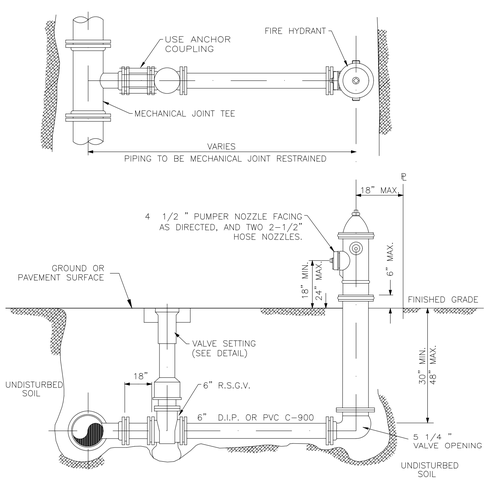


NOTES:

1. BACKFILL MATERIALS SHALL CONSIST OF CLEAN EARTH FILL COMPRISED OF SAND, SAND AND CLAY, GRAVEL, CRUSHED ROCK OR OTHER MATERIALS FROM GROUPS A-1, A-2 OR A-3, AASHTO CLASSIFICATION, FREE FROM ORGANIC MATTER AND VEGETATION, DEBRIS LARGE CLODS OF EARTH OR STONES, UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS, LARGE ROCK AND ROOTS SHALL BE REMOVED AND DISPOSED BY THE CONTRACTOR.
2. THE PIPE SHALL BE FULLY SUPPORTED ALONG ENTIRE LENGTH.
3. THE PIPE TRENCH SHALL REMAIN DRY DURING PIPE LAYING OPERATIONS.
4. ALL TRENCH WORK SHALL CONFORM TO LATEST STANDARDS AS SET FORTH BY THE FLORIDA TRENCH SAFETY ACT AND OR OSHA.
5. FOUR INCH WIDE DETECTABLE TAPE SHALL BE PLACED APPROXIMATELY 12"-18" BELOW FINISHED GRADE AND DIRECTLY ABOVE ALL PRESSURE PIPING. TAPE, WORDING AND COLOR SHALL CONFORM TO CITY STANDARDS.
6. BACKFILL SHALL BE COMPACTED IN 6" LAYERS WITH MECHANICAL TAMPERS FOR THE FULL WIDTH OF THE TRENCH AND UP TO THE BOTTOM OF THE ROADWAY BASE. PARTICULAR ATTENTION MUST BE GIVEN TO THE ADEQUATE COMPACTION OF THE HAUNCHES OF THE PIPE. THE BACKFILL SHALL BE COMPACTED TO 98% AASHTO T-180/ASTM D 1557 TAKEN AT THE SPRING LINE, AT ONE FOOT ABOVE THE CROWN OF THE PIPE, AND EVERY FOOT VERTICALLY THEREAFTER.
7. BASE MATERIAL SHALL BE THE SAME TYPE AS THE MATERIALS REMOVED.
8. SURFACE REPLACEMENT SHALL BE F.D.O.T. MIX TO MATCH EXISTING PAVEMENT, WITH A THICKNESS EQUAL TO THE EXISTING OR 2" WHICHEVER IS GREATER.
9. PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED BUTT JOINTS, HEATED, RAKED AND SPRAYED WITH A REJUVENATING AGENT. THE PATCH AREA SHALL BE A SMOOTH PLANE SUCH THAT A STRAIGHT EDGE PLACED ACROSS THE PATCH, PARALLEL TO THE TRAFFIC FLOW AND EXTENDING TO UNDISTURBED PAVEMENT SHALL SHOW NO MORE THAN 1/4" IRREGULARITY IN ANY 15 FT. SECTION. ANY IRREGULARITY SHALL BE CORRECTED IN ACCORDANCE WITH F.D.O.T. SPECIFICATIONS.
10. "COLD PATCH" SHALL BE USED FOR TEMPORARY REPAIRS ONLY, AND FOR A PERIOD NOT TO EXCEED 30 DAYS.
11. TRAFFIC LANE CLOSURES, MOT PLANS AND ROADWAY REPAIRS MATERIALS SHALL BE PER DIRECTION OF ROAD OWNER. CONTRACTOR TO INQUIRE WITH OWNER ABOUT REQUIREMENTS PRIOR TO BID.
12. 3M LOCATOR BALLS SHALL BE INSTALLED AT EACH FITTING IN THE PIPE LINE CHANGING DIRECTION AND AT EACH CONNECTION.
13. 3M LOCATORS TO BE PROVIDED BY DEVELOPER AS SPECIFIED BY O.U.A.

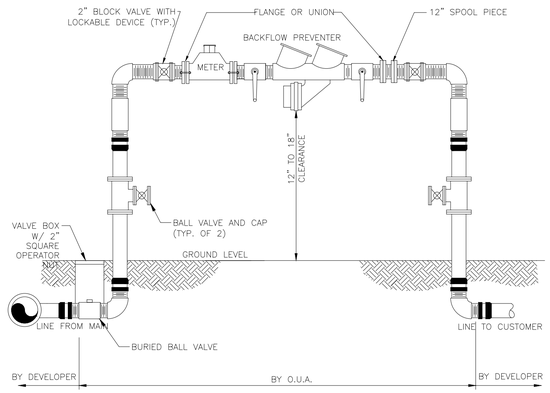
TRENCH REPAIR DETAILS PAVED AREAS | 10/15 | OUA #13C | N.T.S. | NEWLINES



NOTES:

1. HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
2. THE MODEL COLOR TO BE SAFETY YELLOW, HYDRANT SHALL BE PER OUA REQUIREMENTS.
3. VALVE SHALL BE PLACED ADJACENT TO MAIN, TIED TO TEE.
4. ANCHOR TEES ARE PERMITTED.
5. ALL HYDRANTS SHALL BE TEE'D OFF MAINS.
6. HYDRANTS SHALL NOT BE PLACED IN SIDEWALKS, ROADWAYS OR BIKEPATHS.
7. MEGALUGS ON ALL FITTINGS.
8. HYDRANTS SHALL BE BAGGED UNTIL SYSTEM IS PLACED IN SERVICE.

TYPICAL FIRE HYDRANT ASSEMBLY | 10/15 | OUA #11 | N.T.S. | NEWLINES



NOTES:

1. ALL PIPING IS METER SIZE.
2. ALL PIPING IS BRASS WITH THREADED FITTINGS.
3. THIS DETAIL IS ALSO APPLICABLE TO 5/8" x 3/4" AND 1" SERVICE WHERE A BACKFLOW PREVENTION DEVICE IS REQUIRED, EXCEPT THAT METER WILL BE INSTALLED IN METER BOX.
4. METERS AND BACKFLOW PREVENTERS ARE TO BE PURCHASED FROM OUA.

1 1/2 " AND 2" METER/BACKFLOW ASSEMBLY (ABOVE GROUND) | 10/15 | OUA #3 | N.T.S. | NEWLINES

ALL CONCRETE TO BE CLASS 'B' 3500 PSI
(UNLESS OTHERWISE NOTED)

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

OTHER PIPES	HORIZONTAL SEPERATION	CROSSING (1)	JOINT SPACING @ CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORMWATER FORCE MAIN, RECLAIM WATER (2)	WATER MAIN 3 FT. MINIMUM	WATER MAIN 12 INCHES IS THE MINIMUM EXCEPT FOR STORM SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED	ALTERNATE 3 FT. MINIMUM WATER MAIN
VACUUM SANITARY SEWER	WATER MAIN 10 FT. PREFERRED 3 FT. MINIMUM	WATER MAIN 12 INCHES PREFERRED 6 INCHES MINIMUM	ALTERNATE 3 FT. MINIMUM WATER MAIN
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER FORCEMAIN RECLAIM WATER (4)	WATER MAIN 10 FT. PREFERRED 6 FT. MINIMUM (3)	WATER MAIN 12 INCHES IS THE MINIMUM EXCEPT FOR GRAVITY SEWER, THEN 6 INCHES IS THE MINIMUM AND 12 INCHES IS PREFERRED	ALTERNATE 6 FT. MINIMUM WATER MAIN
ON-SITE SEWAGE TREATMENT & DISPOSAL	10 FT. MINIMUM	---	---

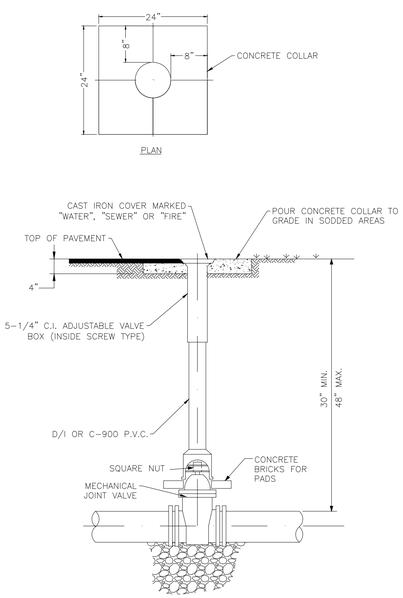
FAC RULE 62-555.314 NOTES:

1. WATERMAIN TO CROSS OVER CONFLICT PIPES WHEREVER POSSIBLE, MAINTAINING 30 INCHES COVER AND 6 INCHES SEPARATION AS MINIMUMS. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MIN. SEPARATION IS 12 INCHES.
2. RECLAIMED WATER REGULATED UNDER PART III OF CHAPER 62-610, F.A.C.
3. 3 FT FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
4. RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

NOTES:

A. THESE METHODS ARE TO BE USED WHEN INSUFFICIENT COVER EXISTS TO ALLOW PRESSURE PIPE TO CROSS ABOVE CONFLICT PIPE WITH 6 INCHES VERTICAL SEPARATION AND MAINTAIN 30 INCHES COVER TO FINISHED GRADE.
B. FITTINGS SHALL BE RESTRAINED WITH MECHANICAL RESTRAINTS (MEGALUG), IN ACCORDANCE WITH OUA STANDARD DETAILS.
C. THE DEFLECTION TYPE CROSSING IS PREFERRED.
D. DO NOT EXCEED 75% OF MANUFACTURERS RECOMMENDED MAXIMUM JOINT DEFLECTION.
E. MECHANICALLY RESTRAIN ALL FITTINGS, AS PER MANUFACTURERS RECOMMENDATION AND OUA STANDARD DETAILS.

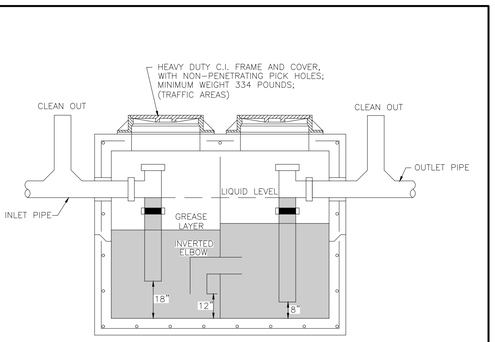
WATER MAIN – SANITARY SEWER CONFLICT | 10/15 | OUA #16 | N.T.S. | NEWLINES



NOTE:

VALVE NUT EXTENSION IS REQUIRED ON ALL VALVES WITH MORE THAN 36" OF COVER. EXTEND NUT TO WITHIN 18" OF VALVE BOX RIM. PROVIDE SOLID BRICK PAD FOR VALVE BOX TO SIT ON.

TYPICAL VALVE SETTING | 10/15 | OUA #12 | N.T.S. | NEWLINES



NOTES:

1. ALL PIPING SHALL BE A MINIMUM OF 4"
2. PIPING SHALL BE INSTALLED USING A CONCRETE MANHOLE ADAPTER.
3. SANITARY "T" OUTLET SHALL BE INSTALLED 4" INSIDE OF WALL.
4. TANK SHALL BE A MINIMUM OF 1000 GALLONS.
5. TANK SHALL BE TRAFFIC BEARING AND CONCRETE SHALL COMPLY WITH ASTM C 478, LATEST REVISION.
6. WALLS & BOTTOM SLABS SHALL BE MINIMUM 4" THICK REINFORCED CONCRETE.
7. TOP SLAB SHALL BE A MINIMUM 6" THICK REINFORCED CONCRETE.
8. SECTIONS SHALL BE JOINED AND SEALED WITH MINIMUM 1 29/64 " "RAM-NEK" SEALER OR EQUIVALENT TO FORM A WATER TIGHT SEAL.
9. RISER JOINTS SHALL COMPLY WITH ASTM C 443, LATEST REVISION.
10. TANK SIZING SHALL BE PER O.U.A. REQUIREMENTS.
11. COVER TO BE SEATED OR USE RAIN GUARDS.
12. NO DOMESTIC WASTE THROUGH GREASE TRAP.

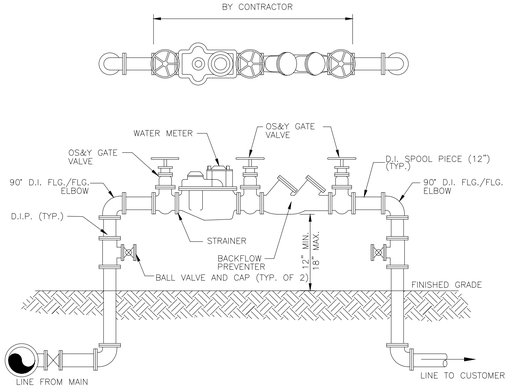
GREASE, OIL AND SAND INTERCEPTER | 10/15 | OUA #49 | N.T.S. | NEWLINES

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PHASE 1 - COMMERCIAL AREAS
LOCATED IN SECTIONS 34&35, TOWNSHIPS 38&39 SOUTH, RANGE 34 EAST, GLADES COUNTY, FLORIDA

SLD NEWLINES LAND CONSULTANTS
STEVEN L. DOBBS, P.E.
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00029206
STEVEN L. DOBBS ENGINEERING, LLC
1062 JAKES WAY OKEECHOBEE, FL 34974, PHONE (863) 824-7644

PROJECT No.	21534
DRAWN BY	YB/MB
SCALE	NTS
DATE	7/23/2024
SHEET No.	13 OF 16

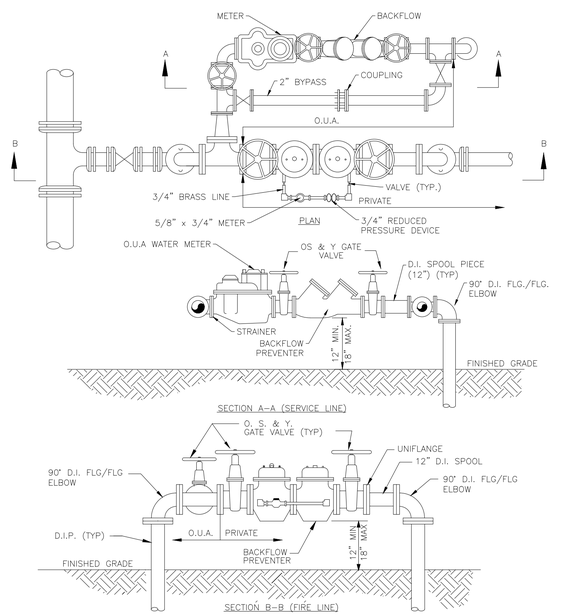


NOTES:

1. ALL PIPE AND FITTINGS SHALL BE CLASS 53 DUCTILE IRON CEMENT LINED.
2. MECHANICAL JOINT FITTINGS SHALL BE REQUIRED UNDERGROUND AND FLANGED FITTINGS FOR ABOVE GROUND USE, NO UNIFLANGES PERMITTED.
3. PAINT THE ENTIRE ABOVE GROUND ASSEMBLY, IN ACCORDANCE WITH THE OUA STANDARD. DO NOT PAINT OVER NAME/SERIAL PLATE OR BRASS FITTINGS.
4. CONTRACTOR TO INSTALL PIPE SUPPORTS AS NEEDED.
5. METER & BACKFLOW PREVENTION DEVICES SHALL BE PURCHASED FROM THE OKEECHOBEE UTILITY AUTHORITY.

3" AND 4" METER / BACKFLOW ASSEMBLY

10/15	OUA #4
N.T.S.	NEWLINES

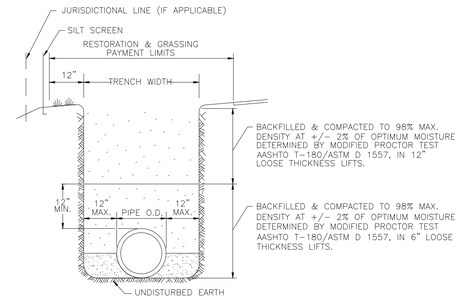


NOTES:

1. ALL PIPE AND FITTINGS SHALL BE CLASS 53 DUCTILE IRON CEMENT LINED.
2. MECHANICAL JOINT FITTINGS SHALL BE REQUIRED UNDERGROUND AND FLANGED FITTINGS FOR ABOVE GROUND USE.
3. PAINT THE ENTIRE ABOVE GROUND ASSEMBLY, IN ACCORDANCE WITH THE OUA STANDARDS. DO NOT PAINT OVER NAME/SERIAL PLATE OR BRASS FITTINGS.
4. CONTRACTOR TO INSTALL PIPE SUPPORTS AS NEEDED.
5. THE CONTRACTOR SHALL PURCHASE THE METER & BACKFLOW ASSEMBLY FROM O.U.A.
6. ONCE COMPLETE, ACCEPTED, AND PLACED INTO SERVICE THE O.U.A WILL OWN AND MAINTAIN PIPING UP THE FIRST VALVE ON THE FIRE LINE AND THE POTABLE METER, AND POTABLE BACKFLOW. THE PROPERTY OWNER TO OPERATE AND MAINTAIN FIRE LINE BACKFLOW AND FIRE LINE FROM THAT POINT.

SERVICE AND FIRE LINE ASSEMBLY

10/15	OUA #6
N.T.S.	NEWLINES

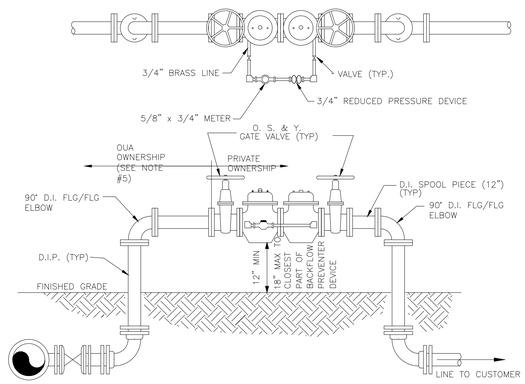


NOTES:

1. BACKFILL MATERIALS SHALL CONSIST OF CLEAN EARTH FILL COMPRISED OF SAND, SAND AND CLAY, GRAVEL, CRUSHED ROCK OR OTHER MATERIALS FROM GROUPS A-1, A-2 OR A-3, AASHTO CLASSIFICATION, FREE FROM ORGANIC MATTER AND VEGETATION, DEBRIS, LARGE CLODS OF EARTH OR STONES. UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS, LARGE ROCKS AND ROOTS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
2. THE PIPE SHALL BE FULLY SUPPORTED ALONG ENTIRE LENGTH.
3. THE PIPE TRENCH SHALL REMAIN DRY DURING PIPE LAYING OPERATIONS.
4. ALL TRENCH WORK SHALL CONFORM TO LATEST STANDARDS AS SET FORTH BY THE FLORIDA TRENCH SAFETY ACT AND OR OSHA.
5. FOUR INCH WIDE DETECTABLE TAPE SHALL BE PLACED APPROXIMATELY 12"-18" BELOW FINISHED GRADE AND DIRECTLY ABOVE ALL PRESSURE PIPING. TAPE, WORDING AND COLOR SHALL CONFORM TO CITY STANDARDS.
6. TRAFFIC LANE CLOSURES, MOT PLANS AND ROADWAY REPAIRS MATERIALS SHALL BE PER DIRECTION OF ROAD OWNER. CONTRACTOR TO INQUIRE WITH OWNER ABOUT REQUIREMENTS PRIOR TO BID.
7. 3M LOCATOR BALLS SHALL BE INSTALLED AT EACH FITTING IN THE PIPE LINE CHANGING DIRECTION AND AT EACH CONNECTION.
8. 3M LOCATORS TO BE PROVIDED BY DEVELOPER AS SPECIFIED BY O.U.A.

TYPICAL TRENCH DETAIL

10/15	OUA #13
N.T.S.	NEWLINES

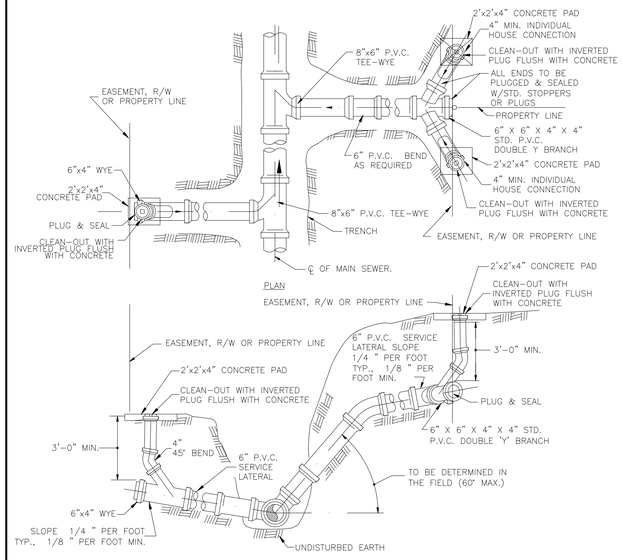


NOTES:

1. ALL PIPE AND FITTINGS SHALL BE CLASS 53 DUCTILE IRON CEMENT LINED.
2. MECHANICAL JOINT FITTINGS SHALL BE REQUIRED UNDERGROUND AND FLANGED FITTINGS FOR ABOVE GROUND USE.
3. PAINT THE ENTIRE ABOVE GROUND ASSEMBLY, IN ACCORDANCE WITH THE OUA STANDARDS. DO NOT PAINT OVER NAME/SERIAL PLATE OR BRASS FITTINGS.
4. CONTRACTOR TO INSTALL PIPE SUPPORTS AS NEEDED.
5. ONCE COMPLETED ACCEPTED AND PLACED INTO SERVICE, THE OUA WILL OWN AND MAINTAIN PIPING UP TO FIRST VALVE, PROPERTY OWNER TO OPERATE AND MAINTAIN FIRE LINE FROM THIS POINT.

FIRE LINE ASSEMBLY & DETECTOR CHECK VALVE

10/15	OUA #5
N.T.S.	NEWLINES

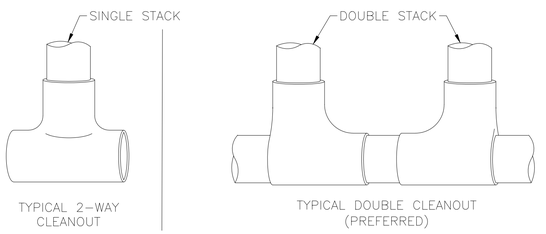


NOTES:

1. SERVICE LATERALS SHALL TERMINATE AT PROPERTY LINE AT A DEPTH OF 3 FEET, PLUGGED WATERTIGHT WITH CLEAN-OUT.
2. THE MINIMUM DIAMETER OF ALL SINGLE HOUSEHOLD CONNECTIONS SHALL BE 4"MINIMUM ALL OTHERS SHALL BE 6" AND ALL DOUBLE SERVICES
3. CONNECTION TO O.U.A. LATERAL SHALL BE MADE WITH A CLEAN-OUT AT PROPERTY LINE BY THE CONTRACTOR OR CUSTOMER MAKING THE CONNECTION, WITH A 2'x2'x4" CONCRETE PAD WITH A INVERTED PLUG, BOTH TO BE SET AT FINAL GRADE

TYPICAL SEWER SERVICE CONNECTION

10/15	OUA #31
N.T.S.	NEWLINES



DOUBLE CLEANOUT OR 2-WAY CLEANOUT

2/24	U#01
N.T.S.	NEWLINES

ALL CONCRETE TO BE CLASS 'B' 3500 PSI (UNLESS OTHERWISE NOTED)

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PHASE 1 - COMMERCIAL AREAS

LOCATED IN SECTIONS 34&35, TOWNSHIPS 38&39 SOUTH, RANGE 34 EAST, GLADES COUNTY, FLORIDA

NEWLINES LAND CONSULTANTS

STEVEN L. DOBBS, P.E.

FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00029206

STEVEN L. DOBBS ENGINEERING, LLC

1062 JAKES WAY OKEECHOBEE, FL 34974, PHONE (863) 824-7644

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Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Florida Greenbook); Chapter 6 - Lighting, Pages 6-8 to 6-9.

Table 6 – 1 Road Surface Classifications

Class	Q0*	Description	Mode of Reflectance
R1	0.10	Portland cement concrete road surface. Asphalt road surface with a minimum of 12% of the aggregates composed of artificial brightener or aggregates.	Mostly diffuse
R2	0.07	Asphalt road surface with an aggregate composed of minimum 60% gravel (size greater than 0.4 in.). Asphalt road surface with 10 to 15% artificial brightener in aggregate mix. (Not normally used in North America).	Mixed (diffuse and specular)
R3	0.07	Asphalt road surface (regular and carpet seal) with dark aggregates (e.g., trap rock, blast furnace slag); rough texture after some months of use typical highways).	Slightly specular.
→ R4	0.08	Asphalt road surface with very smooth texture.	Mostly specular.

* Q_0 = representative mean luminance coefficient.

E.3 Lighting Design Levels

The level of illumination for streets and highways should not be less than those shown in Table 6 – 2 Illuminance and Luminance Design Values. When adding supplemental lighting for pedestrian activity, ensure lighting is compatible with any existing lighting in the corridor and minimizes glare.

These levels are for the purpose of highway safety and do not apply to lighting levels required for crime reduction. Further information may be found in the ***AASHTO Roadway Lighting Design Guide (2005).***

Topic # 625-000-015 2018
Manual of Uniform Minimum Standards
for Design, Construction and Maintenance
for Streets and Highways

Table 6 – 2 Illuminance and Luminance Design Values

Roadway and Walkway Classification	Off-Roadway Light Sources	Illuminance Method					Luminance Method			Additional Values (both Methods)
		Average Maintained Illuminance (Horizontal)				Illuminance Uniformity Ratio	Average Maintained Luminance			Veiling Luminance Ratio
		R1	R2	R3	R4		Lavg	Uniformity		
	General Land Use	(foot -candles) (min)	(foot-candles) (min)	(foot-candles) (min)	(foot-candles) (min)	avg/min (max) (6)	cd/m2 (min)	Lavg/Lmin (max)	Lmax/Lmin (max)	Lv(max)/Lavg (max)[3]
Principal Arterials (partial or no control of access)	Commercial	1.1	1.6	1.6	1.4	3:1	1.2	3:1	5:1	0.3:1
	Intermediate	0.8	1.2	1.2	1.0	3:1	0.9	3:1	5:1	0.3:1
	Residential	0.6	0.8	0.8	0.8	3:1	0.6	3.5:1	6:1	0.3:1
Minor Arterials	Commercial	0.9	1.4	1.4	1.0	4:1	1.2	3:1	5:1	0.3:1
	Intermediate	0.8	1.0	1.0	0.9	4:1	0.9	3:1	5:1	0.3:1
	Residential	0.5	0.7	0.7	0.7	4:1	0.6	3.5:1	6:1	0.3:1
Collectors	Commercial	0.8	1.1	1.1	0.9	4:1	0.8	3:1	5:1	0.4:1
	Intermediate	0.6	0.8	0.8	0.8	4:1	0.6	3.5:1	6:1	0.4:1
	Residential	0.4	0.6	0.6	0.5	4:1	0.4	4:1	8:1	0.4:1
Local	Commercial	0.6	0.8	0.8	0.8	6:1	0.6	6:1	10:1	0.4:1
	Intermediate	0.5	0.7	0.7	0.6	6:1	0.5	6:1	10:1	0.4:1
→	Residential	0.3	0.4	0.4	0.4	6;1	0.3	6:1	10:1	0.4:1
Alleys	Commercial	0.4	0.6	0.6	0.5	6:1	0.4	6:1	10:1	0.4:1
	Intermediate	0.3	0.4	0.4	0.4	6:1	0.3	6:1	10:1	0.4:1
	Residential	0.2	0.3	0.3	0.3	6:1	0.2	6:1	10:1	0.4:1

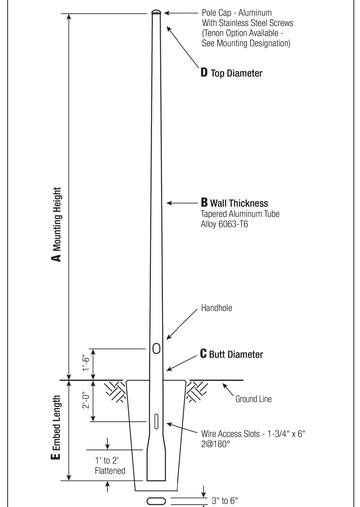
LIGHTING SCHEDULE

CALLOUT	MANUFACTURER	MODEL	#	MOUNTING	HEIGHT	VOLTAGE	QUANTITY	DESC.
A	GE CURRENT	ERL1	05-D330	POLE	25'	120v	11	
B	GE CURRENT	ERL1	16-C530	POLE	25'	120v	24	TYPE III, 15,000 LUMENS
C	GE CURRENT	ERL1	10-C330	POLE	25'	120v	340	
D	GE CURRENT	ERL1	07-C330	POLE	25'	120v	21	
E	GE CURRENT	ERL1	09-D330	POLE	25'	120v	10	

ERL1 SPEC SHEETS

newlin.es/lt1

RTA — Round Tapered Aluminum Pole — No Arm — Direct Buried



Satin Aluminum or Powder Coated Finish per Customer Specification.

C Butt Dia.	D Top Dia.
5	3
6	4.5
7	4.5
8	4.5
9	4.5
10	6

C and D Dimensions in Inches

Pole
The pole shaft will be constructed of seamless extruded tube of 6063 Aluminum alloy per the requirements of ASTM B221. The shaft assembly shall be full-length heat treated to produce a T6 temper.

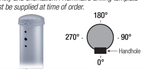
Handhole
5" Butt Diameter - *2-1/2" x 5" Handhole with curved Lap Style Aluminum Door and two (2) SS Self-Tapping Attaching Screws. A Grounding Provision is provided as part of the handhole.*
6" Butt Diameter - *Reinforced, 3" x 5" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. A Grounding Provision incorporating a 3/8" diameter hole is provided opposite the Handhole.*
7"+ Butt Diameters - *Reinforced, 4" x 6" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. Reinforced Frame will contain a tapped 3/8"-16NC Grounding Provision.*

Embed Detail
Direct Buried Pole bottom section on 6"+ butt diameter poles will be partially flattened into an anti-rotational, oval cross section. Wire access will be provided 24" below ground line. Soil conditions vary by site. Foundation requirements should be determined by a qualified Structural Engineer with knowledge of jobsite soil conditions.



Vibration Damper
When determined necessary by Hapco, a Vibration Damper will be factory-installed inside the pole shaft. Customer specification of the damper is available.

Mounting Designation
Side Drill Mount
For Side Drill Mount applications specify luminaire type, quantity and orientation. A luminaire drilling template must be supplied at time of order.



Tenon Mount - Welded or Spun
For Tenon Mount applications specify both Tenon diameter (2.375", 2.875", 3.5", etc.) and length (3", 4", etc.). Tenon style is factory option. Welded Tenon can be specified.



WARNING: *Do not install light pole without luminaire.*

A Mtg. Ht.	B Wall Thk.	C Butt Dia.	D Embed Depth	E Total Lng. Wt.	Maximum EPA 120	130	140	150	160	170	180	Old Catalog Number	Catalog Number
10	0.125	5	4	110	9.9	8.2	6.9	5.9	5.0	4.4	3.8	87907-0310X	RTA10B5AD-**
12	0.125	5	4	85	7.7	6.3	5.2	4.4	3.7	3.1	2.7	87907-0312X	RTA12B5AD-**
14	0.125	5	4	70	6.0	4.8	3.9	3.2	2.8	2.2	1.8	87907-0314X	RTA14B5AD-**
16	0.125	5	4	50	4.6	3.6	2.8	2.2	1.7	1.4	1.1	87907-0316X	RTA16B5AD-**
18	0.125	5	4	40	3.3	2.4	1.8	1.3	0.9	0.6	-	87907-0318X	RTA18B5AD-**
18	0.156	5	4	55	4.6	3.6	2.8	2.1	1.7	1.3	1.0		RTA18C5AD-**
20	0.125	5	4	40	2.2	1.5	0.9	-	-	-	-		RTA20B5AD-**
20	0.125	6	5	100	8.6	7.0	5.8	4.9	4.2	3.6	3.1	50-001	RTA20B6BD-**
20	0.156	6	6	135	11.5	9.4	7.9	6.8	5.8	5.0	4.4	50-002	RTA20C6BD-**
20	0.188	6	6	170	14.3	11.9	10.0	8.6	7.4	6.5	5.7	50-003	RTA20D6BD-**
20	0.156	7	6	210	17.3	14.4	12.2	10.5	9.1	8.0	7.0	50-004	RTA20C7BD-**
20	0.188	7	7	260	21.4	17.8	15.2	13.1	11.4	9.9	8.8	50-005	RTA20D7BD-**
20	0.156	8	7	295	24.1	20.2	17.2	14.9	12.9	11.3	10.0	50-006	RTA20C8BD-**
20	0.188	8	8	300	29.7	25.0	21.3	18.4	16.1	14.1	12.5	50-007	RTA20D8BD-**
25	0.156	6	6	85	7.0	5.5	4.5	3.8	3.2	2.7	2.2	50-062	RTA25C6BD-**
25	0.188	6	6	110	9.2	7.4	6.2	5.2	4.4	3.7	3.2	50-063	RTA25D6BD-**
25	0.156	7	6	140	11.6	9.4	7.9	6.7	5.7	4.9	4.3	50-064	RTA25C7BD-**
25	0.188	7	7	175	14.7	12.1	10.2	8.7	7.5	6.5	5.6	50-065	RTA25D7BD-**
25	0.156	8	7	205	16.9	14.0	11.8	10.1	8.7	7.6	6.6	50-066	RTA25C8BD-**
25	0.188	8	7	255	21.0	17.5	14.6	12.7	11.0	9.6	8.4	50-067	RTA25D8BD-**
25	0.219	8	8	300	24.9	20.8	17.7	15.2	13.2	11.6	10.2	50-068	RTA25E8BD-**
25	0.250	8	8	300	28.9	24.2	20.6	17.8	15.5	13.5	11.9	50-069	RTA25F8BD-**
30	0.156	7	6	90	7.5	5.9	4.8	3.9	3.3	2.7	2.3	50-124	RTA30C7BD-**
30	0.188	7	7	120	10.0	8.0	6.6	5.5	4.6	3.9	3.4	50-125	RTA30D7BD-**
30	0.156	8	7	140	11.8	9.5	7.9	6.7	5.7	4.9	4.2	50-126	RTA30C8BD-**
30	0.188	8	7	180	15.1	12.4	10.4	8.8	7.6	6.5	5.6	50-127	RTA30D8BD-**
30	0.219	8	8	220	18.2	15.0	12.7	10.8	9.3	8.1	7.0	50-128	RTA30E8BD-**
30	0.250	8	8	260	21.3	17.6	14.9	12.8	11.0	9.6	8.4	50-129	RTA30F8BD-**
30	0.188	9	8	255	20.9	17.4	14.7	12.6	10.9	9.4	8.2	50-131	RTA30D9BD-**
30	0.250	9	9	300	29.1	24.4	20.8	17.9	15.5	13.5	11.9	50-133	RTA30F9BD-**
30	0.188	10	9	300	27.7	23.3	19.8	17.0	14.7	12.8	11.1	50-139	RTA30D10D-**
35	0.156	8	7	95	7.9	6.2	5.0	4.1	3.4	2.8	2.3	50-196	RTA35C8BD-**
35	0.188	8	7	130	10.6	8.5	7.0	5.8	4.9	4.1	3.5	50-187	RTA35D8BD-**
35	0.219	8	8	160	13.2	10.7	8.9	7.5	6.4	5.4	4.7	50-188	RTA35E8BD-**
35	0.250	8	8	190	15.8	12.9	10.8	9.1	7.8	6.7	5.8	50-189	RTA35F8BD-**
35	0.188	9	8	190	15.5	12.7	10.7	9.0	7.7	6.6	5.6	50-191	RTA35D9BD-**
35	0.250	9	9	270	22.2	18.4	15.6	13.3	11.4	9.9	8.6	50-193	RTA35F9BD-**
35	0.188	10	9	255	21.1	17.7	14.9	12.7	10.9	9.3	8.0	50-199	RTA35D10D-**
35	0.219	10	9	300	25.4	21.3	18.1	15.4	13.3	11.5	9.9	50-200	RTA35E10D-**
35	0.250	10	9	300	29.7	25.0	21.2	18.2	15.7	13.6	11.9	50-201	RTA35F10D-**
35	0.312	10	10	300	38.1	32.2	27.4	23.6	20.5	17.8	15.6	50-202	RTA35G10D-**
40	0.188	8	7	90	7.1	5.4	4.3	3.4	2.8	2.2	1.8	50-247	RTA40D8BD-**
40	0.219	8	8	115	9.3	7.3	5.9	4.8	4.0	3.3	2.7	50-248	RTA40E8BD-**
40	0.250	8	8	140	11.5	9.1	7.5	6.2	5.2	4.4	3.7	50-249	RTA40F8BD-**
40	0.188	9	8	135	11.3	9.1	7.5	6.2	5.2	4.3	3.6	50-251	RTA40D9BD-**
40	0.250	9	9	205	16.9	13.9	11.6	9.8	8.3	7.1	6.1	50-253	RTA40F9BD-**
40	0.188	10	9	190	16.1	13.4	11.2	9.4	7.9	6.7	5.6	50-259	RTA40D10D-**
40	0.219	10	9	240	19.7	16.4	13.6	11.7	10.0	8.5	7.2	50-260	RTA40E10D-**
40	0.250	10	9	280	23.3	19.4	16.4	14.0	12.0	10.3	8.8	50-261	RTA40F10D-**
40	0.312	10	10	300	30.4	25.5	21.6	18.5	15.9	13.8	12.0	50-262	RTA40G10D-**

Catalog Number System
The catalog number for Hapco poles utilizes the following identification system.

MOUNTING HEIGHT | BUTT DIA | BASE STYLE
R | T | A | | | | | D | - | | |
SHAFT ASSEMBLY | WALL THICK | TOP DIA | FINISH

Catalog Number Example -
RTA 30 D 8 B D – 01

Round Tapered Aluminum, 30' Mounting Height, .188" Wall Thickness, 8" Butt Diameter, 4.5" Top Diameter, FBC Direct Buried, Satin Aluminum Finish.

Wall Thickness
B = .125"
C = .156"
D = .188"
E = .219"
F = .250"
G = .312"

Butt Diameter
5 = 5"
6 = 6"
7 = 7"
8 = 8"
9 = 9"
1 = 10"

Top Diameter
A = 3"
B = 4.5"
C = 6"

Base Style
D = FBC Direct Buried

Finish
01 = Satin Aluminum
BA = Black Powder Coat
BH = White Powder Coat
BM = Dark Bronze Powder Coat
BV = Dark Green Powder Coat
GC = Gray Powder Coat
★★ = Specify Finish

EPA Note:
EPA's based on symmetrically placed side mounted fixture(s) not exceeding height of the pole.

Embed Note:
Embed depths shown are calculated using the weight and EPA combination corresponding to the maximum windspeed available per pole. The calculation uses the assumption of a Class 3 soil type with a 12" diameter augered hole that is to be back-filled (preferably with chloride-free concrete or high density polyurethane foam). Embed depths are subject to change if the loading changes or if the wind speed changes. Please contact Hapco for help in determining an appropriate embed depth.

RTA - ROUND TAPERED ALUMINUM POLE | NO ARM | DIRECT BURIED

POLE TO USE

▷RTA 25 C6 BD–01

LIGHTING DETAILS PLAN

DATE	DESCRIPTION	ENGINEER	CAD
6/30/24	PH1 DRAINAGE REVISED PER CONTRACTOR COMMENTS. GENERAL REVISIONS.	SLD/JT	NL
5/7/24	REVISED PER COUNTY LETTER DATED 2024-04-04	SLD/JT	NL
12/13/23	REVISED PER COUNTY LETTER DATED 2023-09-15	SLD/JT	NL
8/29/23	REVISED PER CONTRACTOR COMMENTS	TL	PDC/JQ
8/2/23	REVISED WETLAND GRADIENT AND IMPERMEABLE BARRIERS COMMENTS	TL	PDC
7/5/23	REVISED PER SFWMD LETTER COMMENTS DATED 2023-06-26	TL	PDC/CC
4/25/23	REVISED AS PER COUNTY LETTER DATED 2023-04-25	SLD	JCS/AA

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADOPTION BY STEVEN L. DOBBS, P.E., SHALL BE WITHOUT LIABILITY TO NEWLINES ENGINEERING & SURVEY AND STEVEN L. DOBBS ENGINEERING, LLC.

NEWLINES LAND CONSULTANTS
STEVEN L. DOBBS, P.E.
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 00029206
STEVEN L. DOBBS ENGINEERING, LLC
209 NE 2ND ST. OKEECHOBEE, FL 34974, PHONE (863) 824-7644

PAGE CATEGORY	----
PAGE NAME	----.15-LIGHTING-DETAILS
PROJECT NO.	21534
DRAWN BY	YB/MB
SCALE	NOT TO SCALE'
DATE	07/23/2024
SHEET NO.	15 OF 16

NOTES

1. CONTRACTOR IS RESPONSIBLE FOR CHECKING ACTUAL SITE CONDITIONS BEFORE STARTING CONSTRUCTION.
2. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE COMMENCING WORK.
3. CONTRACTOR SHALL OBTAIN ALL REQUIRED BUILDING PERMITS BEFORE COMMENCING WORK.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL CONTACT ALL CONCERNED UTILITIES AT LEAST 48 HOURS IN ADVANCE FOR CONSTRUCTION OPERATIONS.
5. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN TO BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER.
6. ALL CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH THE APPLICABLE ORDINANCES OF OKEECHOBEE COUNTY, FLORIDA.
7. CONTRACTOR SHALL SUPPLY DENSITY TESTS TO ENGINEER ON ALL SUB-GRADE AND BASE. TESTS SHALL BE PREPARED PER AASHTO T-180 METHOD.
8. SLOPE GRADES FROM ELEVATIONS SHOWN TO EXISTING GRADE AT PROPERTY LINE.
9. ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE FOR ANY INSPECTION.
10. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH M.U.T.C.D. STANDARDS.
11. EROSION AND SEDIMENTATION CONTROL TECHNIQUES SHALL BE INCORPORATED DURING CONSTRUCTION AS FOLLOWS:
    - SILT SCREENS SHALL BE MAINTAINED AT THE PROJECT PERIMETER.
    - NO OFF-SITE DISCHARGES SHALL OCCUR DURING CONSTRUCTION.

    IN THE EVENT DISCHARGE IS REQUIRED, HAY BALES AND/OR TURBIDITY CURTAINS SHALL BE INCORPORATED AT THE DISCHARGE POINT AS NECESSARY TO CONTROL TURBIDITY.

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 ETHIC INVERTEBRATES AND FISH SPAWNING SUBSTRATES BY SILTATION. EXCESSIVE SUSPENDED SEDIMENTS REDUCE LIGHT PENETRATION AND THEREFORE, REDUCE PRIMARY PRODUCTIVITY.

MINIMUM STANDARDS:

1. 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.
2. ALL SEDIMENT CONTROL MEASURES ARE TO BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON BALANCE OF SITE. PERIMETER SEDIMENT BARRIERS SHALL BE CONSTRUCTED TO PREVENT SEDIMENT OR TRASH FROM FLOWING OR FLOATING ON TO ADJACENT PROPERTIES.
3. PERMANENT OR 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.
4. 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.
5. 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.
6. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
7. 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.
8. AFTER ANY SIGNIFICANT RAINFALL, SEDIMENT CONTROL STRUCTURES WILL BE INSPECTED FOR INTEGRITY. ANY DAMAGED DEVICES SHALL BE CORRECTED IMMEDIATELY.
9. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
10. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
11. 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.
12. BEFORE TEMPORARY OR NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
13. 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.
14. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES, A TEMPORARY STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
16. 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 LEAVING THE PROPERTY. SEDIMENT CONTROL MEASURES SHALL BE IN WORKING CONDITION AT THE END OF EACH WORKING DAY.
17. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
    A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
    B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
    C. EFFLUENT FROM DEWATERING 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.
    D. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
18. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY TRACKING ONTO THE PAVED SURFACE, WHERE SEDIMENT IS TRANSPORTED ONTO 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.
19. 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.
20. PROPERTIES AND WATERWAYS DOWNSTREAM FROM CONSTRUCTION SITE SHALL BE PROTECTED FROM SEDIMENT DISPOSITION AND EROSION.
21. PHASED PROJECTS SHOULD BE CLEARED IN CONJUNCTION WITH CONSTRUCTION OF EACH PHASE.
22. EROSION CONTROL DESIGN AND CONSTRUCTION SHALL FOLLOW THE REQUIREMENTS IN INDEX NOS. 101, 102 AND 103 OF FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS.
23. THE REVIEWER MAY APPROVE MODIFICATIONS OR ALTER PLANS TO THESE EROSION CONTROL CRITERIA DUE TO SITE SPECIFIC CONDITIONS.

EARTHWORK AND DRAINAGE SPECIFICATIONS

1. CLEARING AND GRUBBING: CLEARING AND GRUBBING SHALL BE PERFORMED WITHIN THE LIMITS OF THE PROJECT WORK IN ACCORDANCE WITH SECTION 110, FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) SPECIFICATIONS. THIS ITEM SHALL INCLUDE, BUT IS NOT LIMITED TO, THE COMPLETE REMOVAL AND LEGAL DISPOSAL OF ALL TREES, BRUSH, STUMPS, ROOTS, GRASS, WEEDS, RUBBISH AND OTHER UNDESIRABLE MATERIAL TO A DEPTH OF 18 INCHES BELOW NATURAL GROUND OR PROPOSED FINISHED GRADE, WHICHEVER IS LOWER. THE AREAS TO BE CLEARED GENERALLY CONSIST OF THE ENTIRE SITE WITH THE EXCEPTION OF AREAS SPECIFICALLY NOTED ON THE LANDSCAPE PLANS AS PRESERVE AREAS OR AS AREAS TO REMAIN UN-CLEARED. CARE SHALL BE TAKEN TO INSURE THAT NO PRESERVE AREAS OR WETLAND AREAS ARE IMPACTED BY THE CLEARING OPERATION. PRIOR TO INITIATING THE CLEARING OPERATION, ALL ADJACENT WETLAND AND PRESERVE AREAS SHALL BE MARKED AND FLAGGED IN ACCORDANCE WITH THE ST. LUCIE COUNTY AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD) REQUIREMENTS ALL SUCH AREAS IMMEDIATELY ADJACENT TO THE CLEARING OPERATION SHALL ALSO BE PROTECTED BY THE INSTALLATION OF TEMPORARY SILT BARRIERS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ST. LUCIE COUNTY AND THE SFWMD. FURTHER EROSION CONTROL SHALL BE ACCOMPLISHED BY SEEDING AND MULCHING ALL DISTURBED AREAS AS SOON AS THEY ARE AT FINAL GRADE, PER THE SPECIFICATIONS FOR SEEDING AND MULCHING FOUND ELSEWHERE ON THIS SHEET.

   ALL MATERIAL SHALL BE REMOVED FROM THE SITE AND SHALL BE LEGALLY DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS.

2. EARTHWORK AND GRADING: ALL EARTHWORK AND GRADING SHALL BE PERFORMED AS REQUIRED TO ACHIEVE THE FINAL GRADES, TYPICAL SECTIONS AND ELEVATIONS SHOWN ON THE PLANS. IN ALL OTHER RESPECTS, MATERIALS AND CONSTRUCTION METHODS FOR EARTHWORK, EMBANKMENT, EXCAVATION AND GRADING SHALL CONFORM TO THE REQUIREMENTS OF FDOT SPECIFICATIONS, SECTION 120. ANY PLASTIC OR OTHERWISE UNDESIRABLE MATERIAL WITHIN 36 INCHES OF FINISHED ROAD GRADE SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL. THE CONTRACTOR SHALL ALSO REFER TO THE SOILS REPORT, IF AVAILABLE. THE SPECIFICATIONS AND RECOMMENDATIONS INCLUDED IN THAT REPORT SHALL BE CONSIDERED AS A PART OF THESE PLANS AND SPECIFICATIONS. SHOULD THERE BE ANY CONFLICT BETWEEN THAT DOCUMENT AND ANY REQUIREMENTS OF THESE DRAWINGS OR SPECIFICATIONS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN.

3. PAVING IMPROVEMENTS: ALL AREAS PROPOSED FOR PAVING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN GRADES AND TYPICAL SECTIONS SHOWN ON THE DRAWINGS, AND IN CONFORMANCE TO THE REQUIREMENTS OF THE ST. LUCIE COUNTY AND FLORIDA DEPARTMENT OF TRANSPORTATION.

   A. ASPHALT: PRIME COAT AND TACK COAT FOR BASE COURSE AND BETWEEN LIFTS OF ASPHALT SHALL CONFORM TO THE REQUIREMENTS OF SECTIONS 300-1 THROUGH 300-7 OF THE FDOT SPECIFICATIONS. PRIME COAT SHALL BE APPLIED AT A RATE OF 0.25 GALLONS PER SQUARE YARD AND TACK COAT AT A RATE OF 0.10 GALLONS PER SQUARE YARD, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

      ASPHALT SURFACE COURSE THICKNESS AND MATERIAL SHALL BE AS SHOWN ON THE TYPICAL SECTIONS AND SHALL IN ALL WAYS CONFORM TO THE REQUIREMENTS OF FDOT.

   B. BASE: LIMEROCK BASE MATERIAL SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY PER AASHTO T-180. ALL LIMEROCK SHALL MEET THE MINIMUM REQUIREMENTS OF FDOT SECTION 911. AS AN ALTERNATE, CEMENTED COQUINA CONFORMING TO FDOT SECTION 915 MAY BE SUBSTITUTED AND SHALL BE SUBJECT TO THE COMPACTION SPECIFICATIONS DETAILED ABOVE AND INCLUDED IN THE SOILS ENGINEER'S REPORT.

   C. SUB-GRADE: SUB-GRADE SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY PER AASHTO T-180, AND STABILIZED TO A MINIMUM FBV OF 50PSI. SUB-GRADE SHALL BE THOROUGHLY ROLLED WITH A PNEUMATIC TIRED ROLLER PRIOR TO SCHEDULING ANY SUB-GRADE INSPECTION.

   D. VALLEY GUTTER/ F-CURB/D-CURB/FLUSH CURB: SHALL BE CONSTRUCTED PER THE TYPICAL SECTION BY EXTRUDING MACHINE OR FORMS AS SHOWN ON THE PLANS. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 3,000PSI AFTER 28 DAYS. SUB-GRADE SHALL BE MOISTENED AT THE TIME CONCRETE IS PLACED TO INSURE A UNIFORMLY DAMP SURFACE. READY-MIX CONCRETE SHALL HAVE A SLUMP OF BETWEEN 2 AND 4 INCHES. NO WATER SHALL BE ADDED TO INCREASE WORKABILITY. TEST CYLINDERS SHALL BE MADE FOR THE STRENGTH TESTING OF EACH BATCH OF CONCRETE FOR AT LEAST 7 AND 28 DAY TESTING.

   E. SOD: A MINIMUM OF A TWO-FOOT WIDE STRIP OF SOD, OR AS OTHERWISE SHOWN ON THE PLANS, SHALL BE PLACED ALONG THE BACK OF CURB OF ALL CONSTRUCTED PAVEMENT TO AID IN PREVENTION OF EROSION AND SOIL STABILITY. SOD SHALL BE PLACED IN CONFORMANCE TO FDOT SECTION 570, 575 AND 981. GENERALLY, THE SODDING REQUIREMENTS SHALL BE AS SPECIFIED ON THE LANDSCAPE PLANS, PREPARED BY OTHERS.

   F. SEED, FERTILIZE AND MULCH: ALL DISTURBED AREAS SHALL BE STABILIZED WITH SEED, FERTILIZER AND MULCH UPON COMPLETION AND ACCEPTANCE BY ENGINEER OF FINAL GRADING. SEED, FERTILIZER AND MULCH SHALL BE IN CONFORMANCE TO FDOT SECTIONS 570, 575 AND 981. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING A STAND OF GRASS SUFFICIENT TO PREVENT EROSION PRIOR TO REMOVAL OF THE TEMPORARY SILT FENCES. THIS APPLIES ONLY TO THOSE AREAS NOT COVERED BY THE SODDING SPECIFIED IN THE LANDSCAPE PLANS, PREPARED BY OTHERS.

   G. TESTING: THE CONTRACTOR SHALL SECURE THE SERVICES OF AN APPROVED INDEPENDENT TESTING LABORATORY TO CONDUCT ALL REQUIRED TESTING ON SUB-GRADE, BASE, ASPHALT AND CONCRETE. LOCATIONS REQUIRED FOR THESE TESTS SHALL BE AS REQUIRED BY THE ST. LUCIE COUNTY, AND/OR IN THE CASE OF THE TURN-LANE IMPROVEMENTS AS REQUIRED BY THE ST. LUCIE COUNTY. AT A MINIMUM, TESTING SHALL BE AS RECOMMENDED BY FDOT. SHOULD ANY TESTS FAIL, CONTRACTOR SHALL AT HIS OWN EXPENSE, REPAIR THE DEFICIENCIES AND RETEST THE WORK UNTIL COMPLIANCE WITH THE SPECIFICATIONS IS DEMONSTRATED.

   H. TRAFFIC CONTROL: THE INSTALLATION OF TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE TO THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, THE GLADES COUNTY. MAINTENANCE OF TRAFFIC DURING CONSTRUCTION SHALL BE AS REQUIRED BY FDOT.

4. DRAINAGE IMPROVEMENTS: ALL LABOR, MATERIALS AND CONSTRUCTION METHODS SHALL BE IN CONFORMANCE TO THE MINIMUM ENGINEERING AND CONSTRUCTION STANDARDS OF THE ST. LUCIE COUNTY AND FDOT SPECIFICATIONS. TRENCH EXCAVATION AND BACK-FILLING OPERATIONS SHALL MEET OR EXCEED THE REQUIREMENTS OF FDOT SPECIFICATIONS, SECTION 125. THE CONTRACTOR SHALL PROVIDE THE NECESSARY BACK-FILL COMPACTION TESTING REQUIRED TO DEMONSTRATE COMPLIANCE WITH THIS SECTION. THE PIPE TRENCH SHALL BE DRY WHEN PIPE IS LAID AND THE PIPE SHALL BE BEDDED PER THE DETAILS AND PER FDOT SPECIFICATIONS.

   THE CONTRACTOR SHALL COMPLY WITH CHAPTER 90-96, LAWS OF FLORIDA, WHICH REQUIRES THE CONTRACTOR PERFORMING TRENCH EXCAVATIONS OVER FIVE FEET IN DEPTH COMPLY WITH ALL APPLICABLE TRENCH SAFETY STANDARDS AND SHORING REQUIREMENTS AS SET FORTH IN THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S (OSHA) EXCAVATION AND SAFETY STANDARDS, 29 C.F.R. 19926.650, SUB-PART P AND INCORPORATED AS THE STATE OF FLORIDA STANDARD, AS REVISED AND/OR UPDATED. THE COST OF COMPLIANCE WITH THIS REQUIREMENT SHALL BE INCLUDED AS A SEPARATE LINE ITEM ON THE CONTRACTOR'S BID. OTHERWISE, CONTRACTOR CERTIFIES THAT THE COST OF COMPLIANCE IS INCLUDED IN THE UNIT COST OF ALL ITEMS OF WORK TO WHICH THIS REQUIREMENT APPLIES.

   A. REINFORCED CONCRETE PIPE (RCP): RCP SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATIONS C-76, CLASS III, WALL THICKNESS "B", LATEST REVISION. ALL JOINTS SHALL BE SOIL-TIGHT. PIPE GASKET SHALL CONFORM TO FDOT SPECIFICATIONS, SECTION 942.

   B. CORRUGATED METAL PIPE (CMP): ALL CMP SHALL BE STEEL, ROUND, HELICAL-WOUND CORRUGATED PIPE CONFORMING TO AASHTO-M 36 AND FDOT SECTION 943. PIPE ENDS AT JOINTS SHALL BE REFORMED TO A MINIMUM OF 2 ANNULAR CORRUGATIONS FOR THE COMPLETE BAND WIDTH. ALL JOINTS SHALL BE SOIL-TIGHT. ALL CONNECTING BANDS SHALL BE CORRUGATED ANNULAR COUPLING BANDS. A NEOPRENE GASKET OF AT LEAST 7 INCHES WIDE BY 3/8 INCH THICK SHALL BE USED FOR ALL PIPES OF 36-INCH DIAMETER AND SMALLER. LARGER PIPE SIZES REQUIRE GASKETS OF AT LEAST 10-1/2 INCHES IN WIDTH. ALL CMP SHALL BE INSTALLED AT MAXIMUM LENGTHS TO REDUCE THE NUMBER OF JOINTS.

   C. CORRUGATED ALUMINUM PIPE (CAP): ALL CAP SHALL BE ALUMINUM ALLOY, ROUND, HELICAL-WOUND CORRUGATED PIPE CONFORMING TO AASHTO-M 196 AND FDOT SECTION 945. PIPE ENDS AT JOINTS SHALL BE REFORMED TO A MINIMUM OF 2 ANNULAR CORRUGATIONS FOR THE COMPLETE BAND WIDTH. ALL JOINTS SHALL BE SOIL-TIGHT. ALL CONNECTING BANDS SHALL BE CORRUGATED ANNULAR COUPLING BANDS. A NEOPRENE GASKET OF AT LEAST 7 INCHES WIDE BY 3/8 INCH THICK SHALL BE USED FOR ALL PIPES OF 36-INCH DIAMETER AND SMALLER. LARGER PIPE SIZES REQUIRE GASKETS OF AT LEAST 10-1/2 INCHES IN WIDTH. ALL CAP SHALL BE INSTALLED AT MAXIMUM LENGTHS TO REDUCE THE NUMBER OF JOINTS.

   D. CORRUGATED HIGH DENSITY POLYETHYLENE PIPE (HDPE): ALL HDPE PIPE SHALL BE RESIN CONFORMING TO ASTM D3350 MINIMUM CELL CLASSIFICATION 435400C, ROUND, ONLY ANNULAR CORRUGATIONS AND CONFORMING TO FDOT SECTION 948-2.3. ALL JOINTS SHALL BE SOIL-TIGHT. ALL CONNECTING BANDS SHALL BE CORRUGATED ANNULAR COUPLING BANDS. A NEOPRENE GASKET OF AT LEAST 7 INCHES WIDE BY 3/8 INCH THICK SHALL BE USED FOR ALL PIPES OF 36-INCH DIAMETER AND SMALLER. LARGER PIPE SIZES REQUIRE GASKETS OF AT LEAST 10-1/2 INCHES IN WIDTH. ALL HDPE SHALL BE INSTALLED AT MAXIMUM LENGTHS TO REDUCE THE NUMBER OF JOINTS.

   E. CONTECH A-2000 PVC DRAINAGE PIPE (A-2000): ALL A-2000 CORRUGATED PIPE WITH A SMOOTH INTERIOR SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION F949 & F794 DUAL WALL CORRUGATED PROFILE (DWCP) PIPE. PIPE AND FITTINGS SHALL BE HOMOGENEOUS THROUGHOUT AND FREE FROM VISIBLE CRACKS, HOLES, FOREIGN INCLUSIONS OR OTHER INJURIOUS DEFECTS. PIPE SHALL BE MANUFACTURED TO 46 PSI STIFFNESS WHEN TESTED IN ACCORDANCE WITH ASTM TEST METHOD D2412. THERE SHALL BE NO EVIDENCE OF SPLITTING, CRACKING OR BREAKING WHEN THE PIPE IS TESTED PER ASTM TEST METHOD D2412 AND F949 SECTION 7.5. THE PIPE SHALL BE MADE OF PVC COMPOUND HAVING A MINIMUM CELL CLASSIFICATION OF 12454B AS DEFINED IN ASTM SPECIFICATION D1784.

   F. PVC DRAINAGE PIPE: PVC DRAINAGE PIPE SHALL BE C-900 WITH PUSH-ON JOINTS (NO GLUED JOINTS) AND SHALL BE AS SPECIFIED FOR SANITARY SEWER CONSTRUCTION, EXCEPT THAT IT SHALL BE WHITE IN COLOR. ANY PORTION OF THE PVC STORM PIPE THAT MAY BE EXPOSED TO SUNLIGHT, SUCH AS ITS OUTLET TO THE DETENTION POND, SHALL BE PAINTED TO PROTECT IT FROM UV LIGHT.

   G. INLETS, MANHOLES, AND JUNCTION BOXES: ALL DRAINAGE INLETS, MANHOLES, AND JUNCTION BOXES SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND 64T. ALL CONCRETE SHALL HAVE NOT LESS THAN 4000-PSI COMPRESSIVE STRENGTH AT 28 DAYS. STRUCTURE SECTIONS SHALL BE JOINED WITH A MASTIC SEALING COMPOUND. THE REMAINING SPACE SHALL BE FILLED WITH THE CEMENT MORTAR AND FINISHED SO AS TO PRODUCE A SMOOTH CONTINUOUS SURFACE INSIDE AND OUTSIDE THE WALL SECTIONS. ALL OPENINGS IN PRECAST STRUCTURES SHALL BE CAST AT THE TIME OF MANUFACTURE. HOLES FOR PIPING SHALL BE SIX INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE. ALL SPACES BETWEEN THE MANHOLE AND THE PIPE SHALL BE COMPLETELY FILLED WITH MORTAR AND FINISHED SMOOTH. MORTAR USED FOR CONCRETE STRUCTURES SHALL CONFORM TO M C-270. MORTAR MATERIAL SHALL BE MIXED ONE PART TYPE 2 PORTLAND CEMENT TO TWO PARTS AGGREGATE BY VOLUME. PORTLAND CEMENT SHALL CONFORM TO ASTM C-144 AND AGGREGATE SHALL CONFORM TO ASTM C-144. THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH SHOP DRAWINGS OF ALL PRECAST STRUCTURES FOR HIS APPROVAL PRIOR TO FABRICATION. SHOP DRAWINGS SHALL SHOW ALL DIMENSION, REINFORCING STEEL AND SPECIFICATIONS. STORM MANHOLES SHALL BE CONSTRUCTED WITH A TRAFFIC BEARING CAST-IRON SLOTTED GRATE.

   H. TRENCH BACKFILL SHALL BE AS SHOWN IN THE DRAINAGE DETAILS. IN ADDITION, TESTING UNDER PAVED AREAS SHALL BE AS FOLLOWS: ONE TEST LOCATION MIDWAY BETWEEN STRUCTURES AND ONE TEST LOCATION ADJACENT TO EACH STRUCTURE. ENGINEER MAY REQUEST ADDITIONAL LOCATIONS. TESTING IN EACH LOCATION SHALL BEGIN IN THE FIRST FOOT ABOVE THE CULVERT WITH TESTS EVERY TWO FEET TO WITHIN TWO FEET OF THE SUB-GRADE. DENSITY SHALL BE TO 100 PERCENT OF MAXIMUM AS DETERMINED BY AASHTO T-99.

   I. CONTROL STRUCTURES: SHALL BE CONSTRUCTED PER THE ABOVE SPECIFICATIONS FOR INLETS, MANHOLES, AND JUNCTION BOXES EXCEPT THAT THE STRUCTURES SHALL INCLUDE THE BLEEDERS AND WEIRS AS SHOWN ON THE DETAIL.

   J. RIP-RAP ENERGY DISSIPATERS: SHALL BE CONSTRUCTED PER THE DETAILS AND AS SHOWN ON THE DRAWINGS AT THE CONTROL STRUCTURES CS-1, CS-2 & CS-3, THE DOWNSTREAM BUBBLE-UP STRUCTURES. THE RUBBLE SHALL BE OF MATERIAL AND PLACED IN ACCORDANCE TO FDOT SECTION 530-2.3 (MATERIAL) AND FDOT SECTION 530-3.3 (CONSTRUCTION METHODS). SHOULD BROKEN CONCRETE BE USED AS THE RUBBLE, IT SHALL BE FREE FROM REINFORCING BARS OR WIRE MESH. THE CONTRACTOR SHALL USE CARE IN THE PLACEMENT OF THE STONE SO THAT IT IS NOT DROPPED ON THEW FABRIC IN SUCH A FASHION THAT TEARS THE FABRIC. THE FABRIC SHALL BE AS SPECIFIED IN FDOT SECTION 985 AND SHALL BE OF THE WOVEN DESIGN AND AS SPECIFIED FOR USE WITH RIPRAP PER TABLE 1 OF THIS SECTION. THE BEDDING STONE SHALL BE OF THE TYPE TYPICALLY USED FOR DRAINFIELD ROCK AND SHALL MEET THE REQUIREMENTS OF FDOT FOR DRAINFIELD ROCK.

ENGINEER OF RECORD INSPECTION REQUIREMENTS

	F.B.V.		DENSITY		L.B.R.		THICKNESS	
	MAX. SPACING		MAX. SPACING		MAX. SPACING		MAX. SPACING	
	LINEAR FEET	SQUARE FEET	LINEAR FEET	SQUARE FEET	LINEAR FEET	SQUARE FEET	LINEAR FEET	SQUARE FEET
COMPACTED OR STABILIZED GRADE	200	5,000	200	5,000	200	5,000	300	10,000
ROCK BASE	----	----	300	10,000	300	10,000	300	10,000
SHELL ROCK	----	----	300	10,000	----	----	300	10,000
ASPHALT	----	----	----	----	----	----	PER INSP.	PER INSP.

ALL TESTING SHALL BE TAKEN IN A STAGGERED SAMPLING PATTERN FROM A POINT 12" INSIDE THE LEFT EDGE OF THE ITEM TESTED, TO THE CENTER, TO A POINT INSIDE OF THE RIGHT EDGE

ENGINEER OF RECORD INSPECTION REQUIREMENTS
CONTRACTOR TO CALL CONTRACT ENGINEER OF RECORD 48 HOURS ADVANCE FOR FOLLOWING INSPECTIONS:
1. PRECONSTRUCTION MEETING
2. DRAINAGE PIPE (UNCOVERED)
3. PAVEMENT SUBGRADE
4. PAVEMENT BASE
5. FINAL

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PHASE 1 - COMMERCIAL AREAS
LOCATED IN SECTIONS 34&35, TOWNSHIPS 38&39 SOUTH, RANGE 34 EAST, GLADES COUNTY, FLORIDA

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SCALE	NTS
DATE	7/23/2024
SHEET No.	16 OF 16

DATE