"W 1285.00'

SCALE: 1" = 30'

SITE INFORMATION - HARBOR ROAD WWTF
 TAX PARCEL I.D. #: 37-06-26-015719-000-00
 FLOOD ZONE = "X"
 FLOOD PANEL No. = 12019C0190E, PANEL 120065, DATED 03/17/2014
 ZONING = MUNICIPAL
 SITE ADDRESS: 1277 HARBOR RD., GREEN COVE SPRINGS, FLORIDA

IMPERVIOUS AREAS

EXISTING TO REMAIN BUILDINGS:	7,469 S.F.
EXISTING TO REMAIN ROADS:	11,282 S.F.
EXISTING TO REMAIN SIDEWALK/SLABS:	2,168 S.F.
TOTAL EXISTING TO REMAIN IMPERVIOUS:	20,919 S.F.
PROPOSED BUILDINGS:	10,352 S.F.
PROPOSED ROADS:	36,856 S.F.
PROPOSED SIDEWALK/SLABS:	2,826 S.F.
TOTAL PROPOSED IMPERVIOUS:	49,834 S.F.
DEMOLISHED BUILDINGS:	5,618 S.F.
DEMOLISHED ROADS:	16,535 S.F.
DEMOLISHED SIDEWALK/SLABS:	18,470 S.F.
TOTAL PROPOSED DEMOLISHED IMPERVIOUS:	40,623 S.F.
TOTAL NET IMPERVIOUS:	70,753 S.F.

PARKING

OFFICE FACILITIES: 1944 S.F. - WWTP 1 SPACE/250 S.F.
 ADA PARKING = 1 SPACE
 TOTAL REQUIRED PARKING = 9
 TOTAL PARKING PROVIDED = 13

STALL DIMENSIONS: 10'x18' REGULAR
 12'x18' ADA WITH 5' AISLE

STORMWATER MANAGEMENT

TRIBUTARY AREA = 8.67 Ac.
 PRE-EXISTING "C" = 0.32
 POST-DEVELOPMENT "C" = 0.34
 POND TYPE: DRY RETENTION BASIN

DESIGN STORMS:
 25 YR 24 HR FDOT ATTENUATED
 COLLECTION SYSTEM: 5YR, 24HR - FDOT ZONE 5 (DESIGN BASIS)

REVISION DESCRIPTION
 NO. DATE BY
 1 11/25/18 JRS
 2 12/10/18 JRS
 3 07/25/18 JRS

MITTALAJER & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
 TEL. (904) 278-0030 FAX. (904) 278-0840

CITY OF GREEN COVE SPRINGS
 DEP SRF Harbor Road WWTF
 Site Plan - Horizontal Control
 Clay County, Florida

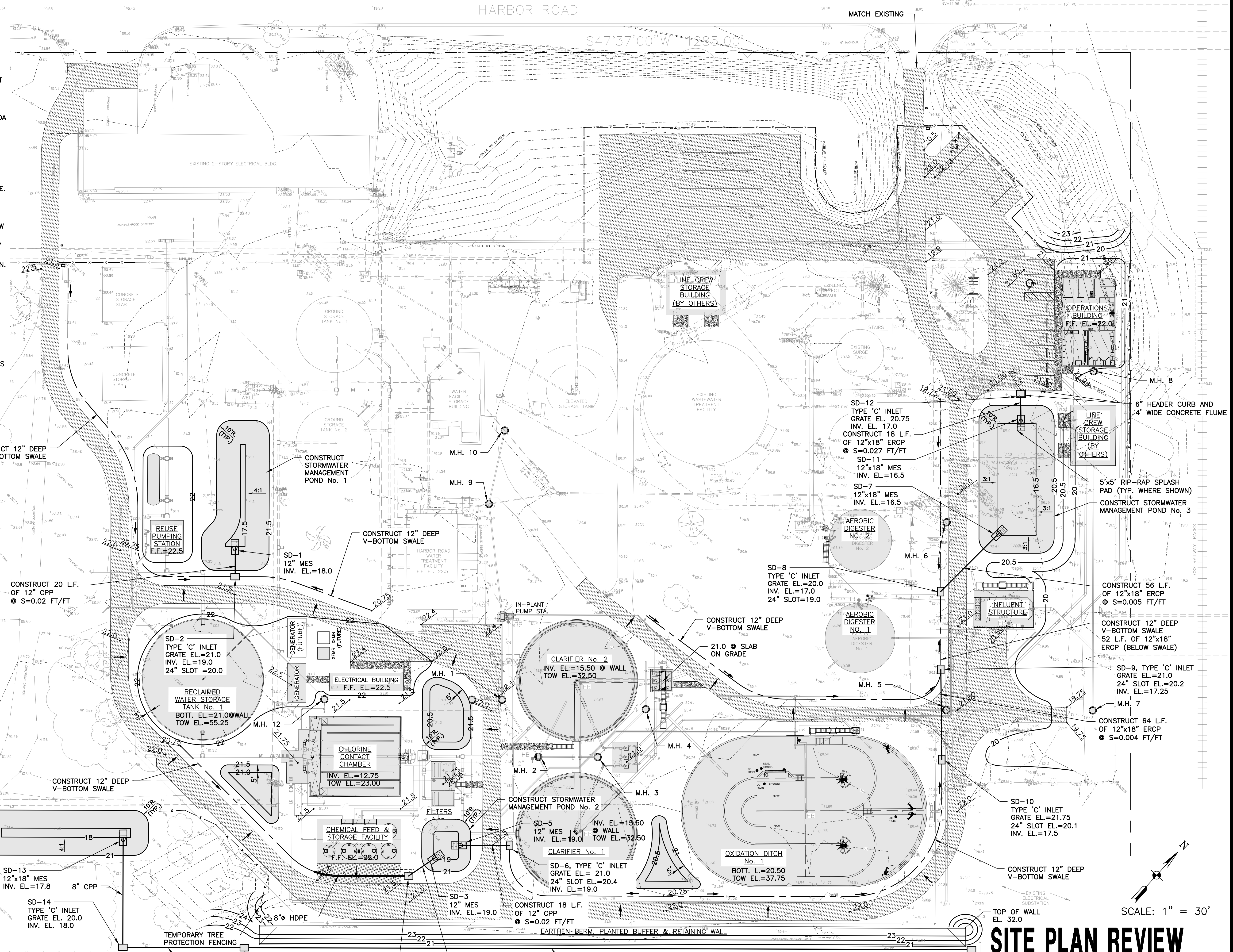
JOB NO. 8905-34-1
 SHEET NO. C1.3

SITE PLAN REVIEW
NOT FOR CONSTRUCTION

07/25/18

NOTES:

- PIPE LENGTHS ARE MEASURED ON THE HORIZONTAL PLANE CENTER TO CENTER OF INLET OR MANHOLE AND DO NOT INCLUDE MITERED END SECTIONS IF APPLICABLE. CONTRACTOR SHALL PROVIDE AND INSTALL THE LENGTH REQUIRED.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL CONSTRUCT EROSION & SEDIMENT INLET PROTECTION AT ALL EXISTING & PROPOSED STORM DRAIN INLETS, SEE DETAIL, SHT. C2.1.
- ALL SIDEWALKS ARE CONSIDERED HANDICAP ACCESSIBLE ROUTES AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH ADA STANDARDS FOR ACCESSIBLE DESIGN AND SLOPES SHALL NOT EXCEED THE FOLLOWING:
 - DIRECTION OF TRAVEL (LENGTH OF SIDEWALK) = 5% MAX.
 - CROSS SLOPE = 2% MAX.
 - RAMP = 1:12 MAX.
 SEE DETAIL SHT. C2.1.
- ALL SIDEWALKS FLUSH WITH PAVEMENT SHALL RECEIVE A CONTINUOUS 24" WIDE STRIP OF DETECTABLE WARNING TEXTURE.
- ALL CURB & GUTTERS ARE FRONT-DISCHARGE WHERE PAVEMENTS SLOPE DOWN & AWAY FROM GUTTERS.
- CONTRACTOR SHALL VERTICALLY ADJUST ALL EXISTING & NEW VALVE BOXES, MANHOLE FRAMES & COVERS, JUNCTION BOXES, PULL BOXES, ETC., WHERE REQUIRED DUE TO GRADE CHANGES, SO THEY ARE LOCATED FLUSH WITH FINISHED GRADE/SURFACE.
- SEE DETAIL SHT. C2.3 FOR DETAIL OF MITERED END SECTION.
- SEE DETAIL SHT. C2.3 FOR DETAIL OF IN-LINE DRAIN.
- SEE DETAIL SHT. C2.3 FOR DETAIL OF TYPE 'C' INLET.
- SEE DETAIL SHT. C2.3 FOR TYPE 'E' INLET STRUCTURES.
- MANHOLES SHALL CONFORM TO DETAIL SHT. D12.2.
- CONTRACTOR SHALL PROVIDE CONSTANT SLOPE BETWEEN ADJACENT SPOT ELEVATIONS.
- UNLESS OTHERWISE NOTED GRADES AT ALL PROPERTY LINES SHALL REMAIN UNCHANGED. CONTRACTOR SHALL PROVIDE A CONSTANT SLOPE BETWEEN EXISTING PROPERTY LINE GRADES AND NEAREST PROPOSED SPOT ELEVATIONS.



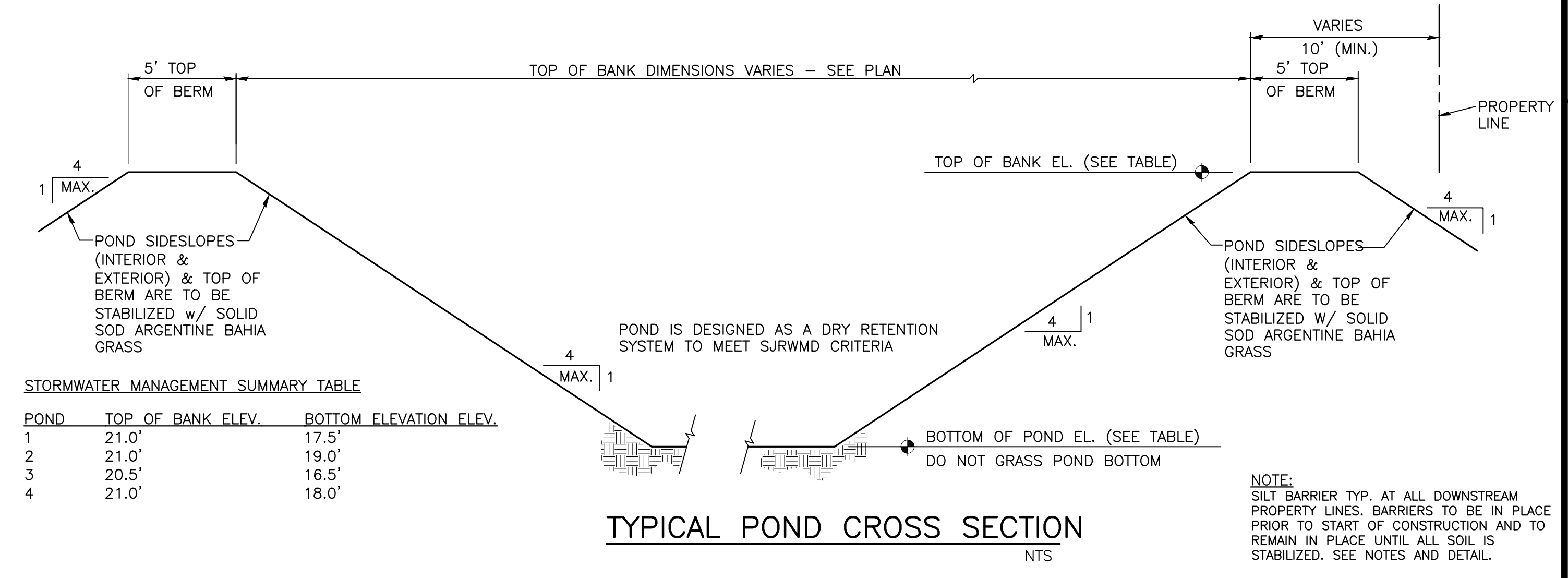
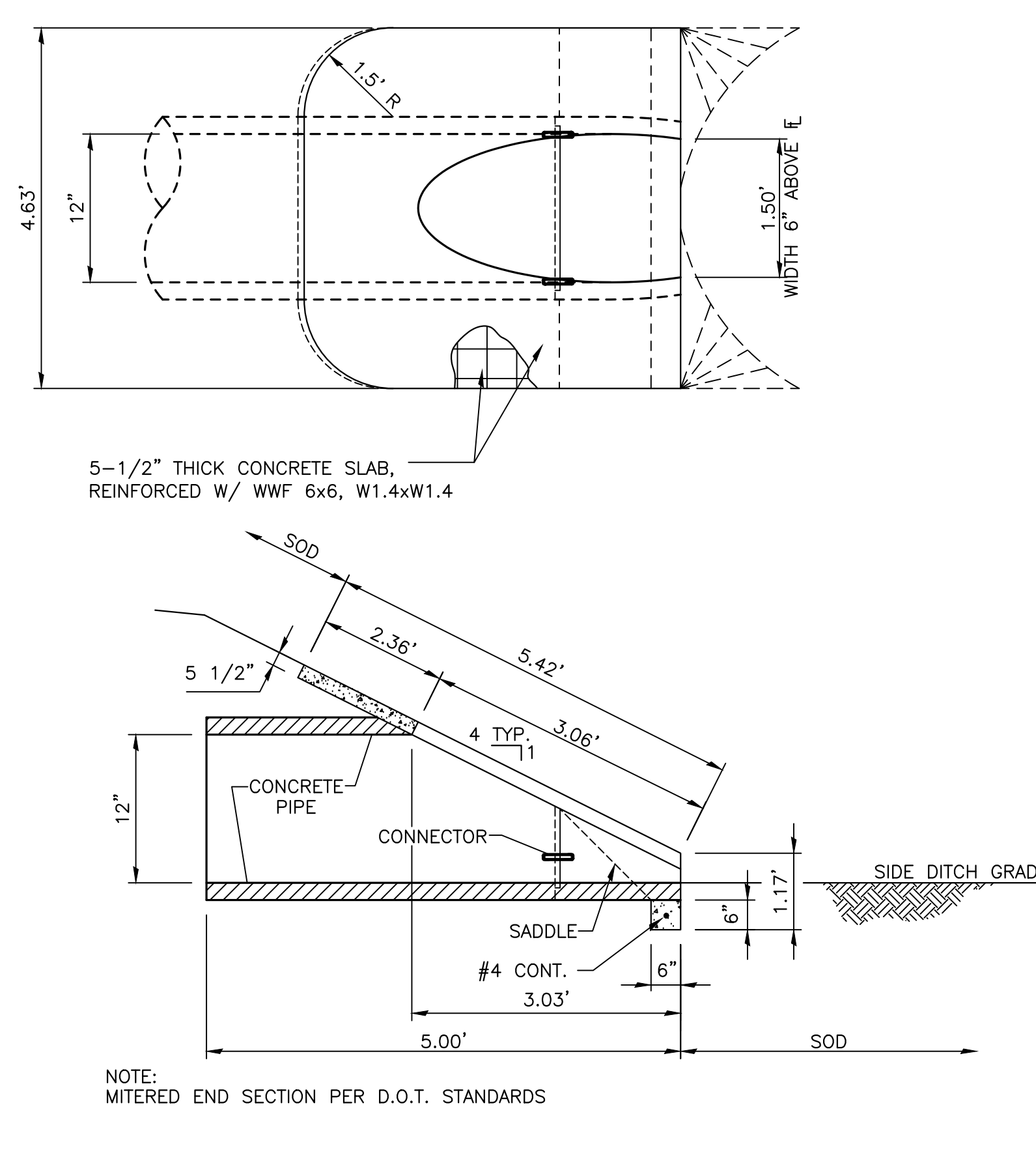
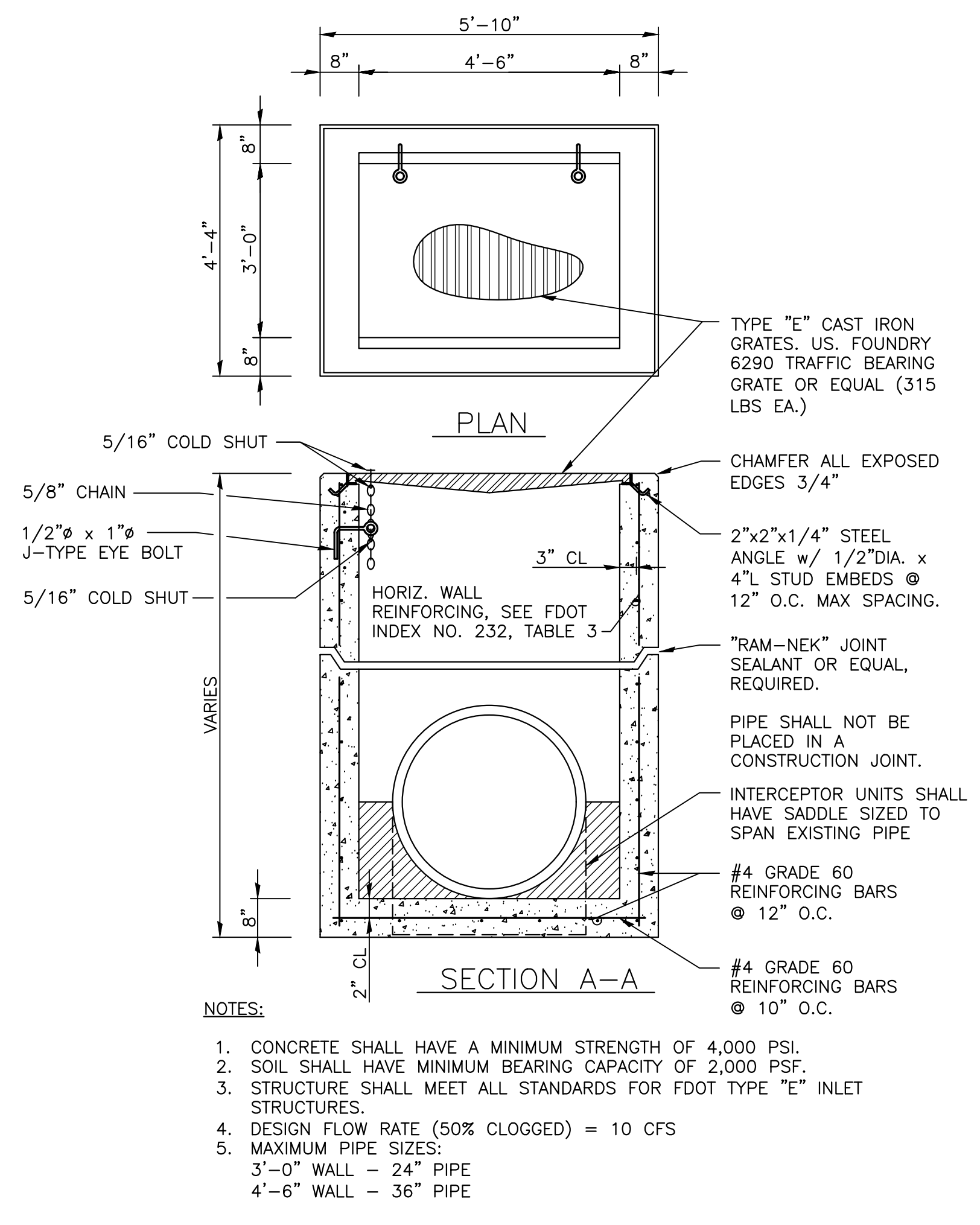
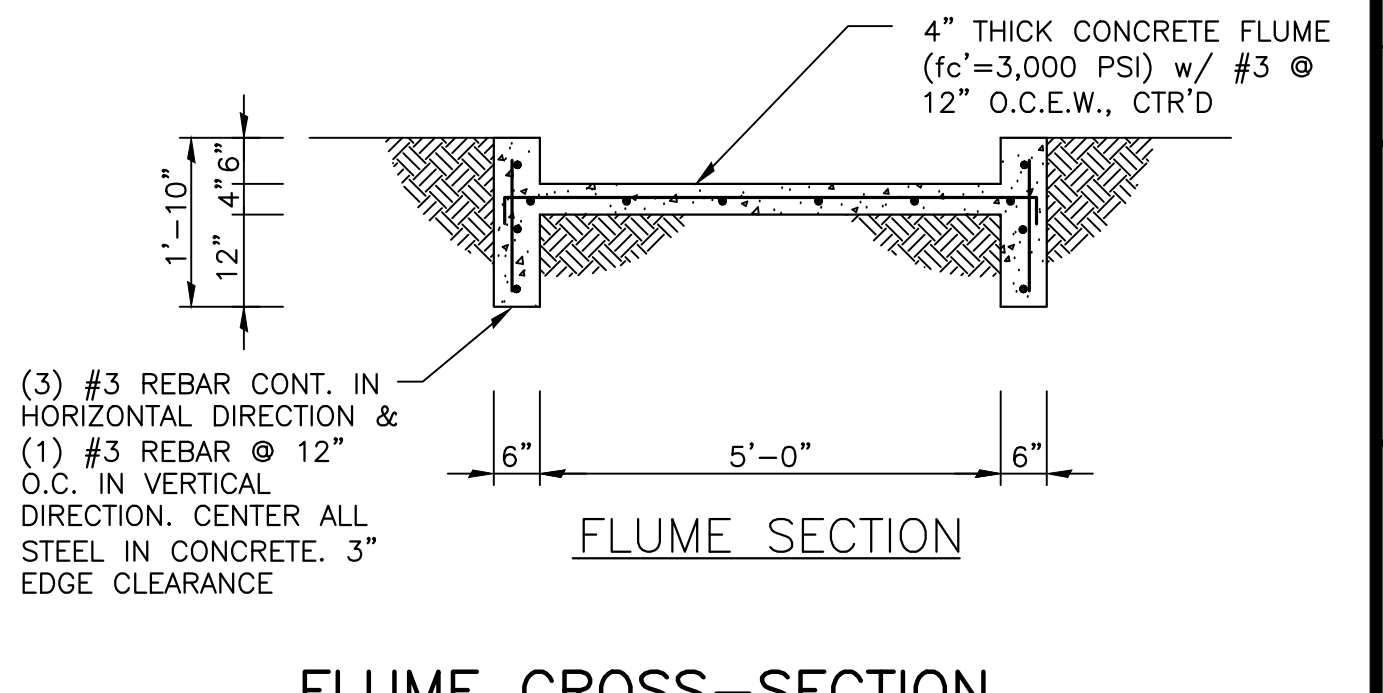
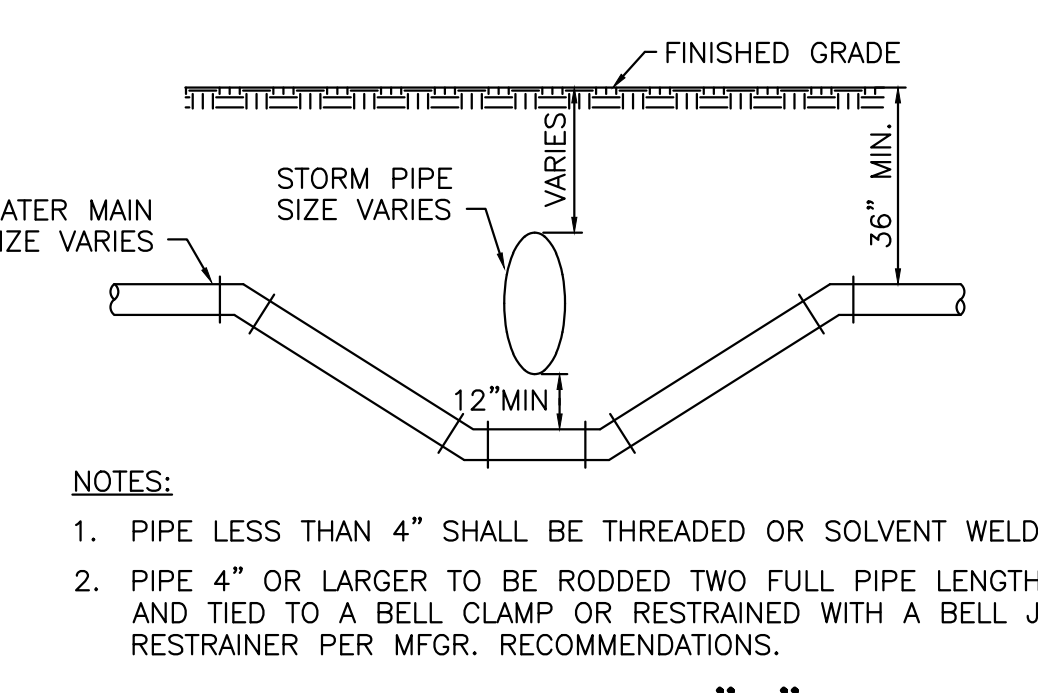
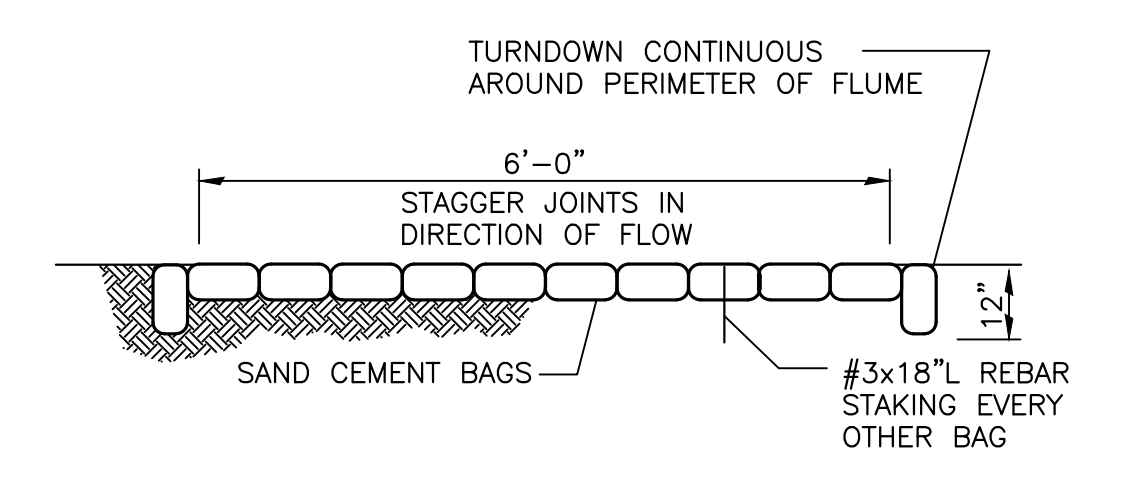
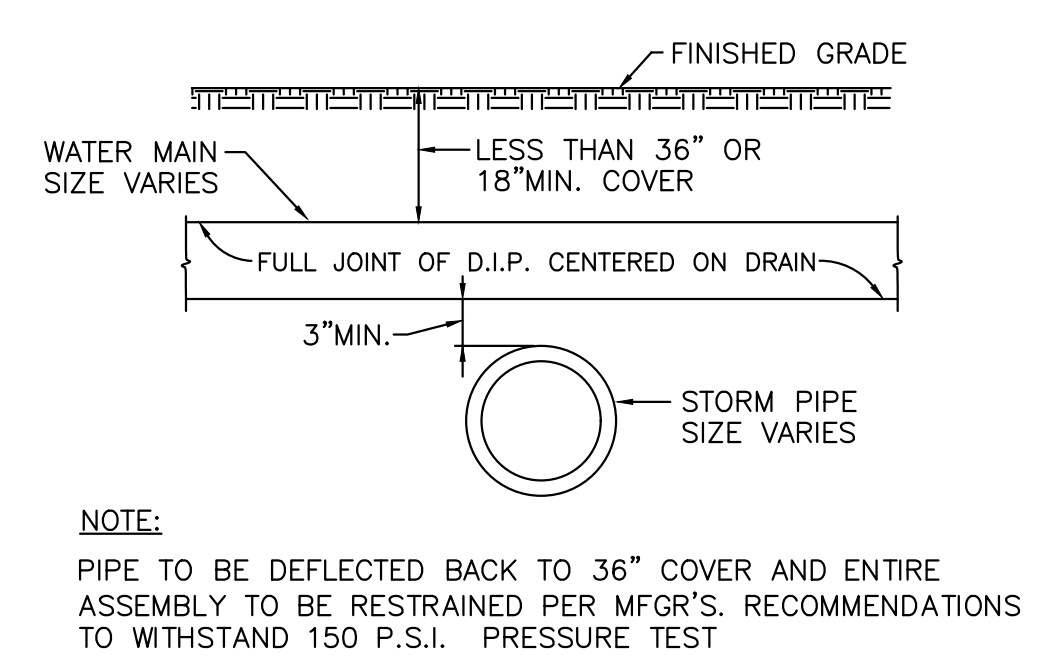
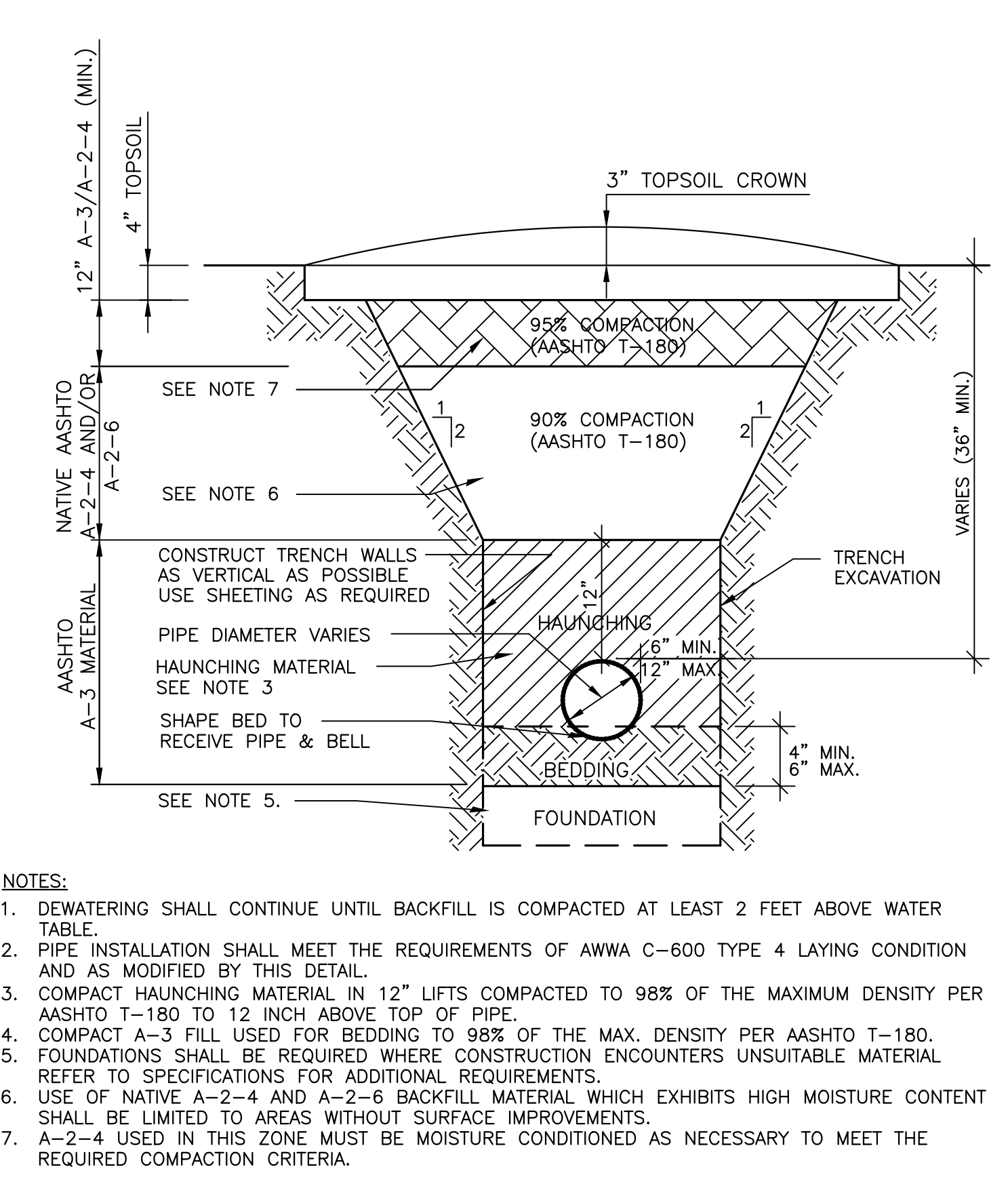
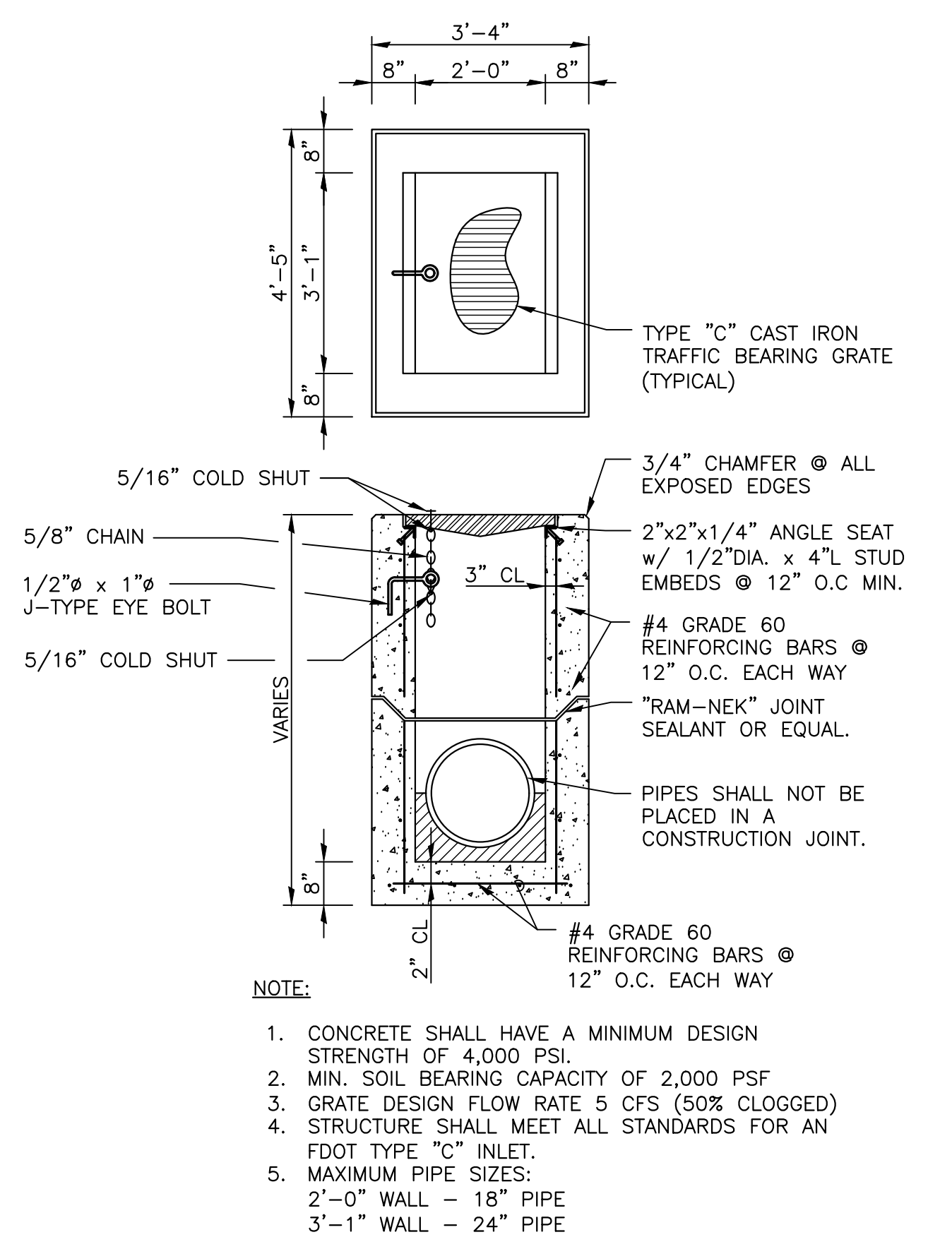
SITE PLAN REVIEW
NOT FOR CONSTRUCTION
 07/25/18

DESC	MPT	NO	DATE	BY
DRWN	KDH			
PROJ	JRS		7/25/18	
MGR.				
1" = 1" INCH				

MITTALNER & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
 TEL. (904) 278-0030 FAX. (904) 278-0840

CITY OF GREEN COVE SPRINGS
 DEP. SRF Harbor Road WWT
 Grading & Drainage Plan
 Clay County, Florida

JOB NO. 8905-34-1
 SHEET NO. C1.4



STORMWATER MANAGEMENT SUMMARY TABLE

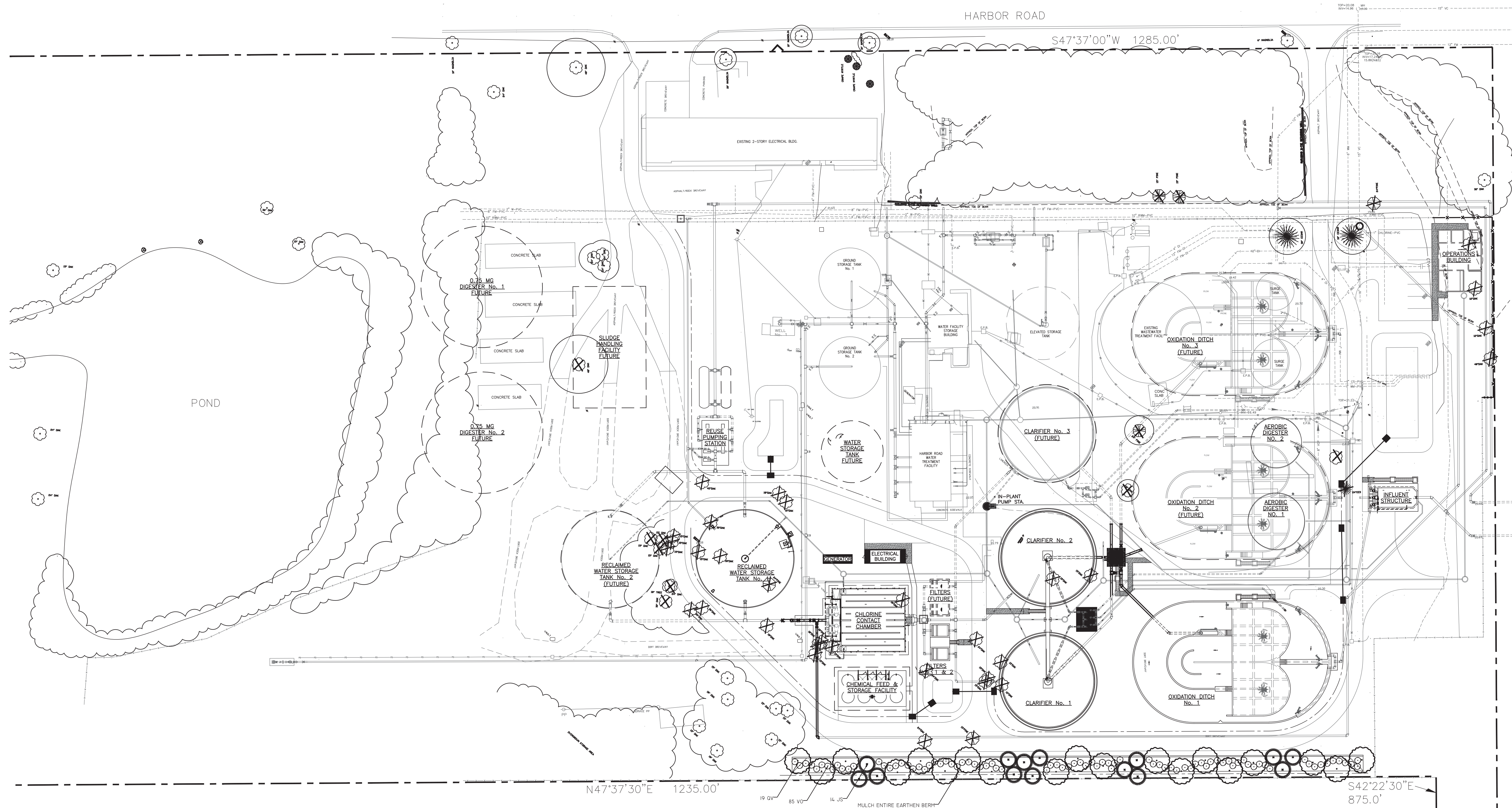
POND	TOP OF BANK ELEV.	BOTTOM ELEVATION ELEV.
1	21.0'	17.5'
2	21.0'	19.0'
3	20.5'	16.5'
4	21.0'	18.0'

SITE PLAN REVIEW
NOT FOR CONSTRUCTION
07/25/18

MITTALUER & ASSOCIATES, INC.
CONSULTING ENGINEERS
580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL. (904) 278-0030 FAX. (904) 278-0040

CITY OF GREEN COVE SPRINGS
DEP. SRF Harbor Road WWTF
Grading & Drainage Details
Clay County, Florida

JOB NO. 8905-34-1
SHEET NO. C2.3



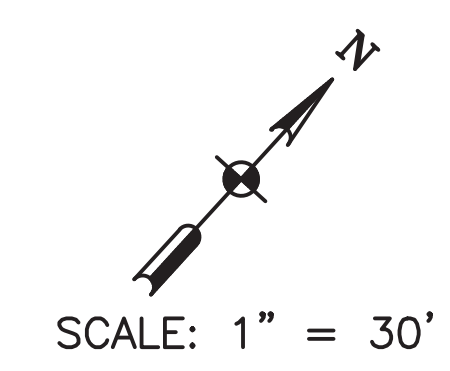
CITY GREEN COVE SPRINGS HARBOR ROAD WWTf
PLANT LIST

QTY	SYM	DESCRIPTION	SIZE	SPACING	NOTES*
19	QV	QUERCUS VIRGINIANA "CATHEDRAL LIVE OAK"	15'-17' x 7-8', 6" CAL., 4' CT., MATCHED	AS SHOWN	N, FYN, FF, WW
14	JS	JUNIPERUS VIRGINIANA SILICICOLA "SOUTHERN RED CEDAR"	12'-14' x 7-8', 6" CAL., FTG., MATCHED	AS SHOWN	N, FYN, FF, WW
84	VO	VIBURNUM ODORATISSIMUM "SWEET VIBURNUM"	48" x 48", FULL, MATCHED	60" OC.	FYN, FF, WW

SOD PASPALUM NOTATUM "ARGENTINE BAHIA" - TSA FREE (WEED FREE)
SOD ALL 4:1 SLOPES OR GREATER, 10' FROM EOP AND ALL DISTURBED ROW. COORDINATE FURTHER GRASSING WITH GENERAL CONTRACTOR
SELECTED SOD SPECIES MEETS ALL CURRENT LANDSCAPE AND IRRIGATION REQUIREMENTS. ANY VARIABLE WILL REQUIRE GOVERNMENT APPROVAL

48 HOURS BEFORE YOU DIG
CALL SUNSHINE
1-800-432-4770
IT'S THE LAW IN FLORIDA

prepared by:
JANET O. WHITMILL, R.L.A.
P.O. Box 5212, Jacksonville, FL 32247-5212
Telephone (904) 398 7688



MITTAUER & ASSOCIATES, INC.
CONSULTING ENGINEERS
580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
TEL. (904) 278-0030 FAX. (904) 278-0840

CITY OF GREEN COVE SPRINGS
DEP SRF Harbor Road WWTf
LANDSCAPE PLAN
Clay County, Florida

JOB No. 19118
SHEET No. L1.3

NO	DATE	BY	REVISION DESCRIPTION

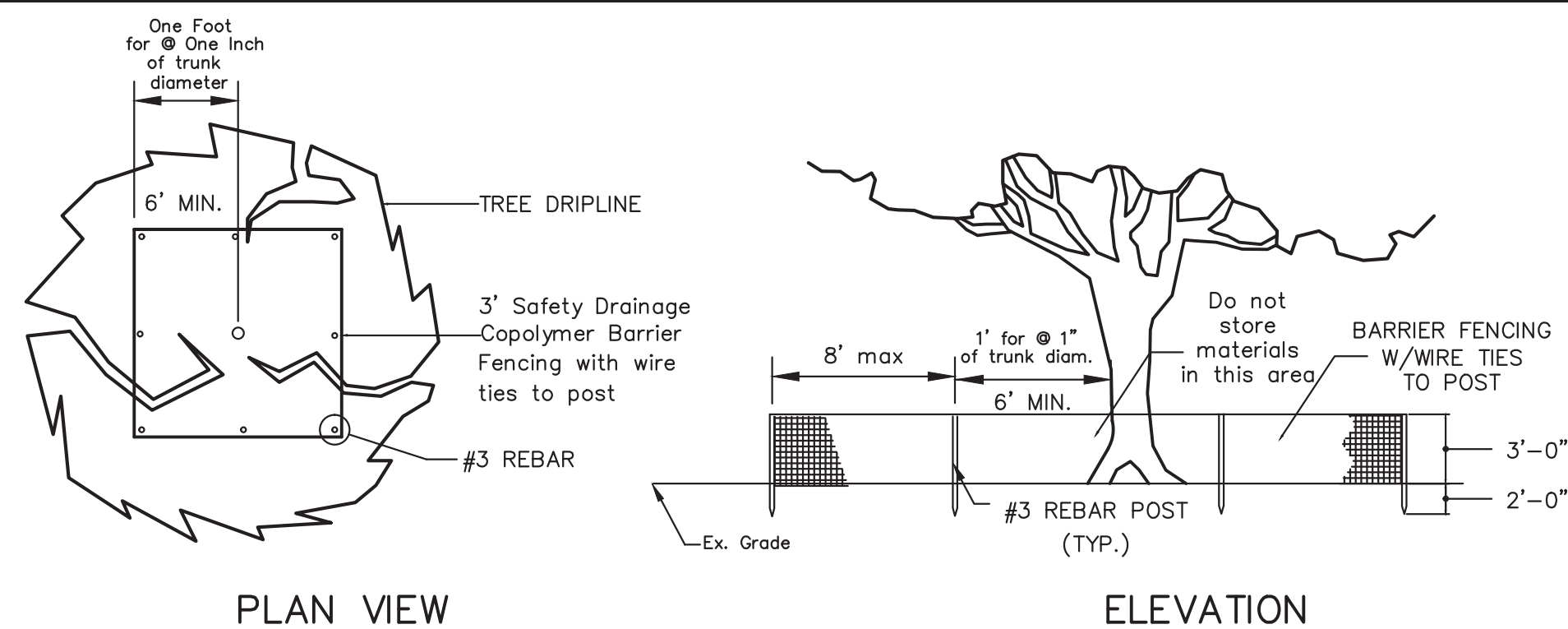
DESIGN: JOW
DRAWN: DHM
PROJECT MGR: JOW
DATE: 4/15/18
SCALE: 1" = 1'

CITY GREEN COVE SPRINGS HARBOR ROAD WWTF PLANT LIST

QTY	SYM	DESCRIPTION	SIZE	SPACING	NOTES*
19	QV	QUERCUS VIRGINIANA "CATHEDRAL LIVE OAK"	15'-17' x 7-8', 6" CAL., 4' CT., MATCHED	AS SHOWN	N, FYN, FF, WW
14	JS	JUNIPERUS VIRGINIANA SILICICOLA "SOUTHERN RED CEDAR"	12'-14' x 7-8', 6" CAL., FTG., MATCHED	AS SHOWN	N, FYN, FF, WW
84	VO	VIBURNUM ODORATISSIMUM "SWEET VIBURNUM"	48" x 48", FULL, MATCHED	60" OC.	FYN, FF, WW

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 IT'S THE LAW IN FLORIDA



TREE PROTECTION FENCING DETAIL
 NOT TO SCALE

THE TREE PROTECTION BARRICADE SHALL BE AT LEAST THREE (3) FEET HIGH. THE BARRIER SHALL CONSIST OF EITHER WOOD FENCE WITH 2X4 POSTS PLACED A MAXIMUM EIGHT (8) FEET APART, WITH A 2X4 MINIMUM TOPRAIL, OR A TEMPORARY WIRE MESH FENCE, OR OTHER SIMILAR BARRIER WHICH WILL LIMIT ACCESS TO PROTECTED AREA.

THE BARRICADE SHALL BE AT LEAST ONE FOOT IN DIAMETER FOR EACH INCH OF TRUNK DIAMETER. FOR TREES LESS THAN 12" DBH, THE MINIMUM BARRICADE SHALL BE PLACED AT LEAST SIX (6) FEET AWAY FROM THE BASE OF THE TREE.

TREE BARRICADE APPROVAL: OBTAIN CITY APPROVAL OF TREE BARRICADES BEFORE BEGINNING CLEARING OPERATIONS OR ANY SITE DEVELOPMENT.

CITY OF GREEN COVE SPRINGS HARBOR ROAD WWTF TREES TO BE REMOVED

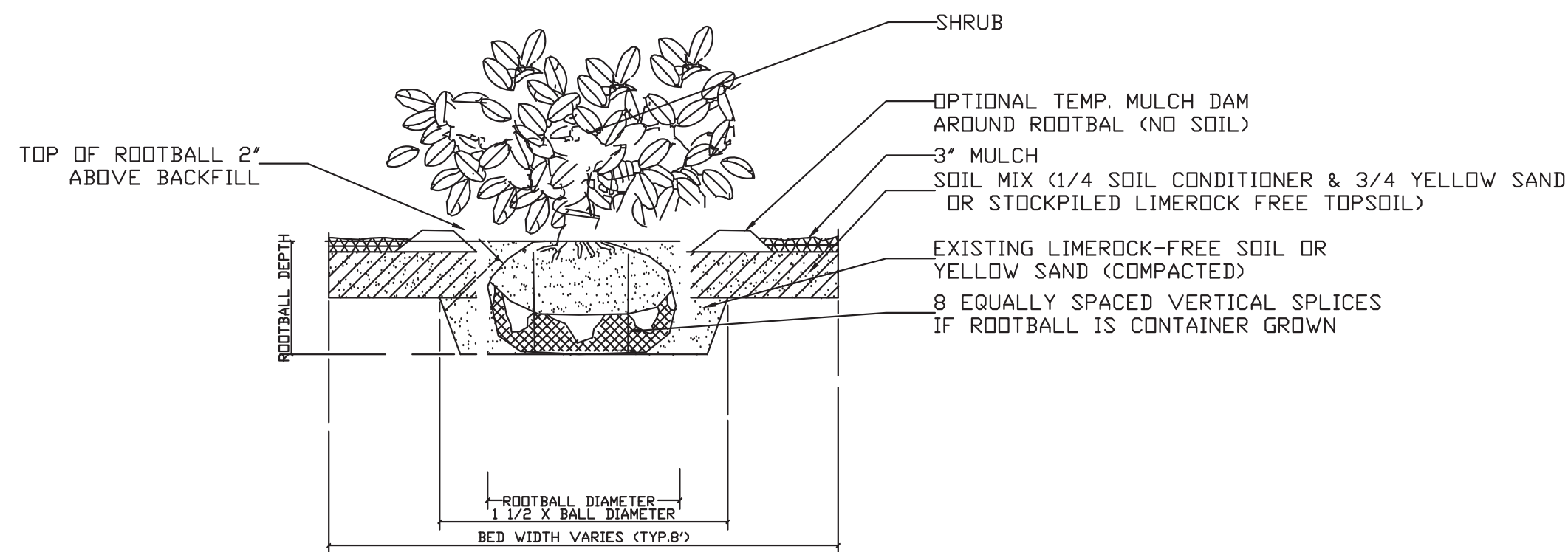
TREE QTY	TREE SPECIES	SIZE (INCHES)	SUBTOTAL (INCHES)
5	LIVE OAK	12	60
14	LIVE OAK	15	210
7	LIVE OAK	18	126
4	LIVE OAK	24	96
2	LIVE OAK	30	60
2	LIVE OAK	36	72
1	LIVE OAK	42	42
2	LIVE OAK	48	96
1	CEDAR	24	24
TOTAL			786
NON-PROTECTED			
2	PINE	15	30
2	PINE	20	40
2	PINE	24	48
TOTAL			118

CITY OF GREEN COVE SPRINGS HARBOR ROAD WWTF MITIGATION REQUIREMENTS

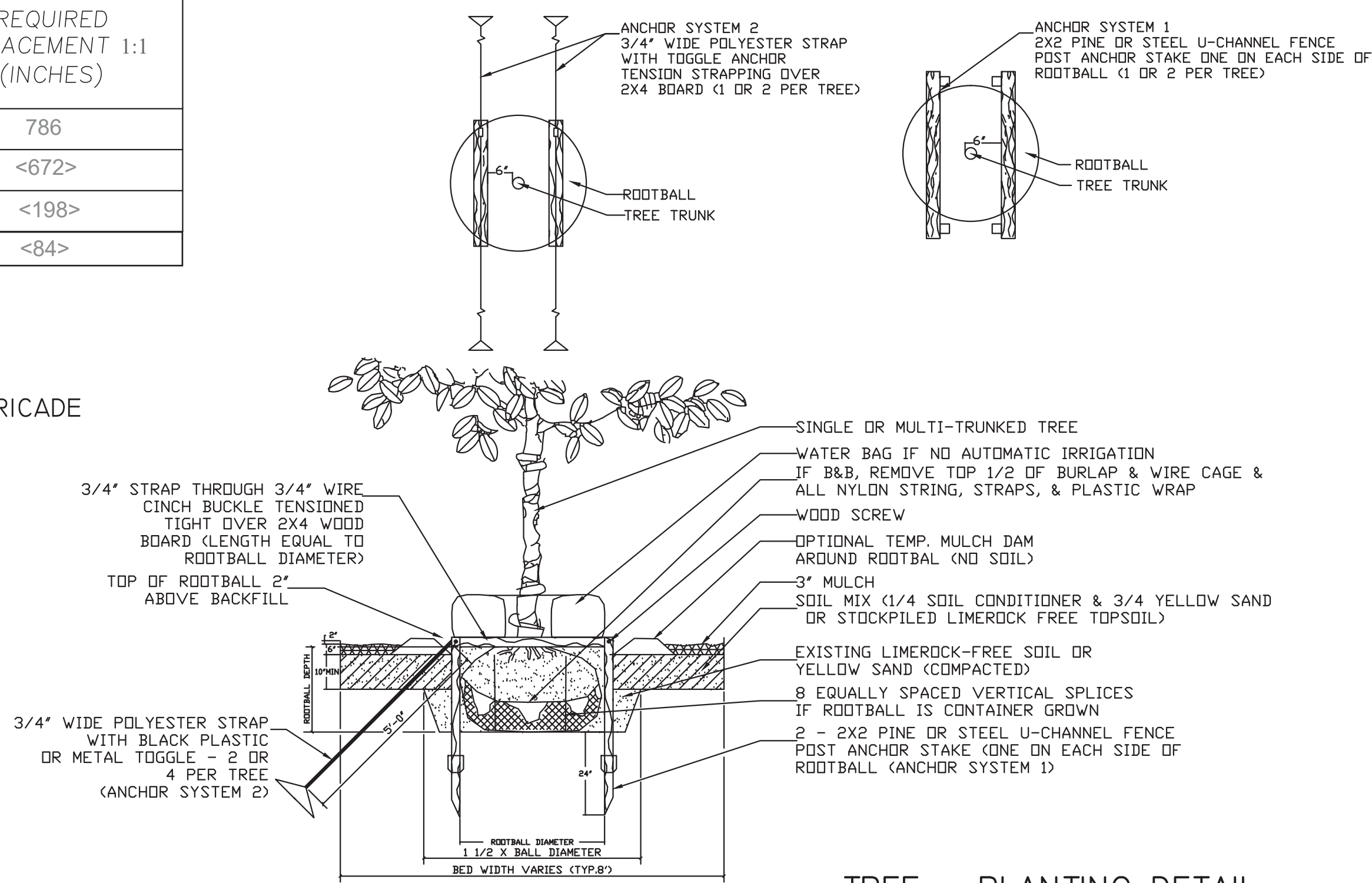
ITEM	TOTAL INCHES	REQUIRED REPLACEMENT 1:1 (INCHES)
TREES GREATER THAN 12"	621	786
TREES PROTECTED (PRESERVED)	456	<672>
TREES PLANTED	198	<198>
NET REQUIREMENT		<84>

LEGEND

- 15" DIA. X TREE TO BE REMOVED
- 48" DIA. X TREE TO BE PRESERVED W/ BARRICADE



SHRUB PLANTING DETAIL
 NOT TO SCALE



TREE PLANTING DETAIL
 NOT TO SCALE

- The LANDSCAPE CONTRACTOR is responsible for verifying project site conditions and all quantities indicated on these plans before commencing any work. LANDSCAPE CONTRACTOR shall notify the LANDSCAPE ARCHITECT if soil conditions are poorly drained to determine if substitution of materials is necessary.
- Soil tests shall be provided to evaluate various areas of the landscape (especially the parking lot islands) for pH, available nutrients, phosphorus content, bulk density, etc. This will serve to ensure proper plant selection according to prevailing soil conditions, what lime/sulphur applications are needed (if any) and long-term survival of plant material.
- All plant material shall be Florida Grade No. 1 or better nursery grown in accordance to Florida Grades and Standards handbook.
- All plant material shall be container grown or B&B. B&B materials shall be "hardened off" root pruned during field production and shall be dug at least several weeks before planting is performed.
- Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insects, eggs or larvae and shall have healthy, well developed root systems. They shall be free from physical damage or adverse conditions that would prevent thriving growth.
- All plants shall conform to the varieties indicated in the plant list.
- Substitution of plant materials will not be permitted unless authorized in writing by the LANDSCAPE ARCHITECT. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of contract price.
- Plant material locations and bed outlines shall be staked or flagged on site by the CONTRACTOR and shall be adjusted if required to fit actual as-built conditions on site and approved by the owner or owners representative.
- All proposed tree planting locations shall be staked or flagged before installation by the LANDSCAPE ARCHITECT and approved by the owner or owners representative.
- The CONTRACTOR shall estimate the depth of the planting hole by measuring the distance between the point where the topmost root emerges from the trunk and the bottom of the root ball. The planting hole shall be slightly shallower than this distance. No more than 2 to 3 inches of the root ball needs to be above the soil unless the site is poorly drained. Poorly drained soil requires planting depths even or higher. Planting holes dug too deep are required to have soil added to the bottom and loosely compacted. If planting holes should fill with water as it is dug, position the bottom of the root ball above the water and mound soil to cover the sides of the ball. The hole shall be at least 1.5 times the diameter of the root ball. Wider holes shall be used for compacted soil and wet sites.
- The soil shall be freshly tilled and large clods of soil broken up. The growing medium shall be settled and firm at the time of herbicide application. Herbicides may be mechanically incorporated by mixing into top layer at a depth of 1-3 inches.
- All backfill around plant material shall be worked firmly by slicing a shovel down into the backfill 20 to 30 times around the tree as you add backfill soil. Large clumps shall be broken up. Do not pack the backfill. Only step firmly on backfill soil to stabilize the root ball. The top of the root ball shall remain 1 inch (small trees) to 3 inches (large trees) or approximately 10% above grade. Do not over-pack the loosened soil when wet. Add 10 to 20 gallons of water to the rootball and backfill. Fill in any holes or depressions with backfill soil. Do not attempt to eliminate air pockets by compaction. Water infiltrating the backfill soil will eliminate large air pockets.
- LANDSCAPE CONTRACTOR shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings, obstruction on the site, or prior to work done by any other party, which the CONTRACTOR feels precludes establishing proper drainage shall be brought to the attention of the LANDSCAPE ARCHITECT for correction or relief of said responsibility.
- When planting on slopes, set tree so top-most root in the ball on the uphill side is even with the soil. The side of the root ball on the downhill side will be well above the surrounding soil. Soil shall cover the sides of the root ball. Mulch shall cover the edge of the rootball and not piled on top.
- Planting beds shall be cut or edged to form a uniform clean line between beds and lawn areas.
- After all plant material in a plant bed area has been installed and approved, the areas between plants shall be raked to an even grade to conform to pre-mulching finish grades. All planting beds and plant saucers shall then be uniformly covered with a minimum depth of three (3) inches of #2 grade or better of mini pine bark nuggets with a maximum diameter of two (2) inches. Contractor to provide a sample prior to installation.

- Before fertilization a soil and/or foliar nutrient analysis shall be performed to determine whether phosphorus fertilizer with 30% slow release nitrogen will be required. All planting bed areas shall be fertilized approximately 4-6 weeks after installation.
- Plant material soil shall be "native" soil that was removed from the planting hole. If soil is badly contaminated, good quality soil shall be used as replacement after contaminated soil has been completely removed from planting area.
- After sodding is completed, the entire side areas shall be watered by hand or irrigation system each day for two weeks. After approximately one month of installation, sodded areas shall then be top dressed with a 15-0-15 commercial slow-release fertilizer at a rate of 6.67 pounds per 1,000 square feet of area in an evenly broad-case pattern.
- The LANDSCAPE CONTRACTOR is responsible for all fine grading preparation for planting. Apply pre-emergent to all beds prior to planting.
- Rough grades will be established by the owners general contractor at approximately 3 inches below curbs, sidewalks, landscape amenities, mowing strips and abutments. All materials shall be a minimum 30" from buildings or walks.
- CONTRACTOR shall coordinate construction of planting areas with installation of irrigation system.
- Where seeding may be required on the plans, germination rate shall be the maximum percentage required for the variety specified at the rate of application specified.
- Sod areas shall be SPECIFIED Grass. Grass for sodding shall be freshly cut in squares one foot wide by two feet long. Sod shall be healthy, free of insects and weeds, in naturally flourishing conditions. Dry, brown and unrefresh sod will be rejected.
- Sod shall be laid end to end and side to side in a staggered line to form a uniform layer. All uneven edges shall be squarely trimmed to allow close and firm fitting of each piece.
- After sodding is completed, the entire sod areas shall be watered by hand or irrigation system each day for two weeks. Sodded areas shall then be top dressed with a commercial fertilizer as directed herein at the rate of 12 pounds per 1000 square feet of area in an evenly broad case pattern.
- The LANDSCAPE CONTRACTOR is responsible for fully maintaining all plant material on site during and before planting, until the work in accepted by the LANDSCAPE ARCHITECT and/or owner. The LANDSCAPE CONTRACTOR is responsible for removing tree stakes after tree is established.
- All plants shall be guaranteed by the LANDSCAPE CONTRACTOR to be healthy plants and in flourishing condition of active growth for ninety (90) days from final inspection and acceptance. All trees shall be guaranteed an additional one year from final inspection and acceptance.
- The LANDSCAPE ARCHITECT, owner or owners representative shall have the right to reject any and all work which in his opinion does not meet with the requirements of the specifications at any stage of the project operation.
- In general, the work shall proceed as rapidly as the site becomes available. Keep all areas of work clean, neat, and orderly at all times.
- There will be special care to all existing trees to be retained on site to avoid construction damage.
- An automatic irrigation system is to be provided and a shop drawing of the layout and design must be submitted to the governmental agency, for review and approval, prior to installation.
- Irrigation system shall be fully automatic, providing 100% coverage to all planting areas, with all pop up heads in lawn area.
- Irrigation station shall be set where there will be no mixing of shrub and lawn areas, fixed spray heads with gear driven heads or impacts. Shrub risers shall be minimum 2.5' from eop and all heads minimum 2' from buildings.
- A double check backflow prevention (or approved equal); equal to a DCA-100; to be mounted in a rectangular valve box (12"x 10") on the service side of the meter and immediately adjacent to the water meter.
- After the landscape plan is approved by the governmental agency any subsequent changes must be resubmitted for review and approval.
- Shade trees shall be planted minimum 5' from EOP and 15' from OHE.
- Do not plant trees below Normal Water Line (NWL) see civil drawings. Sod all 4:1 or greater slopes. Seed all other disturbed areas.

prepared by:
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 Telephone (904) 398 7888

REVISION DESCRIPTION
 NO. DATE BY

DESG. JOW
 DRWN. DHM
 PROJ. JOW
 MGR. DATE 4/15/18
 1" = 1"

580-1 WELLS ROAD, ORANGE PARK, FLORIDA 32073
 TEL. (904) 278-0030 FAX. (904) 278-0840

CITY OF GREEN COVE SPRINGS
 DEP. SRF Harbor Road WWTF
 Sheet Title
 Clay County, Florida

JOB No. 19118
 SHEET No. L2.3

UNDERGROUND IRRIGATION SPECIFICATIONS

1.0 GENERAL

- 1.1 SUMMARY:** Includes but not limited to:
 A. Furnishing and installing sprinkler system as described in Contract Documents complete with accessories necessary for proper functioning.
- 1.2 SYSTEM DESCRIPTION:**
 A. Design Requirements:
 1. Layout of Irrigation Heads:
 a. Location of heads shown on Drawings is approximate. Actual placement may vary slightly as is required to achieve full, even coverage without spraying onto buildings, sidewalks, fences, etc.
- 1.3 QUALITY ASSURANCE:**
 A. Regulatory Requirements:
 1. Work and materials shall be in accordance with latest rules and regulations, and other applicable state or local laws. Nothing in Contract Documents is to be construed to permit work not conforming to these codes.
 B. Pre-Installation Conference:
 1. Meet with Owner and Landscape Architect to discuss and clarify all aspects of job requirements prior to commencing work of this Section.
 C. System Adjustments:
 1. Minor adjustments in system will be permitted to avoid existing fixed obstructions.
 2. Mainline, laterals, and valves are shown for clarity purposes only. All irrigation equipment to be with landscape area. Mainline, laterals and valves to be installed as far away from existing and new specimen trees as possible.
 D. 1. Documentation and submittal of actual water supply performance prior to commencing installation.
- 1.4 SUBMITTALS:**
 A. Record Drawings:
 1. Prepare an accurate as-built drawing as installation proceeds to be submitted prior to final inspection. Drawing shall include:
 a. Detail and dimension changes made during construction.
 b. Significant details and dimensions not shown in original Bidding Documents.
 2. Maintain, at job site, one copy of Contract Documents (as defined in General Conditions) and relevant shop drawings.
 3. Clearly mark each document "PROJECT RECORD COPY" and maintain in good condition for use of the Landscape Architect and Owner.
 4. As-built drawing shall be clearly drawn.
 5. Submit product literature for all sprinklers, valves, pipe, wire, wire connectors and controller.
 6. Final payment for system will not be authorized until accurate and complete submittals are delivered to the Landscape Architect.
 B. Instruction Manual:
 1. Provide instruction manual which lists complete instructions for system operation and maintenance.
- 1.5 PRODUCT STORAGE:**
 A. During construction and storage, protect materials from damage and prolonged exposure to sunlight.
- 1.6 WARRANTY:**
 A. Standard one (1) year warranty stipulated in General Conditions shall include:
 1. Completed system including parts and labor.
 2. Filling and repairing depressions and replacing plantings due to settlement of irrigation trenches for one (1) year following final acceptance.
 3. System adjustment to supply proper coverage to areas to receive water.
- 1.7 MAINTENANCE:**
 A. Extra Materials:
 1. In addition to installed system, furnish Owner with the following items at close-out:
 a. Two sprinkler head bodies of each size and type.
 b. Two nozzles for each size and type.
 c. Two adjusting keys for each sprinkler head cover type.

- B. Installation of Plastic Pipe:**
 1. Install plastic pipe in a manner to provide for expansion and contraction as recommended by Manufacturer.
 2. Unless otherwise indicated on Drawings, install main lines with a minimum cover of eighteen (18") inches based on finish grade. Install lateral lines with a minimum cover of twelve (12") inches based on finish grade.
 3. Locate no sprinkler head closer than twelve (12") inches from building foundation. Heads immediately adjacent to mowing strips, walks or curbs shall be one (1") inch below top of mowing strip, walk or curb and have a minimum of one (1") inch clearance between head and mowing strip, walk or curb.
 4. Drawings show arrangement of piping. Should local conditions necessitate rearrangement, obtain approval of Landscape Architect prior to proceeding with work.
 5. Cut plastic pipe square. Remove burrs at cut ends prior to installation so unobstructed flow will result.
 6. Make solvent weld joints in the following manner:
 a. Clean mating pipe and fitting with clean, dry cloth and apply one (1) coat of P-70 primer to each.
 b. Apply uniform coat of 711 solvent to outside of pipe.
 c. Apply solvent to fitting in similar manner.
 d. Rubbing a light coat of solvent to pipe and quickly insert into fitting.
 e. Give pipe or fitting a quarter turn to insure even distribution of solvent and make sure pipe is inserted to full depth of fitting socket.
 f. Hold in position for fifteen (15) seconds minimum or long enough to secure joint.
 g. Wipe off solvent appearing on outer shoulder of fitting.
 h. Do not use an excessive amount of solvent thereby causing an obstruction to form on the inside of pipe.
 i. Allow joints to set at least 24 hours before applying pressure to PVC pipe.
 7. Tape threaded connection with teflon tape.
 C. Control Valves and Controller:
 1. Install controller, control wires, and valves in accordance with Manufacturer's recommendations and according to applicable electrical code.
 2. Install valves in plastic boxes with reinforced heavy duty plastic covers. Locate valve box tops at finish grade.
 3. Install remote control valves in valve boxes positioned over valve so all parts of valve can be reached for service. Set cover of valve box even with finish grade.
 4. Install all valve boxes over nine (9") inches of gravel for drainage.
 D. Sprinkler Heads:
 1. Prior to the installation of sprinkler heads, open control valves and use full head of water to flush out system.
 2. Set sprinkler heads perpendicular to finish grade.
 3. Set lawn sprinkler heads adjacent to existing walks, curbs, and other paved areas to grade.
 E. Drip-line:
 1. Install RD-12-NP drip zone indicator head next to each control valve with closed nozzle.
 2. Stake drip-line every eight feet along drip-line laterals.

- 3.3 ADJUSTMENT AND CLEANING:**
 A. Adjust heads to proper grade when turf is sufficiently established to allow walking on it without appreciable harm. Such lowering or raising of heads shall be part of the original contract with no additional charge to the Owner.
 B. Adjust sprinkler heads for proper distribution and trim to ensure spray does not fall on building.
 C. Adjust watering time of valves to provide proper amounts of water to all plants.
- 3.4 DEMONSTRATION:**
 A. After system is installed and approved, instruct Owners Representative in complete operation and maintenance.

2.0 PRODUCTS:

2.1 PIPE, PIPE FITTINGS, AND CONNECTIONS:

- A. Pipe shall be continuously and permanently marked with Manufacturer's name, size, schedule, type, and working pressure.
 B. Pipe:
 1. Pressure Lines: as indicated on plans.
 2. Lateral Lines: as indicated on plans.
 3. Risers: sch. 80 PVC, gray
 C. Fittings:
 1. Schedule 40 PVC.
 D. Sleeving:
 1. Schedule 40 PVC.

2.2 SPRINKLER HEADS:
 A. Conform to requirements shown on Drawings as to type, radius of throw, pressure, and discharge.

2.3 AUTOMATIC SPRINKLER SYSTEM:
 A. Control valves shall be of size and type indicated on Drawings.
 B. Control wire shall be UL listed, color coded copper conductor direct burial size 14. Use 3M-DBY waterproof wire connectors at splices and locate all splices within valve boxes. Use white or gray color for common wire and other colors for all other wire.

2.4 VALVES:

- A. Electric Valves:
 1. Make and model shown on Drawings.
 B. Automatic Controller:
 1. Make and model shown on Drawings.

2.5 VALVE ACCESSORIES:

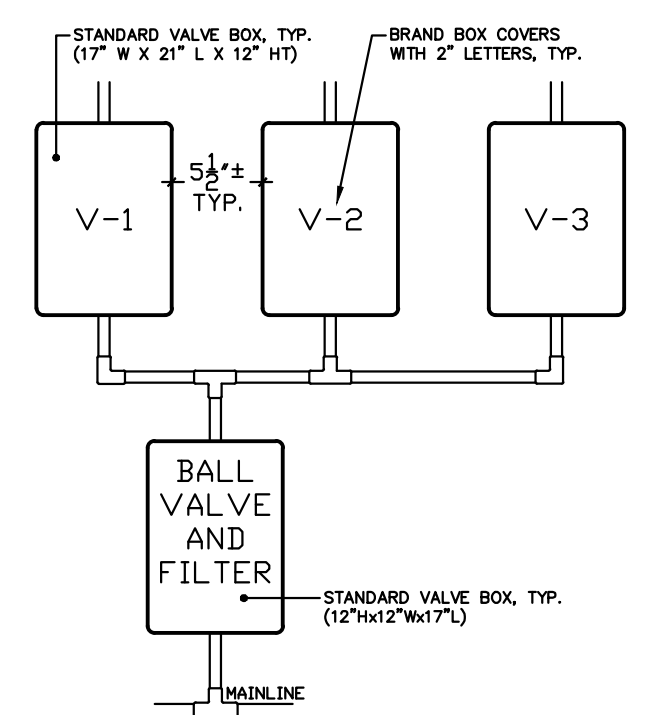
- A. Valve Boxes:
 1. Ametek or Brooks heavy duty valve box with locking lid or Landscape Architect approved equal.
 2. Do not install more than one (1) valve in a single box.
 3. Valve boxes shall be large enough for easy removal or maintenance of valves.

3.0 EXECUTION:

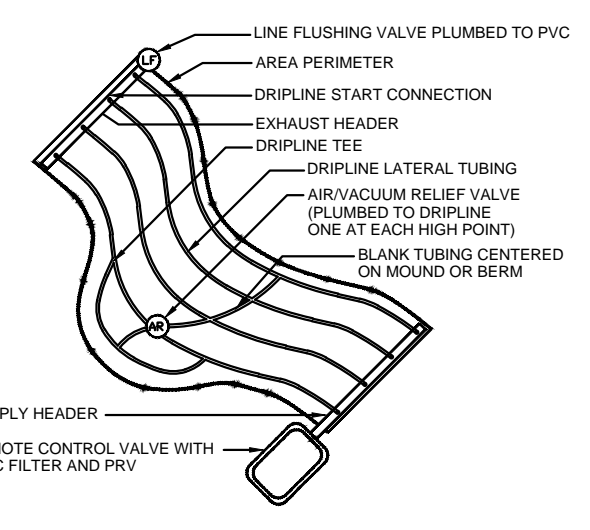
3.1 PREPARATION:
 A. Protection:
 1. Work of others damaged by this Section during course of its work shall be replaced or repaired by original installer at this Section's expense.

3.2 INSTALLATION:
 A. Trenching and Backfilling:
 1. Over-excavate trenches by two (2") inches and bring back to indicated depth by filling with fine, rock-free soil or sand.
 2. Cover pipe both top and sides with two (2") inches of material specified in paragraph above. In no case shall there be less than two (2") inches of rock-free soil or sand surrounding pipe.

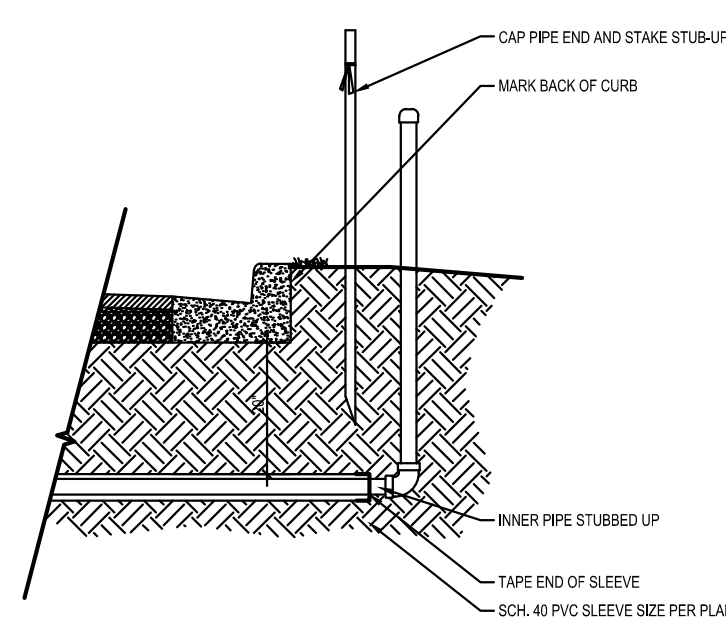
NOTES:
 VALVE GROUPINGS SHALL NOT HAVE MORE THAN 3 VALVE BOXES AND 1 GATE VALVE BOX.
 PLASTIC TAGS SHALL BE AFFIXED TO EACH VALVE WITH THE ZONE NUMBER AND ZONE TYPE (TURF, SHRUB, ETC) PREPRINTED OR LABELED WITH INDELIBLE INK.



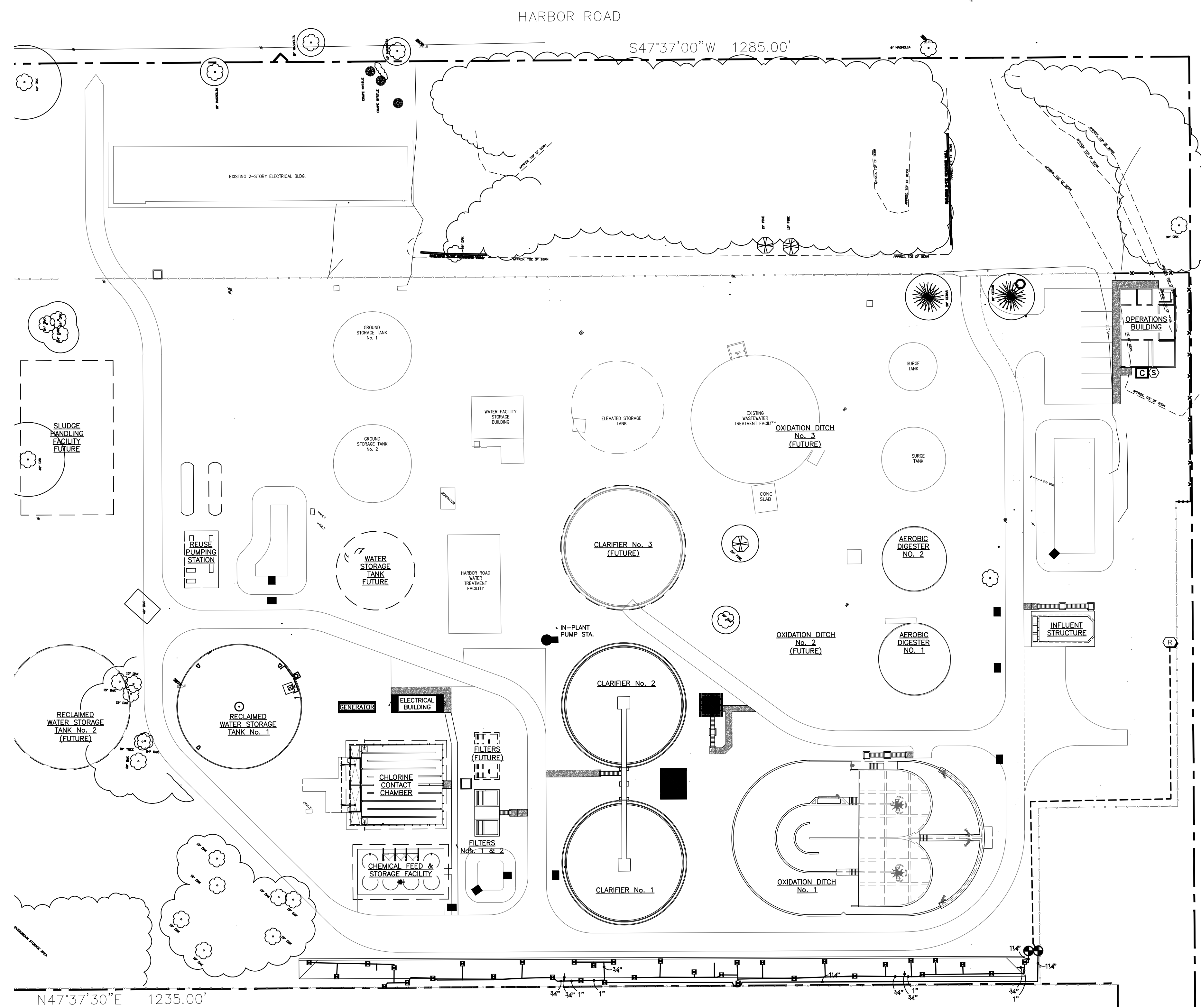
VALVE BOX DETAIL
 SCALE: NTS



IRREGULAR AREA DIPLINE LAYOUT
 SCALE: NTS



SLEEVING ROUGH-IN DETAIL
 SCALE: NTS



IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	ARC	PSI	GPM	RADIUS	PRECIP.
■	Two Rain Bird 1401 bubbler	33x2	360	30	0.50	3'	NA
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PRECIP.				
▨	Area to Receive Drip-line Rain Bird XFD-09-1.2 (1.6) XFD On-Surface Pressure Compensating Landscape Drip-line, 0.9GPH emitters at 12.0" O.C. Install drip-line on both sides of shrubs.	1,300 s.f.	1.1"/hr				
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY					
●	Rain Bird 100HVF in 10" Purple Valve Box. Install Rain Bird 1" PVC ball valve and PRB-QKCHK-100 in Jumbo Purple Valve Box.	2					
C	Rain Bird ESP4Me 4 Station Controller	1					
S	Rain Bird R5D-BEx Rain Sensor	1					
R	Reclaim Water Meter 3/4"	1					
—	Irrigation Lateral Line: PVC Class 200 Purple	1,000 l.f.					
---	Irrigation Mainline: PVC 1-1/4" Class 200 Purple	300 l.f.					

IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR OWN TAKE OFF

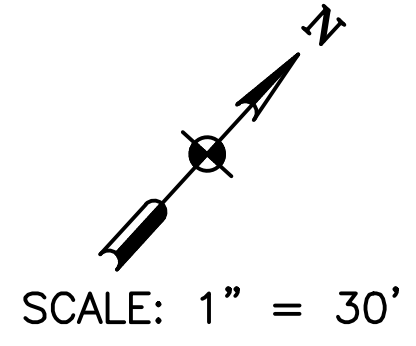
Valve Callout
 # # Valve Number
 # # Valve Flow
 # # Valve Size

WATERING SCHEDULE

ZONE	GPM	WATER USE	PRECIP. RATE	MAR (2ND SUNDAY) - NOV (1ST SUNDAY) -	
				NDV (< 1ST SUNDAY) DAYS - MINUTES	MAR (2ND SUNDAY) DAYS - MINUTES
1	17.0	LOW	1.1"/hr	TUES / F - 40 MIN	TUES - 40 MIN
2	15.0	LOW	1.1"/hr	TUES / F - 40 MIN	TUES - 40 MIN

ALL IRRIGATION IS LOW WATER USE
 NO WATERING TO TAKE PLACE BETWEEN THE HOURS OF 10:00AM - 4:00PM

Crawford Irrigation Design, Inc.
 IRRIGATION DESIGN AND CONSULTATION SERVICES
 Edgewater, Florida
 Tel: (386) 424-0027
 EMAIL: cid@atlantic.net



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CITY OF GREEN COVE SPRINGS
 DEP SRF Harbor Road WWTF
 IRRIGATION PLAN
 Clay County, Florida

JOB No. 19118
 SHEET No. L3.3

DESIGN: JOW
 DRAWN: DHM
 PROJ. MGR.: JOW
 DATE: 4/15/18
 1" = 30'

NO DATE BY REVISION DESCRIPTION