STUDIORES
THOMAS DRIVE

FOR:

WEALTH HOSPITALITY
115 W. JACKSON STREET, SUITE 2D
RIDGELAND, MS 39157

VICINITY MAP
NOT TO SCALE

PREPARED BY:

McNEIL CARROLL ENGINEERING, INC.
Professional Engineering Consultants
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850-234-1730
Fax: 850-234-1731
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288

PROJECT 1447.01

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ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/24/25

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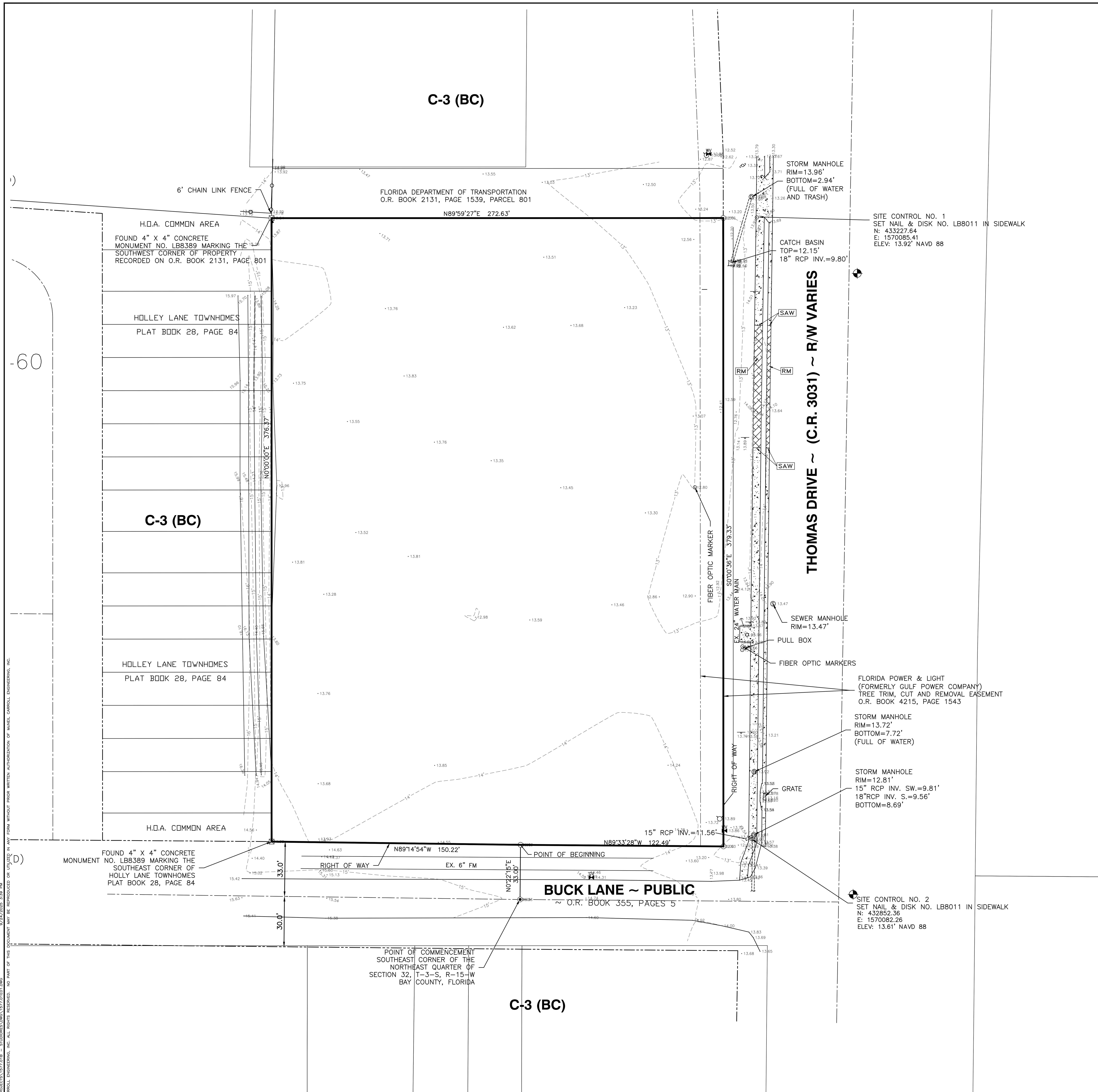

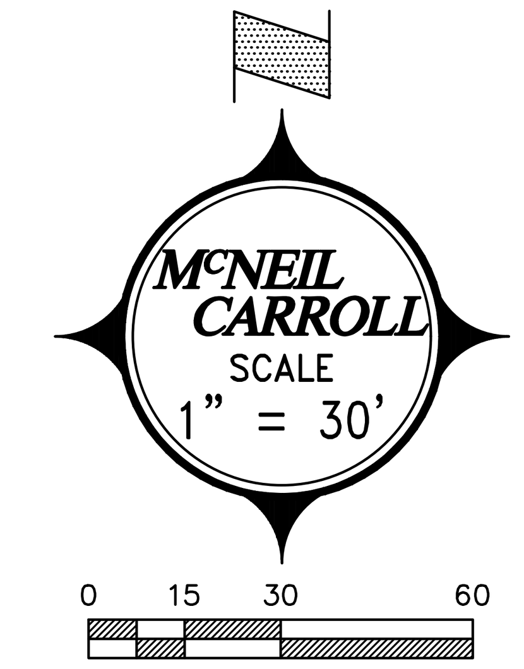

SITE DEMOLITION DRAWING NOTES:

1. SEE SYMBOL LEGEND ON THIS SHEET FOR SYMBOL INFORMATION AND REFERENCED DETAILS.
2. ALL DEMOLISHED MATERIALS (ie., SIGNS, CONCRETE, ASPHALT, ETC...) TO BE REMOVED AND DISPOSED OF IN A LEGAL MANNER.
3. ALTHOUGH EVERY ATTEMPT TO LOCATE UNDERGROUND UTILITIES HAS BEEN MADE, THERE IS THE POSSIBILITY OF UNDERGROUND GAS, ELECTRICAL, WATER SEWER, ETC... THAT HAS NOT BEEN LOCATED. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
4. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR FOLLOWING REQUIRED WASTE MANAGEMENT PRACTICES AS DEFINED IN THE BAY COUNTY MUNICIPAL CODE SECTION 22-91 "UNLAWFUL DISPOSAL OF WASTE, FAILURE TO DELIVER WASTE", WHICH MAKES IT UNLAWFUL FOR ANY PERSON TO DUMP, LEAVE OR BURY ANY SOLID WASTE ON PUBLIC OR OR PRIVATE PROPERTY.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO CALL SUNSHINE ONE AT 811 FOR UTILITY LOCATES PRIOR TO CONSTRUCTION.

SYMBOL LEGEND

- N1 (SEE NOTE ie., #1 - SEE NOTES ON THIS SHEET)
- RJ (REMOVE EXISTING MATERIALS TO NEAREST JOINT)
- RM (REMOVE EXISTING MATERIALS)
- SAW (SAW CUT AND REMOVE EXISTING MATERIALS)

PERMIT PURPOSES ONLY

SITE DEMOLITION PLAN

STUDIORES

THOMAS DRIVE

BAY COUNTY, FLORIDA

SCALE:	SHOWN
DESIGNED BY:	RLC
DRAWN BY:	BLR
REVIEWED BY:	RLC
ISSUE DATE:	9/24/2025
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Sean D. McNeil, P.E.
PROFESSIONAL ENGINEER
FL LC # 49303

Robert L. Carroll, P.E.
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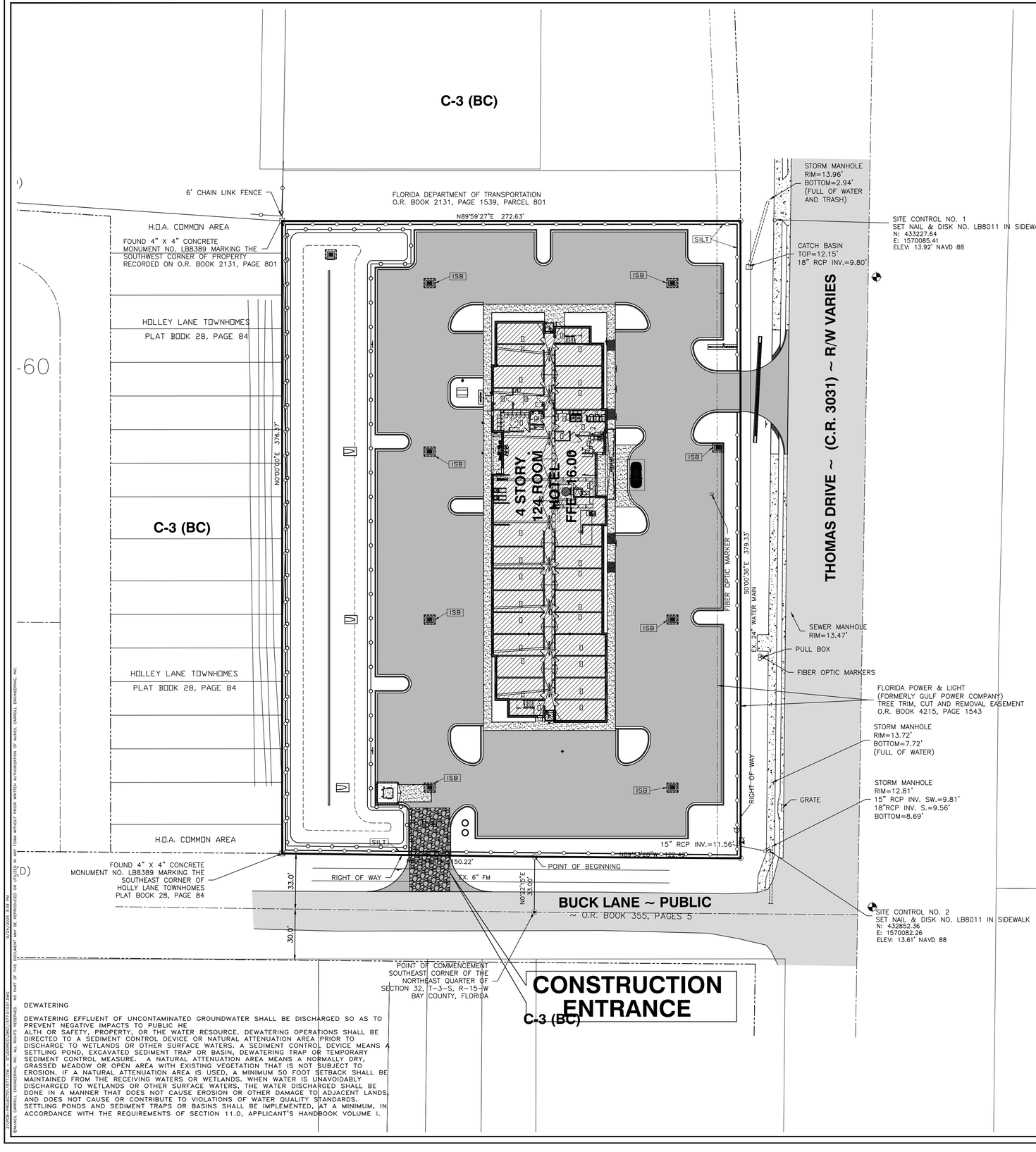
ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER 9/24/25

1447.01 - STUDIORES



DEWATERING

DEWATERING EFFLUENT OF UNCONTAMINATED GROUNDWATER SHALL BE DISCHARGED SO AS TO PREVENT NEGATIVE IMPACTS TO PUBLIC HE ALTH OR SAFETY, PROPERTY, OR THE WATER RESOURCE. DEWATERING OPERATIONS SHALL BE DIRECTED TO A SEDIMENT CONTROL DEVICE OR NATURAL ATTENUATION AREA PRIOR TO DISCHARGE TO WETLANDS OR OTHER SURFACE WATERS. A SEDIMENT CONTROL DEVICE MEANS A SETTLING POND, EXCAVATED SEDIMENT TRAP OR BASIN, DEWATERING TRAP OR TEMPORARY SEDIMENT CONTROL MEASURE. A NATURAL ATTENUATION AREA MEANS A NORMALLY DRY, GRASSED MEADOW OR OPEN AREA WITH EXISTING VEGETATION THAT IS NOT SUBJECT TO EROSION. IF A NATURAL ATTENUATION AREA IS USED, A MINIMUM 50 FOOT SETBACK SHALL BE MAINTAINED FROM THE RECEIVING WATERS OR WETLANDS. WHEN WATER IS UNAVOIDABLY DISCHARGED TO WETLANDS OR OTHER SURFACE WATERS, THE WATER DISCHARGED SHALL BE DONE IN A MANNER THAT DOES NOT CAUSE EROSION OR OTHER DAMAGE TO ADJACENT LANDS, AND DOES NOT CAUSE OR CONTRIBUTE TO VIOLATIONS OF WATER QUALITY STANDARDS. SETTLING PONDS AND SEDIMENT TRAPS OR BASINS SHALL BE IMPLEMENTED, AT A MINIMUM, IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 11.0, APPLICANT'S HANDBOOK VOLUME I.

SITE EROSION CONTROL DRAWING NOTES:

1. EROSION CONTROL SHALL BE MAINTAINED FOR THE DURATION FOR THE PROJECT.
2. ALL CONSTRUCTION OUTSIDE OF PROPERTY LINES IS SHOWN IN DETAIL ON PERMIT DRAWINGS. (SEE GENERAL NOTES.).
3. SEE SYMBOL LEGEND ON THIS SHEET FOR SYMBOL INFORMATION AND REFERENCED DETAILS.
4. SEE SECTIONS IN CONSTRUCTION DETAILS.
5. SILT FENCE TO BE INSTALLED AT PERIMETER OF SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES WILL BE UTILIZED THROUGHOUT THE CONSTRUCTION PHASE OF THIS PROJECT TO RESTRICT ANY TURBID RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
6. CONTROL OF SEDIMENT-LADEN RUNOFF SHALL BE PROVIDED WITH HAY BALES AND/OR GEOTECH STYLE FABRICS. ALL CONTROL MEASURES SHALL BE PROPERLY LOCATED AND CONSTRUCTED TO PREVENT SEDIMENT TRANSPORT. THE MEANS FOR RETAINING THE SEDIMENTS WILL BE MAINTAINED BY THE CONTRACTOR UNTIL PERMANENT IMPROVEMENTS ARE COMPLETE.
7. THE CONTRACTOR IS RESPONSIBLE FOR TREATING ALL ONSITE STORMWATER DRAINAGE AS REQUIRED TO MEET THE CRITERIA OF 62-3 FLORIDA ADMINISTRATIVE CODE, F.A.C. PRIOR TO DISCHARGE.
8. ALL CATCH BASINS, INLETS AND ACCESSES TO UNDERGROUND STORMWATER SYSTEMS SHALL BE PROTECTED IN ACCORDANCE WITH THE ATTACHED DETAILS.
9. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE TERMS AND CONDITIONS OF ANY STORMWATER PERMITS THAT MAY APPLY (FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, FLORIDA DEPARTMENT OF TRANSPORTATION, BAY COUNTY, WATER MANAGEMENT DISTRICT, ETC.).
10. CONSTRUCTION DRIVES SHALL SLOPE AWAY FROM THE ROADWAY AT A MINIMUM SLOPE OF 2.00% TO DISTANCE OF NOT LESS THAN 15 FEET FROM THE EDGE OF PAVEMENT. THE MAXIMUM WIDTH OF THE DRIVE SHALL BE 30 FEET WITH #57 GRAVEL SURFACE 6 INCHES THICK. SIGNS SHALL BE PLACED (IN ACCORDANCE WITH CITY AND STATE REQUIREMENTS) TO WARN APPROACHING DRIVERS AND PEDESTRIANS.
11. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR FOLLOWING REQUIRED WASTE MANAGEMENT PRACTICES AS DEFINED IN THE BAY COUNTY MUNICIPAL CODE SECTION 22-91 "UNLAWFUL DISPOSAL OF WASTE, FAILURE TO DELIVER WASTE", WHICH MAKES IT UNLAWFUL FOR ANY PERSON TO DUMP, LEAVE OR BURY ANY SOLID WASTE ON PUBLIC OR OR PRIVATE PROPERTY.
12. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR OBTAINING COVERAGE UNDER THE FDEP GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES PRIOR TO START OF CONSTRUCTION OR ANY DISTURBANCE OF LAND GREATER THAN 1 ACRE. THE DEVELOPER/CONTRACTOR WILL FORWARD A COPY OF THE PERMIT AND WILL PROVIDE 48 HOUR NOTIFICATION TO THE APPROPRIATE AGENCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL REQUIRED ELEMENTS OF THE SWPP MUST BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION. FAILURE TO COMPLY COULD RESULT IN CODE ENFORCEMENT ACTION AND FINES.
13. QUALIFIED PERSONNEL SHALL INSPECT THE FOLLOWING ITEMS AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND/OR WITHIN 24 HOURS OF THE END OF A STORM EVENT (RAINFALL) THAT IS A 1/2 INCH OR GREATER:
    A. POINTS OF DISCHARGE TO WATERS OF THE UNITED STATES.
    B. POINTS OF DISCHARGE TO MUNICIPAL SEPARATE STORM WATER SYSTEMS.
    C. DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
    D. AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
    E. STRUCTURAL CONTROLS.
    F. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.
14. THE CONTRACTOR SHALL INITIATE REPAIRS WITHIN 24 HOURS OF INSPECTION THAT INDICATE ITEMS ARE NOT IN GOOD WORKING ORDER. TO COMPLY, THE CONTRACTOR SHALL INSTALL AND MAINTAIN RAIN GAGES AND DAILY RAINFALL RECORDS. WHERE SITES HAVE BEEN PERMANENTLY STABILIZED, INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH. THE CONTRACTOR SHALL ALSO INSPECT AND CERTIFY THAT CONTROLS INSTALLED IN THE FIELD AGREE WITH THE LATEST STORMWATER POLLUTION PREVENTION PLAN.
15. IF INSPECTIONS INDICATE THAT THE INSTALLED STABILIZATION AND STRUCTURAL PRACTICES ARE NOT SUFFICIENT TO MINIMIZE EROSION, RETAIN SEDIMENT, AND PREVENT DISCHARGING POLLUTANTS, THE CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES, WHERE SITES HAVE BEEN PERMANENTLY STABILIZED, INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH. AS NEEDED.
16. RECORDS OF THE INSPECTIONS AND THE CONSTRUCTION PERMIT MUST BE MAINTAINED AT THE CONSTRUCTION SITE AND BE READILY AVAILABLE FOR INSPECTION.
17. ALL STORMWATER MANAGEMENT FACILITIES AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, DEMOLITION OR OTHER DISTURBANCE TO THE SUBJECT SITE.

CONSTRUCTION SEQUENCE AND BMP'S NWFWMD

18. THE INITIAL PART OF THE CONSTRUCTION PROCESS SHALL BE THE INSTALLATION OF SILT FENCE AROUND THE PERIMETER OF THE AREA THAT IS TO BE DISTURBED TO ENSURE NO TURBID RUNOFF LEAVES THE CONSTRUCTION SITE. THE SILT FENCE SHALL BE INSTALLED PER THE CONSTRUCTION DETAILS. IF THERE IS A POSSIBILITY OF RUNOFF TO A WATER BODY, TURBIDITY CURTAIN SHALL BE INSTALLED PER THE CONSTRUCTION DETAILS. THE SECOND STEP SHALL BE THE INSTALLATION OF THE CONSTRUCTION ENTRANCE AND DEMOLITION OF ANY EXISTING IMPROVEMENTS AS NEEDED (SEE DEMOLITION PLAN). THE THIRD STEP SHALL BE TO CLEAR AND GRUB AREAS WHERE IMPROVEMENTS ARE TO BE INSTALLED. AS FILL IS BROUGHT INTO THE SITE, THE STORMWATER BASIN SHOULD BE CREATED TO CAPTURE ANY OVERLAND FLOW AND ACT AS A SEDIMENT TRAP. IT IS RECOMMENDED THAT THE BASIN BE CONSTRUCTED APPROXIMATELY ½' HIGHER THAN DESIGN AT THIS POINT TO ENSURE ALL SILTS AND FINES ARE REMOVED AT THE TIME OF FINAL GRADING OF THE STORMWATER BASIN.
19. TYPICALLY, THE SANITARY SEWER, STORM SEWER, AND WATER MAINS ARE INSTALLED RESPECTIVELY. UPON INSTALLATION OF THE STORM SEWER, HAY BALES AND FILTER FABRICS SHALL BE USED AT ALL INLET OPENINGS PER THE CONSTRUCTION DETAILS TO THE KEEP THE SYSTEM FREE OF SEDIMENTS DURING THE CONSTRUCTION PHASE. DEPENDING ON SITE CONDITIONS AND SIZE, SEDIMENT TRAPS SHALL BE UTILIZED TO PREVENT TURBID RUNOFF FROM LEAVING THE SITE (SEE EROSION CONTROL PLAN).
20. SITE STABILIZATION SHALL BE PROVIDED AS SOON AS THE GRADING WILL ALLOW IN ORDER TO STOP EROSION AND REDUCE TURBID RUNOFF. SEEDING, SODDING, OR HYDROSEEDING SHALL BE USED WHEN FINAL GRADES ARE ESTABLISHED.
21. EROSION CONTROL MEASURES SHALL BE UTILIZED THROUGHOUT THE CONSTRUCTION PHASE OF THIS PROJECT AND BE MANAGED IN ACCORDANCE THE THE STATE NPDES PROGRAM.
22. THE DESIGN OF THE STORMWATER MANAGEMENT SYSTEM FOR THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT.
23. THE ENGINEER OF RECORD IS RESPONSIBLE FOR MONITORING CONSTRUCTION OF THE STORMWATER MANAGEMENT FACILITY AND SUBMITTING TO THE APPROPRIATE AGENCY NOTICE OF COMMENCEMENT AND AS-BUILT CERTIFICATIONS FOR THE PROJECT WHEN COMPLETED.

SYMBOL LEGEND

⟹ (STORMWATER SURFACE FLOW)
ISB (INLET SEDIMENT BARRIER – SEE CONSTRUCTION DETAILS)
SILT (SILT FENCE – SEE CONSTRUCTION DETAILS)
PVG (24' WIDE x 50' DEEP FDOT #1 OR #2 GRAVEL CONSTRUCTION ENTRANCE 6" THICK)

McNEIL CARROLL
SCALE
1" = 30'
0 15 30 60

PERMIT PURPOSES ONLY

SITE EROSION CONTROL PLAN
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE:	SHOWN
DESIGNED BY:	RLC
DRAWN BY:	BLR
REVIEWED BY:	RLC
ISSUE DATE:	9/24/2025
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FL LC # 49303

Robert L. Carroll, P.E.
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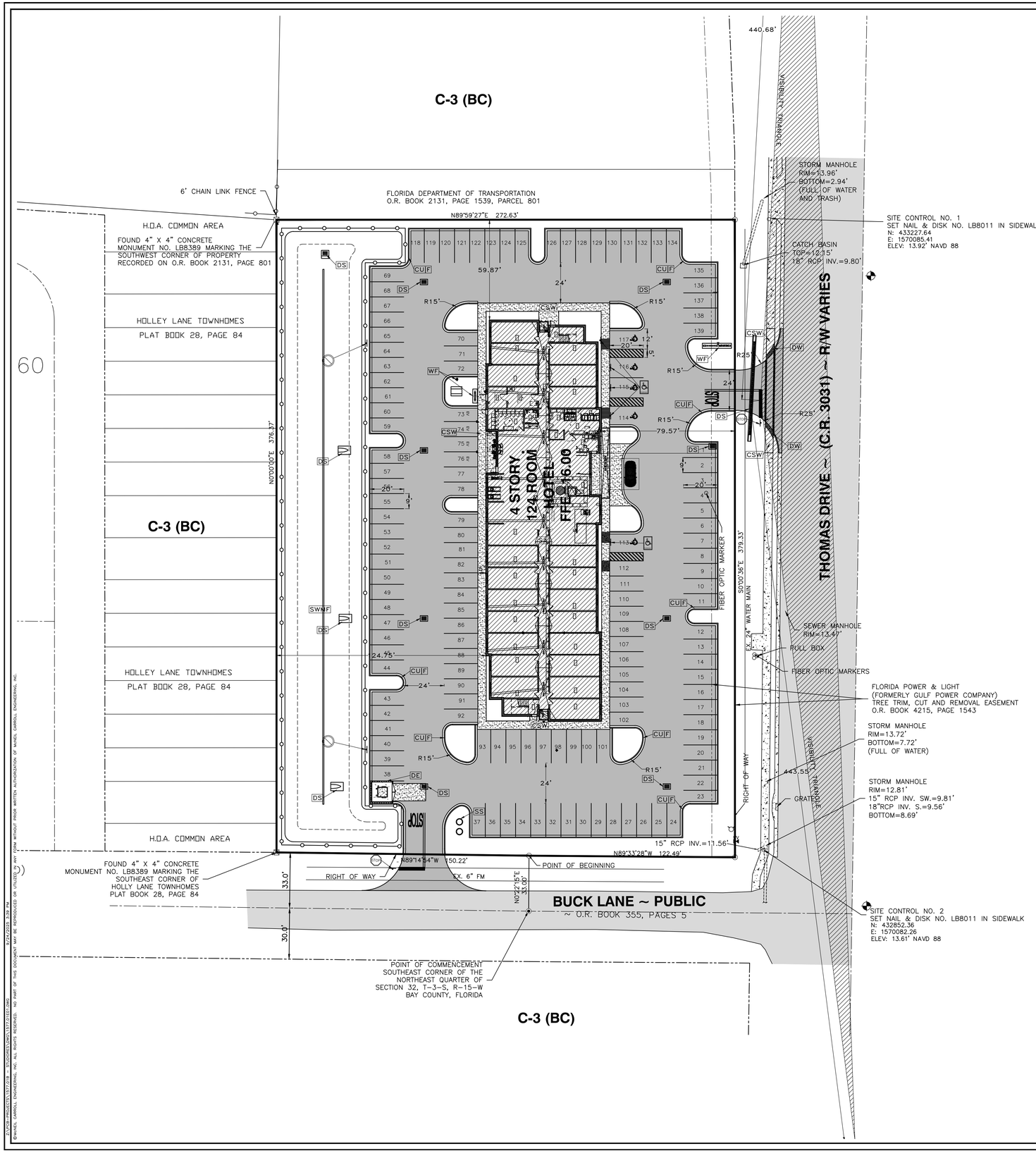
ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/24/25

SHEET NUMBER 2 OF 13

1447.01 – STUDIORES



SITE LAYOUT DRAWING NOTES:

1. ALL RADII AT FACE OF CURB ARE 5' UNLESS OTHERWISE SHOWN.
2. CONTRACTOR SHALL PROVIDE McNEIL CARROLL ENGINEERING, INC. FIVE (5) SETS OF AS-BUILT DRAWINGS AND ONE (1) DIGITAL COPY (AUTOCAD FORMAT) OF THE COMPLETED PROJECT. DRAWINGS SHALL BE PREPARED AND SIGNED & SEALED BY A FLORIDA REGISTERED SURVEYOR.
3. ALL DIMENSIONS AT CURB ARE FROM FACE OF CURB.
4. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION AND SODDED PER FDOT INDEX 105.
5. A COPY OF ALL REGULATORY PERMITS SHALL BE KEPT ON SITE.
6. THE CONTRACTOR SHALL REVIEW THE COMPLETE NWFWMD PERMIT PRIOR TO CONSTRUCTION COMMENCEMENT.
7. AN 8 1/2 x 11 NWFWMD WEATHER RESISTANT SIGN, INCLUDING THE PERMIT NUMBER SHALL BE PLACED ON THE PROPERTY FACING THE ROAD.
8. ALL PROPOSED UTILITIES TO BE PLACED UNDERGROUND.
9. ALL ABOVE GROUND UTILITIES TO BE SCREENED BY LANDSCAPING.

SYMBOL LEGEND

- STOP (DENOTES NEW "STOP" SIGN)
- (DENOTES NEW "HANDICAP PARKING" SIGN)
- (DENOTES NEW "IN-WATER RECREATION IS PROHIBITED" SIGN)
- * (DENOTES CRITICAL DIMENSION TO OUTSIDE FACE OF BUILDING)

- CSW (CONCRETE SIDEWALK – SEE CONSTRUCTION DETAILS)
- CUF (F.D.O.T. CURB ie., TYPE F)
- DE (DUMPSTER ENCLOSURE – SEE CONSTRUCTION DETAILS)
- DS (DRAINAGE STRUCTURE – SEE GRADING & DRAINAGE PLAN)
- DW (DETECTABLE WARNINGS – SEE CONSTRUCTION DETAILS)
- FDOT (SEE F.D.O.T. CONNECTION PERMIT)
- N1 (SEE NOTE ie., #1 – SEE NOTES ON THIS SHEET)
- RP (RAMP – SEE GRADING & DRAINAGE PLAN)
- SA (SEE ARCH. PLANS)
- SS (SEWER STRUCTURE – SEE UTILITY PLAN)
- SWMF (STORM WATER MANAGEMENT FACILITY)
- WF (WATER FIXTURE – SEE UTILITY PLAN)
- DW (DETECTABLE WARNINGS – SEE CONSTRUCTION DETAILS)

McNEIL CARROLL
SCALE
1" = 30'
0 15 30 60

SITE DATA TABLE		
PARCEL ID: 27883-025-000 & 27916-015-000		
GOVERNING ENTITY – BAY COUNTY		
ZONING – C-3 GENERAL COMMERCIAL (BAY COUNTY)		
TOTAL AREA OF SITE: 103,074 SQUARE FEET – 2.37 ACRES		
TOTAL BUILDING AREA: 13,797 SQUARE FEET PER FLOOR – 0.32 ACRES PER FLOOR		
FLOOD ZONES ON PROPERTY – X		
	ALLOWED/REQUIRED	PROPOSED
TOTAL IMPERVIOUS AREA	77,306 SQUARE FEET – 1.77 ACRES	69,631 SQUARE FEET – 1.59 ACRES
IMPERVIOUS SURFACE RATIO	0.75	0.68
FLOOR AREA RATIO	2.00	0.54
DENSITY	N/A	N/A
OPEN SPACE AREA	25,769 SQUARE FEET – 0.59 ACRES	33,443 SQUARE FEET – 0.77 ACRES
OPEN SPACE RATIO	0.25 MIN.	0.32
FRONT YARD SETBACK	25 FEET	79.57 FEET
SIDE YARD SETBACK	5 FEET	59.87 FEET
REAR YARD SETBACK	20 FEET	124.75 FEET

PARKING SPACE SCHEDULE				
NO.	ANGLE	WIDTH	DEPTH	NOTES:
1–112	90°	9	20	
113	90°	12	20	W/ DRIVERS SIDE 5' WIDE AISLE
114	90°	12	20	W/ PASSENGERS SIDE 5' WIDE AISLE
115	90°	12	20	W/ DRIVERS SIDE 5' WIDE AISLE
116	90°	12	20	W/ PASSENGERS SIDE 5' WIDE AISLE
117	90°	12	20	W/ DRIVERS SIDE 5' WIDE AISLE
118–139	90°	9	20	

ALL PARKING STALLS SHALL BE 4" WHITE STRIPING ON ASPHALT AND 4" YELLOW ON CONCRETE. HANDICAP SIGNAGE AND STRIPING SHALL BE TO STATE AND CITY CODE. LANE SEPARATION LINES SHALL BE 6" WIDE.

REQUIRED PARKING CALCULATION			
PROPOSED USE	PARKING REQUIREMENT	SQUARE FOOTAGE/UNITS	SPACES REQUIRED
HOTEL	1.1 PER SUITE	124 UNITS	137
		TOTAL PARKING REQUIRED =	137
		TOTAL PARKING PROVIDED =	139

TRIP GENERATION SCHEDULE				
DESCRIPTION/ ITE CODE	UNIT DESIGNATION	EXPECTED UNITS	EXPECTED DAILY TRIPS	P.M. PEAK TRIPS
ALL SUITES HOTEL / 311	ROOM	124	526	46

CALCULATION DERIVED FROM ITE 10th. EDITION.

PERMIT PURPOSES ONLY

SITE LAYOUT PLAN
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE: SHOWN
DESIGNED BY: RLC
DRAWN BY: BLR
REVIEWED BY: RLC
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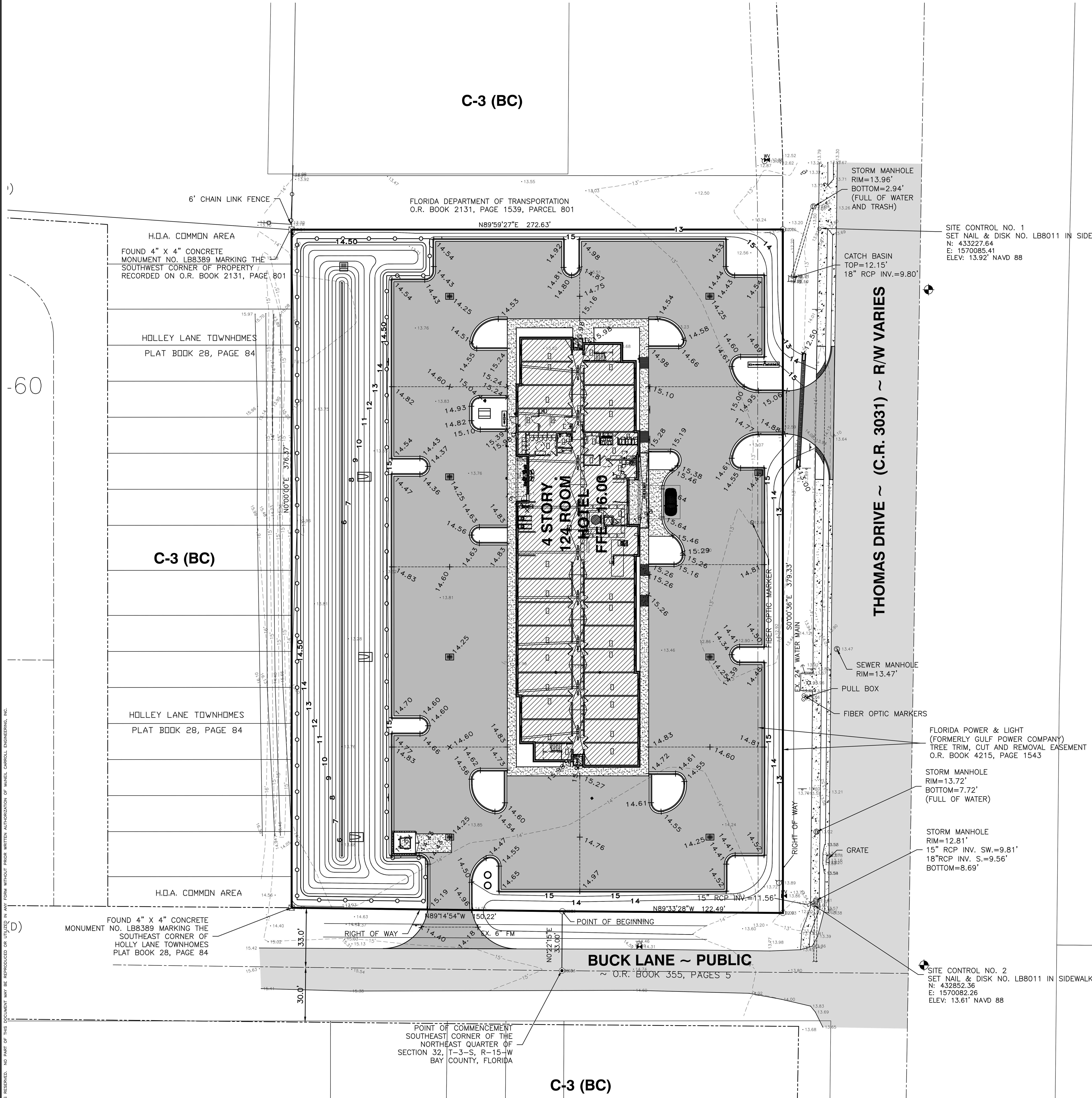
9/24/25

SHEET NUMBER 3 OF 13

1447.01 – STUDIORES



SITE GRADING AND DRAINAGE DRAWING NOTES:

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2. ALL DEMOLISHED MATERIALS (ie., SIGNS, CONCRETE, ASPHALT, ETC...) TO BE REMOVED AND DISPOSED OF IN A LEGAL MANNER. ALL EXISTING MONITORING WELLS ARE NOT TO BE REMOVED. WELLS IN PAVEMENT SHALL HAVE A MANHOLE LID INSTALLED.
3. SEE SECTIONS IN CONSTRUCTION DETAILS.
4. ALL DRAINAGE PIPES TO BE DEDICATED TO THE CITY OF PANAMA CITY BEACH SHALL BE VIDEO RECORDED AND PLACED ON A DIGITAL MEDIA (NO TAPES). VIDEO MUST BE REVIEWED AND APPROVED BY THE CITY.
5. PROPOSED FINISHED FLOORS SHALL BE 1 FOOT (MIN.) ABOVE ROADWAY CENTERLINE.
6. CONTRACTOR SHALL PROVIDE McNEIL CARROLL ENGINEERING, INC. FIVE (5) SETS AND ONE (1) DIGITAL COPY (AUTOCAD FORMAT) OF AS-BUILT DRAWINGS OF THE COMPLETED PROJECT. DRAWINGS SHALL BE PREPARED AND SIGNED & SEALED BY A FLORIDA REGISTERED SURVEYOR.
7. IT IS THE CONTRACTORS RESPONSIBILITY TO CALL SUNSHINE ONE AT 811 FOR UTILITY LOCATES PRIOR TO CONSTRUCTION.
8. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION AND SODDED PER FDOT INDEX 105.

SYMBOL LEGEND

- ·34.60 (EXISTING SPOT ELEVATION)
- —36— (EXISTING CONTOUR)
- +12.50 (PROPOSED FINISHED GRADE)
- ⟹ (STORMWATER SURFACE FLOW)

McNEIL CARROLL

SCALE 1" = 30'

0 15 30 60

PERMIT PURPOSES ONLY

SITE GRADING PLAN
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE: SHOWN
DESIGNED BY: RLC
DRAWN BY: BLR
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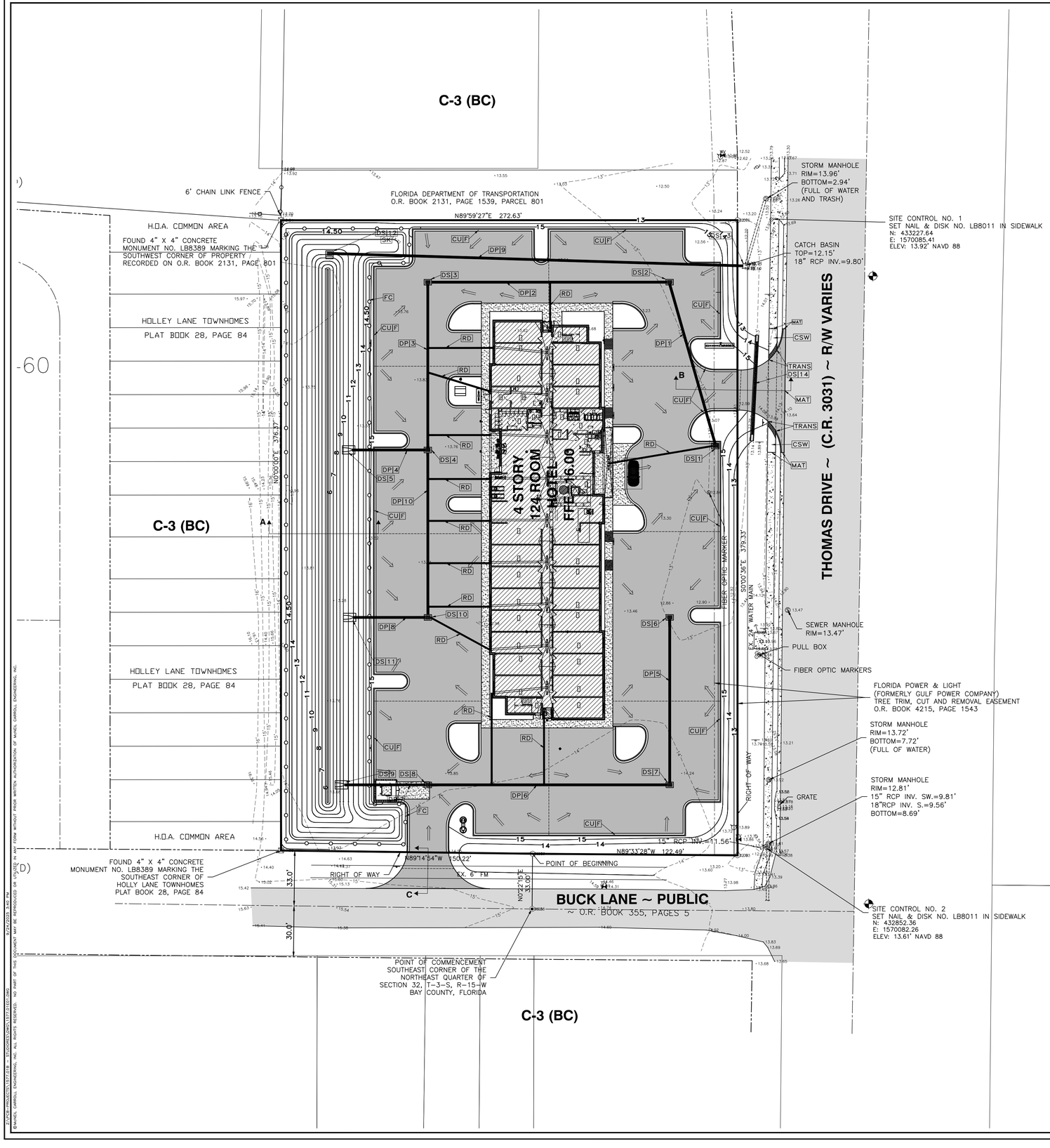
SHEET NUMBER 4 OF 13

1447.01 — STUDIORES



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2. ALL DEMOLISHED MATERIALS (ie., SIGNS, CONCRETE, ASPHALT, ETC...) TO BE REMOVED AND DISPOSED OF IN A LEGAL MANNER. ALL EXISTING MONITORING WELLS ARE NOT TO BE REMOVED. WELLS IN PAVEMENT SHALL HAVE A MANHOLE LID INSTALLED.
3. SEE SECTIONS IN CONSTRUCTION DETAILS.
4. ALL DRAINAGE PIPES TO BE DEDICATED TO THE CITY OF PANAMA CITY BEACH SHALL BE VIDEO RECORDED AND PLACED ON A DIGITAL MEDIA (NO TAPES). VIDEO MUST BE REVIEWED AND APPROVED BY THE CITY.
5. PROPOSED FINISHED FLOORS SHALL BE 1 FOOT (MIN.) ABOVE ROADWAY CENTERLINE.
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7. IT IS THE CONTRACTORS RESPONSIBILITY TO CALL SUNSHINE ONE AT 811 FOR UTILITY LOCATES PRIOR TO CONSTRUCTION.
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SYMBOL LEGEND

- 34.60 (EXISTING SPOT ELEVATION)
- 36 (EXISTING CONTOUR)
- +12.50 (PROPOSED FINISHED GRADE)
- ⟹ (STORMWATER SURFACE FLOW)
- CSW (CONCRETE SIDEWALK- SEE CONSTRUCTION DETAILS)
- CUF (F.D.O.T. CURB ie., TYPE F – SEE CONSTRUCTION DETAILS)
- DP 1 6 (SEE DRAINAGE PIPE SCHEDULE THIS SHEET ie.,#16)
- DS 1 2 (SEE DRAINAGE STRUCTURE SCHEDULE THIS SHEET ie.,#12)
- FC (CHAINLINK FENCE – SEE CONSTRUCTION DETAILS)
- HR (5' WIDE HANDICAP RAMP ie.,12:1 SLOPE)
- PV A (ASPHALT PAVEMENT – SEE CONSTRUCTION DETAILS)
- PV C (CONCRETE PAVEMENT – SEE CONSTRUCTION DETAILS)
- PV H (HEAVY DUTY ASPHALT PAVEMENT – SEE CONSTRUCTION DETAILS)
- MAT (MATCH PROPOSED FLUSH WITH EXISTING SURFACE)
- N 1 (SEE NOTE ie.,#1 – SEE NOTES THIS SHEET)
- RD (ROOF DRAIN CONNECTION – SEE CONSTRUCTION DETAILS)
- SA (SEE ARCHITECTURAL PLANS)
- SWMF 1 (SEE STORM WATER MANAGEMENT FACILITY SCHEDULE THIS SHEET)
- SK (SKIMMER – SEE CONSTRUCTION DETAILS)
- TRANS (TRANSITION CURB 3')

DRAINAGE PIPE SCHEDULE				
NO.	SIZE	LF	TYPE	SLOPE
DP1	18	99	ADS	0.25%
DP2	18	141	ADS	0.25%
DP3	18	98	ADS	0.25%
DP4	18	48	ADS	0.25%
DP5	18	98	ADS	0.25%
DP6	18	141	ADS	1.94%
DP7	18	54	ADS	0.25%
DP8	18	48	ADS	1.63%
DP9	18	236	ADS	0.25%
DP10	18	98	ADS	0.86%

ALL ADS PIPE SHALL BE AS SHOWN OR EQUAL
ALL PERFORATED PIPE SHALL HAVE A GRAVEL PACK
ALL ADS PIPE SHALL BE RATED N-12
SEE CONSTRUCTION DETAILS.

STORM WATER MANAGEMENT FACILITY SCHEDULE					
NO.	BASIN AREA	TOP OF BANK ELEV.	SIDE SLOPE	BOTTOM ELEV.	WATERSHED AREA
SWMF1	0.381 AC.	EL. 14.50	VARIES	EL. 5.50	2.12 AC.

SEE SITE LAYOUT PLAN FOR DIMENSIONS

DRAINAGE STRUCTURE SCHEDULE				
NO.	TYPE STRUCTURE	TOP OF GRATE	PIPE INVERT	SLOT INVERT
DS1	FDOT TYPE C INLET	EL. 14.45	EL. 10.75 N,W	EL.
DS2	FDOT TYPE C INLET	EL. 14.25	EL. 10.50 S,W	EL.
DS3	FDOT TYPE C INLET	EL. 14.25	EL. 10.14 E,S	EL.
DS4	FDOT TYPE C INLET	EL. 14.25	EL. 9.90 N,W	EL.
DS5	18" CONCRETE MITERED END	EL. N/A	EL. 9.78 W	EL.
DS6	FDOT TYPE C INLET	EL. 14.25	EL. 10.75 N,S	EL.
DS7	FDOT TYPE C INLET	EL. 14.25	EL. 10.50 N,W	EL.
DS8	FDOT TYPE C INLET	EL. 14.25	EL. 7.75 E,W	EL.
DS9	18" CONCRETE MITERED END	EL. N/A	EL. 7.60 W	EL.
DS10	FDOT TYPE C INLET	EL. 14.25	EL. 10.75 W	EL.
DS11	18" CONCRETE MITERED END	EL. N/A	EL. 10.00 W	EL.
DS12	FDOT TYPE C INLET	EL. 14.15	EL. 14.00 E	EL. 2.5"@12.70 & 6"@14.00
DS13	EXISTING CATCH BASIN	EL. 12.15	EL. 9.80 W,N	EL.
DS14	TRENCH DRAIN	EL. 12.15	EL. 13.00	EL.

SEE CONSTRUCTION DETAILS.
2' SUMP UNLESS OTHERWISE NOTED.

STORMWATER OPERATION AND MAINTENANCE SCHEDULE

(A) STORMWATER MANAGEMENT SYSTEM SHALL BE OPERATED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED DESIGN, PLANS AND CALCULATIONS.
(B) THE OPERATION AND MAINTENANCE ENTITY SHALL PROVIDE FOR THE INSPECTION OF THE STORMWATER MANAGEMENT SYSTEM IN ACCORDANCE WITH SUBSECTION 62-346.095(6), F.A.C. DURING THE INSPECTION, SPECIAL ATTENTION SHOULD BE MADE TO INSURE THAT:
  1. ALL EROSION IS CONTROLLED AND SOIL IS STABILIZED TO PREVENT SEDIMENT DISCHARGE TO WATERS IN THE STATE.
  2. THE SURFACE WATER MANAGEMENT SYSTEM IS KEPT FREE OF DEBRIS, TRASH, GARBAGE, OILS AND GREASES, AND OTHER REFUSE.
  3. ENGINEERED STORMWATER MANAGEMENT SYSTEM THAT INCLUDE OIL AND GREASE SEPARATORS, SKIMMERS, OR COLLECTION DEVICES ARE WORKING PROPERLY AND DO NOT ALLOW THE DISCHARGE OF OIL OR GREASES. OILS AND GREASES OR OTHER MATERIALS REMOVED FROM SUCH A DEVICE DURING ROUTINE MAINTENANCE SHALL BE DISPOSED OF AT A SANITARY LANDFILL OR BY OTHER LAWFUL MEANS.
  4. ALL STRUCTURES WITHIN STORMWATER MANAGEMENT SYSTEMS HAVE NOT BECOME CLOGGED OR CHOKED WITH VEGETATIVE OR AQUATIC GROWTH TO SUCH AN EXTENT AS TO RENDER THEM INOPERABLE.
(C) INSPECTIONS OF THE PERMITTED SYSTEM SHOULD BE CONDUCTED AT LEAST ONCE EVERY THIRD YEAR AFTER CONVERSION OF A PERMIT TO THE OPERATION PHASE.

McNEIL CARROLL
SCALE
1" = 30'
0 15 30 60

PERMIT PURPOSES ONLY

SITE DRAINAGE PLAN
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE: SHOWN
DESIGNED BY: RLC
DRAWN BY: BLR
REVIEWED BY: RLC
ISSUE DATE: 9/24/2025
C/To: 1577.01E01
NOT RELEASED FOR CONSTRUCTION BY: DATE:

McNEIL CARROLL ENGINEERING, INC.
Professional Engineering Consultants
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850-234-1730
Fax: 850-234-1731

NO.	DATE	BY	REVISIONS
01			
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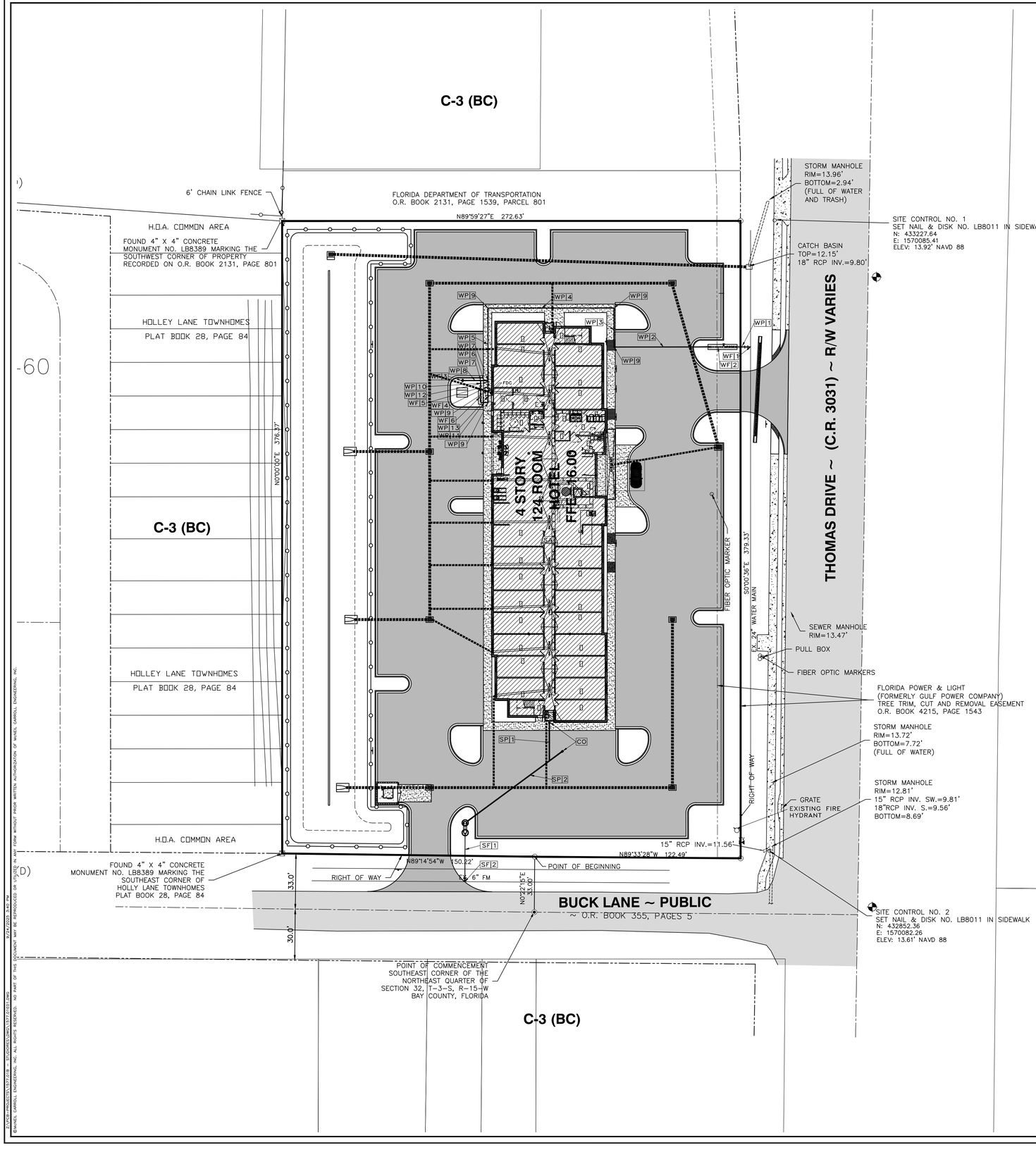
Sean D. McNeil, P.E.
PROFESSIONAL ENGINEER
FL LIC # 49303

Robert L. Carroll, P.E.
PROFESSIONAL ENGINEER
FL LIC # 57988

ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/24/25

SHEET NUMBER 5 OF 13

1447.01 – STUDIORES



SITE UTILITY DRAWING NOTES:

1. SEE SYMBOL LEGEND ON THIS SHEET FOR SYMBOL INFORMATION AND REFERENCED DETAILS.
2. SEE SECTION AND DETAILS IN CONSTRUCTION DETAILS.
3. ALL PROPOSED UTILITIES SHALL BE PLACED UNDERGROUND.
4. ALL SEWER LINES TO BE DEDICATED TO THE CITY OF PANAMA CITY BEACH SHALL BE VIDEO RECORDED AND PLACED ON A DIGITAL MEDIA (NO TAPES). VIDEO MUST BE REVIEWED AND APPROVED BY THE CITY.
5. CONTRACTOR SHALL PROVIDE McNEIL CARROLL ENGINEERING, INC. FIVE (5) SETS AND ONE (1) DIGITAL COPY (AUTOCAD FORMAT) OF AS-BUILT DRAWINGS OF THE COMPLETED PROJECT. DRAWINGS SHALL BE PREPARED AND SIGNED & SEALED BY A FLORIDA REGISTERED SURVEYOR.
6. IT IS THE CONTRACTORS RESPONSIBILITY TO CALL SUNSHINE ONE AT 811 FOR UTILITY LOCATES PRIOR TO CONSTRUCTION.
7. ALL GRAVITY SEWER LINES SHALL BE VIDEO RECORDED AND PLACED ON DIGITAL MEDIA (NO TAPES). VIDEO MUST BE REVIEWED AND APPROVED BY McNEIL CARROLL ENGINEERING, INC.
8. ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION AND SODDED PER FDOT INDEX 105.

SYMBOL LEGEND

- CO (8" CLEANOUT – SEE CONSTRUCTION DETAILS)
- N|1 (SEE NOTE ie., #1 – SEE NOTES THIS SHEET)
- SA (SEE ARCHITECTURAL PLANS)
- SF|8 (SEE SEWER FORCE MAIN PIPE SCHEDULE THIS SHEET ie.,#8 SEE CONSTRUCTION DETAILS)
- SP|16 (SEE GRAVITY SEWER PIPE SCHEDULE THIS SHEET ie.,#16 SEE CONSTRUCTION DETAILS)
- SS|12 (SEE SEWER STRUCTURE SCHEDULE THIS SHEET ie.,#12 SEE CONSTRUCTION DETAILS)
- WF|14 (SEE WATER FIXTURE SCHEDULE THIS SHEET ie.,#14 SEE CONSTRUCTION DETAILS)
- WP|10 (SEE WATER PIPE SCHEDULE THIS SHEET ie.,#10 SEE CONSTRUCTION DETAILS)

McNEIL CARROLL
SCALE
1" = 30'
0 15 30 60

WATER MAIN PIPE SCHEDULE

NO.	SIZE	LF	TYPE
WP1	6"	6	PVC
WP2	6"	57	PVC
WP3	6"	23	PVC
WP4	6"	75	PVC
WP5	6"	43	PVC
WP6	6"	4	PVC
WP7	6"	––	TEE
WP8	6"	10	PVC
WP9	6"	––	90° BEND
WP10	6"	3	PVC
WP11	6"	4	PVC
WP12	6"X3"	––	REDUCER
WP13	3"	7	PVC

LESS THAN 4" WATER MAIN – ASTM D2241 SDR-21
4"-6" WATER MAIN – AWWA C900 DR18
8"-12" WATER MAIN – AWWA C900 DR25
ALL LINES SHALL BE THE COLOR BLUE.

WATER FIXTURE SCHEDULE

NO.	TYPE
WF1	24"X6" TAPPING SLEEVE WITH VALVE ASSEMBLY
WF2	4" WATER METER & 6" BACKFLOW ASSEMBLY W/ BYPASS
WF3	FIRE HYDRANT ASSEMBLY
WF4	3" VALVE ASSEMBLY
WF5	6" VALVE ASSEMBLY
WF6	6" DOUBLE DETECTOR ASSEMBLY

SEE CONSTRUCTION DETAILS.
ALL LINES SHALL BE THE COLOR BLUE

GRAVITY SEWER PIPE SCHEDULE

NO.	SIZE	LF	TYPE	SLOPE
SP1	8"	22	PVC	0.45%
SP2	8"	70	PVC	0.45%

4-15" SEWER PIPE – ASTM D3034 SDR35
ALL LINES SHALL BE THE COLOR GREEN.

FORCE MAIN SEWER PIPE SCHEDULE

NO.	SIZE	LF	TYPE
SF1	3"	27	PVC
SF2	––	––	6"X3" TAPPING SLEEVE WITH VALVE ASSEMBLY

LESS THAN 4" – ASTM D2241 SDR21
4"-6" FORCE MAIN – AWWA C900 DR18
8"-12" FORCE MAIN – AWWA C900 DR25
GREATER THAN 12" FORCE MAIN – AWWA C905 DR25
ALL LINES SHALL BE THE COLOR GREEN.

SEWER STRUCTURE SCHEDULE

NO.	TYPE STRUCTURE	TOP OF M.H.	NORTH INVERT	SOUTH INVERT	EAST INVERT	WEST INVERT
SS1	GRINDER STATION	EL. 15.10	EL. 10.82	EL. 12.00	EL.	EL.

SEE CONSTRUCTION DETAILS.

PERMIT PURPOSES ONLY

SITE UTILITY PLAN
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE: SHOWN
DESIGNED BY: RLC
DRAWN BY: BLR
REVIEWED BY: RLC
ISSUE DATE: 9/24/2025
CF/D: 1577.01E01
NOT RELEASED FOR CONSTRUCTION BY: DATE:

McNEIL CARROLL ENGINEERING, INC.
Professional Engineering Consultants
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850-234-1730
Fax: 850-234-1731

NO.	DATE	BY	REVISIONS
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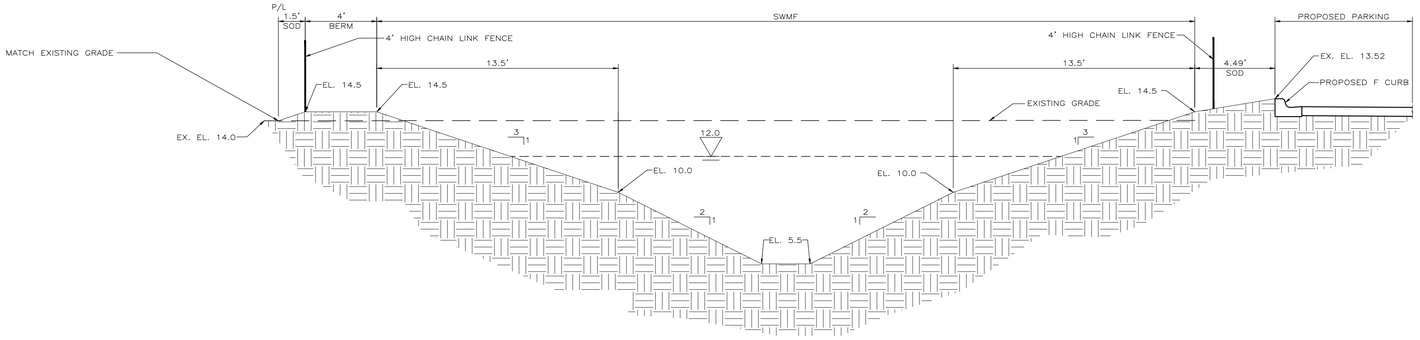
Sean D. McNeil, P.E.
PROFESSIONAL ENGINEER
FL LIC # 49303

Robert L. Carroll, P.E.
PROFESSIONAL ENGINEER
FL LIC # 57988

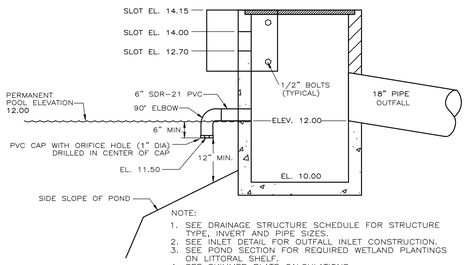
ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/24/25

SHEET NUMBER 6 OF 13

1447.01 – STUDIORES

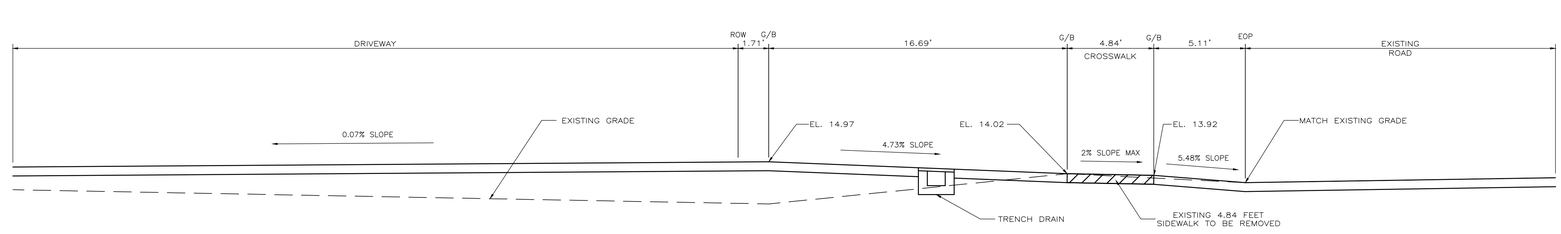


SECTION A
NOT TO SCALE

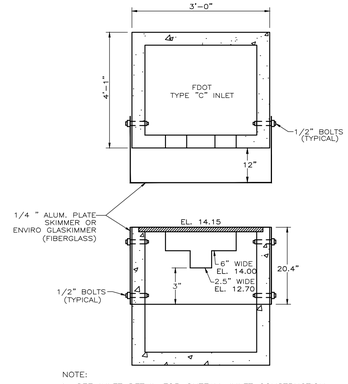


NOTE:
1. SEE DRAINAGE STRUCTURE SCHEDULE FOR STRUCTURE TYPE, INVERT AND PIPE SIZES.
2. SEE INLET DETAIL FOR OUTFALL INLET CONSTRUCTION.
3. SEE POND SECTION FOR REQUIRED WETLAND PLANTINGS ON LITTORAL SHELF.
4. SEE SKIMMER PLATE CALCULATIONS.
5. SEE STORMWATER CALCULATIONS.

OUTFALL STRUCTURE DETAIL
NOT TO SCALE

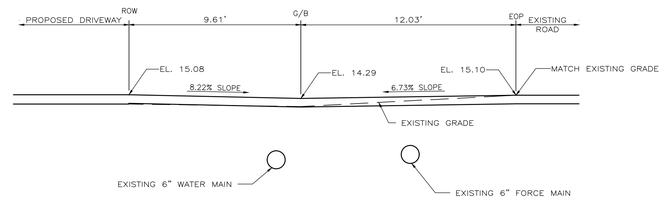


SECTION B
NOT TO SCALE



NOTE:
1. SEE INLET DETAIL FOR OUTFALL INLET CONSTRUCTION.
2. SEE SKIMMER PLATE CALCULATIONS.
3. SEE STORMWATER CALCULATIONS.

SKIMMER PLATE DETAIL
NOT TO SCALE



SECTION C
NOT TO SCALE

PERMIT PURPOSES ONLY

CROSS SECTIONS
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE:	SHOWN
DESIGNED BY:	RLC
DRAWN BY:	BLR
REVIEWED BY:	RLC
ISSUE DATE:	9/24/2025
CF/Dr	1577.01E02
NOT RELEASED FOR CONSTRUCTION BY: DATE:	

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Sean D. McNeil, P.E.
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Robert L. Carroll, P.E.
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ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/24/25

SHEET NUMBER 7 OF 13

1577.01 – STUDIORES

GENERAL NOTES

PREVENTION, CONTROL AND ABATEMENT OF EROSION

ALL ON AND OFF SITE WORK INCLUDED CONSISTS OF BUT NOT LIMITED TO THE FOLLOWING:

I0.2643; SEEDING AND MULCHING OR SODDING FOR STABILIZATION.

CONSTRUCTION OF SEDIMENT BASINS, CHECK DAMS OR FLOATING BARRIERS.

PLACEMENT OF SILTATION FENCES DURING THE COURSE OF CONSTRUCTION.

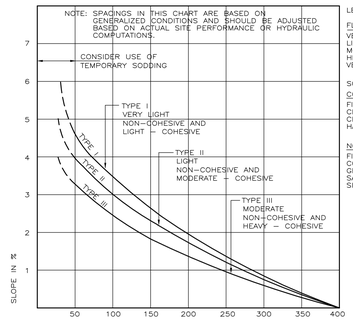
SILT FENCE TO BE INSTALLED AT PERIMETER OF SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES WILL BE UTILIZED THROUGHOUT THE CONSTRUCTION PHASE OF THIS PROJECT TO RESTRICT ANY TURBID RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CONTROL OF SEDIMENT–LADEN RUNOFF SHALL BE PROVIDED WITH HAY BALES AND/OR GEOTECH STYLE FABRICS. ALL CONTROL MEASURES SHALL BE PROPERLY LOCATED AND CONSTRUCTED TO PREVENT SEDIMENT TRANSPORT. THE MEANS FOR RETAINING THE SEDIMENTS WILL BE MAINTAINED BY THE CONTRACTOR UNTIL PERMANENT IMPROVEMENTS ARE COMPLETE.

THE CONTRACTOR IS RESPONSIBLE FOR TREATING ALL ONSITE STORM WATER DRAINAGE AS REQUIRED TO MEET THE CRITERIA OF 62–3 FLORIDA ADMINISTRATIVE CODE, F.A.C. PRIOR TO DISCHARGE.

ALL CATCH BASINS, INLETS AND ACCESSES TO UNDERGROUND STORM WATER SYSTEMS SHALL BE PROTECTED IN ACCORDANCE WITH THE ATTACHED DETAILS.

THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE TERMS AND CONDITIONS OF ANY STORM WATER PERMITS THAT MAY APPLY (FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, FLORIDA DEPARTMENT OF TRANSPORTATION, BAY COUNTY, WATER MANAGEMENT DISTRICT, ETC.).



LEGEND

FLOW RATES (CFS)

VERY LIGHT	<5
LIGHT	>5 <10
MODERATE	>10 <15
HEAVY	>15 <25
VERY HEAVY	>25 <40

SOILS

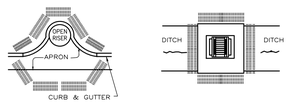
COHESIVE

FIRM LOAM
CLAY SANDS
CLAYS
HARDPANS

NON–COHESIVE

FINE SAND
COURSE SAND
GRAVELS
SANDY LOAM
SILT LOAM

FDOT CHART I (BALED HAY OR STRAW BARRIERS AND SILT FENCES - INDEX 102

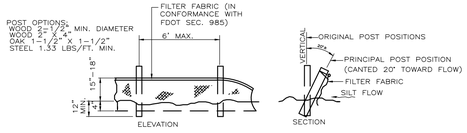


PARTIAL INLET

DITCH BOTTOM INLET

ANCHOR BALES WITH 2 – 2"x2"x4' STAKES PER BALE (SEE DETAIL)

PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

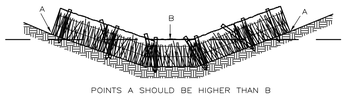


NOTE: SILT FENCE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR THE STAKED SILT FENCE (LF.)

TYPE III SILT FENCE

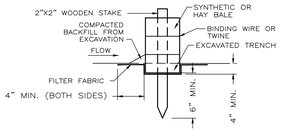
NOTE:

I0.315,T0.252;DO NOT DEPLOY SILT FENCES IN A MANNER THAT WILL ACT AS A DAM ACROSS PERMANENT FLOWING WATERCOURSES.
SILT FENCES ARE TO BE USED AT UPLAND LOCATIONS AND AS TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.
SILT FENCE SHOULD BE REPLACED EVERY SIX (6) MONTHS.
SILT FENCE SHALL EXTEND A MINIMUM OF 4" BELOW GRADE.
SILT FENCE SHALL EXTEND 4" AWAY FROM STAKES.



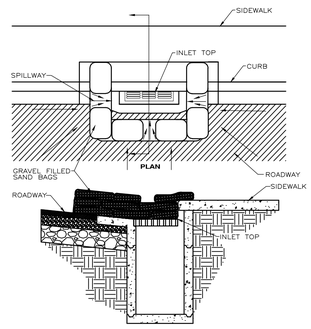
POINTS A SHOULD BE HIGHER THAN B

PROPER PLACEMENT OF BALES IN DRAINAGE WAY



EROSION CONTROL DETAILS

NOT TO SCALE

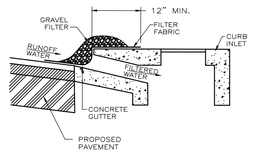


NOTE:

1. GRAVEL FILLED BAGS TO BE PLACED TIGHTLY TOGETHER AS TO NOT ALLOW ANY GAPS IN BETWEEN THE BAGS VERTICALLY AND HORIZONTALLY.
2. IF SEDIMENT IS PENETRATING BAGS, BAGS MAY NEED TO BE WRAPPED IN ADDITIONAL FILTER FABRIC.

CURB INLET SEDIMENT BARRIER (OPTION 1)

NOT TO SCALE

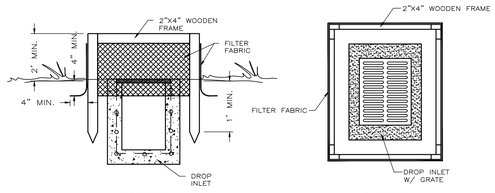


NOTES:

1. GRAVEL SHALL BE #57 STONE.

GRAVEL CURB INLET SEDIMENT FILTER (OPTION 2)

NOT TO SCALE

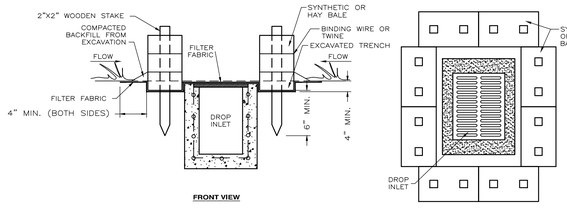


NOTES:

1. TOP FRAME REQUIRED FOR STABILITY.
2. THIS METHOD OF INLET PROTECTION IS NOT TO BE USED IN RIGHT–OF–WAYS OR MEDIANS.
3. STAKES SHALL EXTEND 1' MIN. BELOW GRADE.
4. FILTER FABRIC SHALL EXTEND 4" MIN. BELOW GRADE AND 4" MIN. BEYOND WOODEN FRAME.

DROP INLET SEDIMENT FILTER OPTION 1

NOT TO SCALE



DROP INLET SEDIMENT FILTER OPTION 2

NOT TO SCALE

WORK IN RIGHTS-OF-WAYS

ALL WORK WITHIN RIGHTS–OF–WAYS SHALL BE IN STRICT ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE RESPECTIVE AGENCIES.

THE CONTRACTOR SHALL COOPERATE WITH THE GOVERNING STATE AND LOCAL AGENCIES IN ALL PROCEDURES, MATERIALS AND METHODS OF CONSTRUCTION.

ALL OFF–SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING:

CONSTRUCTION OF DRIVEWAY CONNECTIONS TO EXISTING MUNICIPAL ROADWAYS AS SHOWN ON PLANS.

PLACEMENT OF ABOVE OR BELOW GROUND UTILITIES AND CONNECTION TO EXISTING UTILITIES AS SHOWN ON PLANS.

SITE CLEARING AND DEMOLITION

ANY WORK WITHIN STREET OR HIGHWAY RIGHT–OF–WAY SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL THESE GOVERNING AUTHORITIES HAVE BEEN NOTIFIED AND PROPER PERMITS OBTAINED.

KEEP ALL AREAS WITHIN THE CONSTRUCTION AREA SUFFICIENTLY DAMPENED TO PREVENT DUST FROM RISING DUE TO CONSTRUCTION. COMPLY WITH ALL ANTI–POLLUTION ORDINANCES.

THIS SUBCONTRACTOR SHALL SEE TO IT THAT TRUCKS LEAVING THE SITE SHALL DO SO IN SUCH A MANNER THAT MUD AND EARTH WILL NOT BE DEPOSITED ON ADJACENT STREET PAVEMENTS. ANY MUD OR EARTH DEPOSITED ON STREET PAVEMENTS SHALL BE PROMPTLY REMOVED BY THIS SUBCONTRACTOR.

ALL CLEARING SHALL BE PERFORMED IN A MANNER SUCH AS TO PREVENT ANY WASH–OFF OF SOILS FROM THE SITE INTO STREAMS AND/OR STORM DRAINAGE SYSTEMS. APPROPRIATE SEDIMENTATION PONDS, DIKES, COLLARS, AND FILTER MEDIA SHALL BE EMPLOYED TO INSURE COMPLIANCE WITH THESE REQUIREMENTS. WHERE A SPECIFIC STATUTE GOVERNS THESE PROCEDURES, SUCH STATUTE SHALL BE COMPLIED WITH IN IT'S ENTIRETY.

TOPSOIL IS DEFINED AS FRIABLE CLAY LOAM SURFACE SOIL FOUND IN A DEPTH OF NOT LESS THAN 4" SATISFACTORY TOPSOIL IS REASONABLY FREE OF SUBSOIL, CLAY LUMPS, STONES, AND OTHER OBJECTS OVER 2" IN DIAMETER, AND WITHOUT WEEDS, ROOTS, AND OTHER OBJECTIONABLE MATERIAL.

STRIP TOPSOIL TO WHATEVER DEPTHS ENCOUNTERED IN A MANNER TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OTHER OBJECTIONABLE MATERIAL.

REMOVE HEAVY GROWTHS OF GRASS FROM AREAS BEFORE STRIPPING. WHERE TREES ARE INDICATED TO BE LEFT STANDING, STOP TOPSOIL STRIPING A SUFFICIENT DISTANCE TO PREVENT DAMAGE TO MAIN ROOT SYSTEM. DISPOSE OF UNSUITABLE OR EXCESS TOPSOIL SAME AS WASTE MATERIAL, HEREIN SPECIFIED.

BURNING WILL NOT BE PERMITTED ON PROJECT SITE.

ALL EXISTING STRUCTURES, UTILITIES AND OTHER OBSTACLES IN CONFLICT WITH THE PROPOSED FACILITY SHALL BE REMOVED AND DISPOSED OF IN A LEGAL MANNER. SEE OTHER UTILITY AND MISCELLANEOUS NOTES CONCERNING REMOVAL.

ALLOW TESTING SERVICES TO INSPECT AND APPROVE SUBGRADE AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS PERFORMED.

ATTENTION IS CALLED TO THE FACT THAT THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES TO OBTAIN LOCATIONS OF ALL EXISTING UTILITIES OR OBSTRUCTIONS WHICH HE MAY ENCOUNTER DURING CONSTRUCTION.

AFTER LOCATION OF UTILITIES BY THE APPROPRIATE UTILITY COMPANY, IT IS THE CONTRACTOR'S LIABILITY TO PROTECT ALL SUCH UTILITY LINES, INCLUDING SERVICE LINES AND APPURTENANCES, AND TO REPLACE AT HIS OWN EXPENSE ANY WHICH MAY BE DAMAGED BY THE CONTRACTOR'S EQUIPMENT OR FORCES DURING CONSTRUCTION.

TO PROTECT PERSON FROM INJURY AND TO AVOID PROPERTY DAMAGE, ADEQUATE BARRICADES, CONSTRUCTION SIGNS, TORCHES, RED LANTERNS AND GUARDS AS REQUIRED SHALL BE PLACED AND MAINTAINED DURING THE PROGRESS OF THE CONSTRUCTION WORK.

ADEQUATE PROVISION SHALL BE MADE FOR THE FLOW OF SEWERS, DRAINS, AND WATER COURSES ENCOUNTERED DURING CONSTRUCTION, AND THE STRUCTURES WHICH MAY HAVE BEEN DISTURBED SHALL BE SATISFACTORILY RESTORED BY THE CONTRACTOR.

EXCAVATING, FILLING AND GRADING

ALL ON AND OFF–SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING:

ALL ON AND OFF–SITE PREPARATION WORK FOR EXCAVATION, PIPE BED PREPARATION AND BACKFILL FOR UNDERGROUND UTILITIES.

COMPACTION OF BACKFILL.

REMOVAL OF ALL EXCESS OR UNUSABLE MATERIAL.

APPROVAL REQUIRED: ALL FILL MATERIAL SHALL BE SUBJECT TO APPROVAL OF THE GEO–TECHNICAL ENGINEER.

ALL ON–SITE FILL MATERIAL SHALL BE SOIL–ROCK MIXTURE WHICH IS FREE FROM ORGANIC MATTER (LESS THAN 3% BY IGNITION), AND OTHER DELETERIOUS SUBSTANCE. IT SHALL CONTAIN NO ROCKS OR LUMPS OVER SIX (6) INCHES IN GREATEST DIMENSION AND NOT MORE THAN 15% OF THE ROCKS OR LUMPS BY DRY WEIGHT, SHALL BE LARGER THAN 2 AND 1/2 INCHES IN GREATEST DIMENSION.

ALL IMPORTED FILL MATERIAL SHALL MEET THE REQUIREMENTS OF ON–SITE FILL MATERIAL AND SHALL IN ADDITION, BE PREDOMINANTLY GRANULAR WITH A MAXIMUM PARTICLE SIZE OF TWO (2) INCHES AND A PLASTICITY INDEX OF 12 OR LESS.

ALL ON–SITE FILL MATERIAL USED FOR TRENCH AND STRUCTURAL BACKFILL SHALL MEET THE REQUIREMENTS OF ARTICLE ABOVE.

ALL IMPORTED COHESIONLESS MATERIAL USED FOR TRENCH AND STRUCTURAL BACKFILL SHALL BE FREE FROM ORGANIC SUBSTANCE (LESS THAN 3% BY IGNITION) AND OTHER DELETERIOUS MATTER, SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

PRIOR TO ALL WORK OF THIS SECTION, CONTRACTOR IS TO BECOME THOROUGHLY FAMILIAR WITH THE SITE, THE SITE CONDITIONS, AND ALL PORTIONS OF THE WORK, FALLING WITHIN THIS SECTION.

DO NOT ALLOW OR CAUSE ANY OF THE WORK PERFORMED OR INSTALLED TO BE COVERED UP OR ENCLOSED BY WORK OF THIS SECTION PRIOR TO ALL REQUIRED INSPECTIONS, TESTS AND APPROVALS.

AFTER THE WORK HAS BEEN COMPLETELY TESTED, INSPECTED AND APPROVED, MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY TO RESTORE THE WORK TO THE CONDITION IN WHICH IT WAS FOUND AT THE TIME OF UNCOVERING, ALL AT NO ADDITIONAL COST TO THE OWNER.

FOR SETTING AND ESTABLISHING FINISH ELEVATIONS AND LINES, SECURE THE SERVICES OF A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR ACCEPTABLE TO THE OWNER. CAREFULLY PRESERVE ALL DATA AND ALL MONUMENTS SET BY THE CIVIL ENGINEER OR LAND SURVEYOR, AND IF DISPLACED OR LOST, IMMEDIATELY REPLACE TO THE APPROVAL OF THE OWNER AND AT NO ADDITIONAL COST TO THE OWNER.

PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, ETC. NECESSARY AND INCIDENTAL TO THE COMPLETION OF ALL EARTHWORK AS SHOWN ON THE DRAWINGS AND SPECIFICATIONS. ALL OFF–SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING: THIS WORK CONSISTS OF GRADING IN ORDER TO ACHIEVE FINISHED ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS.

ALL GRADED SURFACES SHALL BE SMOOTH AND UNIFORM, WITHOUT ABRUPT CHANGES IN SLOPE OR GRADE. AREAS TO BE COVERED WITH PAVING SHALL BE FINISHED TO THE REQUIRED ELEVATIONS AND SLOPES. FINISHED SURFACES IN ALL OTHER AREAS MAY VARY UP TO 0.1 FEET FROM THE REQUIRED ELEVATIONS.

PERFORM EXCAVATION WORK IN COMPLIANCE WITH APPLICABLE REQUIREMENTS OF GOVERNING AUTHORITIES HAVING JURISDICTION. ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH SECTION 120 OF THE STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, LATEST EDITION.

EMPLOY, AT CONTRACTOR'S EXPENSE, DESIGN LABORATORY TO PERFORM SOIL TESTING AND INSPECTION SERVICE FOR QUALITY CONTROL TESTING DURING EARTHWORK OPERATIONS. SUBMIT FOLLOWING REPORTS DIRECTLY TO ENGINEER AND COPIES TO CITY ENGINEERING DEPARTMENT FROM THE TESTING SERVICES, WITH COPY TO THE CONTRACTOR.

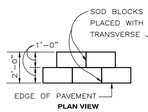
TEST REPORTS ON BORROW MATERIAL.

FIELD DENSITY TEST REPORTS.

ONE OPTIMUM MOISTURE–MAXIMUM DENSITY CURVE FOR EACH TYPE OF SOIL ENCOUNTERED.

WHERE REQUIRED, THE SITE SHALL BE EXCAVATED TO THE GRADES COURSE. EXCAVATED MATERIAL THAT IS SUITABLE SHALL BE USED IN THE FILL SECTIONS OF THE SITE. NO SUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE. ANY EXCESS SUITABLE MATERIAL SHALL BE PLACED AT THE DIRECTION OF THE ENGINEER.

EXCAVATION FOR MANHOLES, CATCH BASINS, AND OTHER ACCESSORIES SHALL BE SUFFICIENT TO LEAVE AT LEAST 12 INCHES IN THE CLEAR BETWEEN THEIR OUTER SURFACES AND THE EMBANKMENT OF TIMBER THAT MAY BE USED TO PROTECT THEM.



PLAN VIEW

THIS WORK CONSISTS OF SODDING AREAS CLEARED DURING CONSTRUCTION AND NOT PAVED, OR AS OTHERWISE SHOWN ON THE CONSTRUCTION PLANS. ALL MATERIAL AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH SECTION 570, 571, 573, OR 575 OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST REVISION.

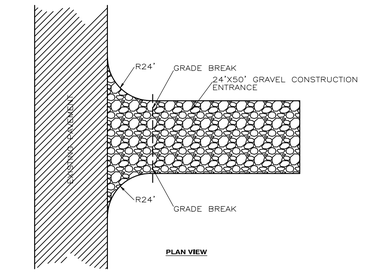
USE ST. AUGUSTINE GRASS (FLORATAM) SOD. THE SOD SHALL BE LIVE, FRESH AND UNINJURED AT THE TIME OF PLANTING AND SHALL HAVE A THICK MAT OF ROOTS WITH ENOUGH ADHERING SOIL TO ASSURE GROWTH. APPLY SOD WITHIN 72 HOURS OF CUTTING OR STACKING TO KEEP MOIST.

PREPARE THE GROUND BY LOOSENING THE SOIL. PLACE SOD ON THE PREPARED SOIL WITH EDGES IN CLOSE CONTACT. STAGGER THE SOD PIECES SO AS TO AVOID A CONTINUOUS DOWNHILL SEAM. TAMP THE OUTER EDGES OF THE SODDED AREA TO PRODUCE A SMOOTH CONTOUR.

KEEP SOD CONTINUOUSLY MOIST TO A DEPTH BELOW THE ROOT ZONE FOR THREE WEEKS AFTER PLACEMENT.

SODDING DETAIL

NOT TO SCALE

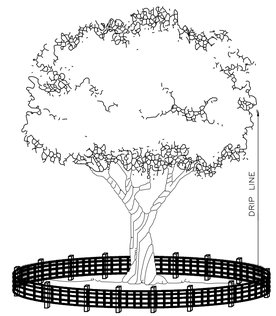


NOTE:

1. GRAVEL CONSTRUCTION ENTRANCE SHALL BE 24' WIDE AND 50' LONG.
2. CONSTRUCTION ENTRANCE SHALL BE 6" OF #57 STONE OVERLAYING FILTER FABRIC.
3. ALGEBRAIC DIFFERENCE OF SLOPE FROM EXISTING ROAD AND SLOPE FROM EDGE OF PAVEMENT TO GRADE BREAK SHALL NOT EXCEED 12%.
4. CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAYS.
5. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR BASIN.

CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



CORD FENCE – POSTS WITH A MINIMUM SIZE 2 INCHES SQUARE OR 2 INCHES IN DIAMETER SET SECURELY IN GROUND AND PROTRUDING AT LEAST 4 FEET ABOVE THE GROUND SHALL BE PLACED AT THE LIMITS OF CLEARING WITH ORANGE CONSTRUCTION MESH FENCING RUNNING BETWEEN POSTS.

TREE BARRIER DETAIL

NOT TO SCALE

SEEDING RATE ZONES

TYPE OF SEED	SEEDING RATES (LBS/AC)							
	ZONE I				ZONE II			
	COASTAL		INLAND		COASTAL		INLAND	
	MAR. TO NOV.	NOV. TO MAR.	MAR. TO OCT.	OCT. TO MAR.	FEB. TO DEC.	DEC. TO FEB.	FEB. TO DEC.	DEC. TO FEB.
PERMANENT GRASS								
UNHULLED BERMUDA	15	15	10	15	15	15	10	15
BAHIA ARGENTINA OR PENSACOLA			30	30			30	30
QUICK GROWING								
BROWN TOP MILLET	20		20		20		20	
ANNUAL RYE GRASS		20		20		20		20
TOTAL POUNDS PER ACRE	35	35	60	65	35	35	60	65

NOTE: THE SEEDING RATES SHOWN IN THIS TABLE APPLY ONLY WHEN SEED IS SPREAD BY AN APPROVED MECHANICAL SPREADER MEETING THE REQUIREMENTS OF SECTION 570 AND 577 OF THE STANDARD SPECIFICATIONS.

GENERAL NOTES

1. SPECIAL ATTENTION IS TO BE DIRECTED TO THE CONSTRUCTION OF THE REQUIRED 1" DROP–OFF AT EDGE OF PAVEMENT.
2. FERTILIZE ENTIRE UNPAVED SHOULDER AND FRONT SLOPE TO TOE OF SLOPE OR BOTTOM OF DITCH.
3. TOPSOIL OBTAINED FROM BORROW PITS OR OTHER SOURCES MAY BE USED IN LIEU OF EXCAVATED TURF AND TOPSOIL WHEN ECONOMICALLY FEASIBLE. NO ADDITIONAL PAYMENT WILL BE MADE FOR SUBSTITUTING TOPSOIL FOR EXCAVATED TURF OR TOPSOIL.

TOPSOIL: IF THE QUANTITY OF EXISTING STORED OR EXCAVATED TOPSOIL IS INADEQUATE FOR PLANTING, SUFFICIENT ADDITIONAL TOPSOIL SHALL BE FURNISHED. TOPSOIL FURNISHED SHALL BE A NATURAL, FERTILE, FRIABLE SOIL, POSSESSING CHARACTERISTICS OF REPRESENTATIVE PRODUCTIVE SOILS IN THE VICINITY. IT SHALL BE OBTAINED FROM NATURALLY WELL–DRAINED AREAS.

TOPSOIL SHALL BE WITHOUT ADMIXTURE OF SUBSOIL AND FREE FROM JOHNSON GRASS (SORGHUM HALEPENSE), NUT GRASS (CYPERUS ROTUNDUS) AND OBJECTIONABLE WEEDS AND TOXIC SUBSTANCES.

GROUND LIMESTONE (DOLOMITE) CONTAINING NOT LESS THAN 85 PERCENT OF TOTAL CARBONATES, AND SHALL BE GROUND TO SUCH A FINENESS THAT 50 PERCENT WILL PASS A 100–MESH SIEVE AND 90 PERCENT WILL PASS A 20–MESH SIEVE.

16–16–16 FORMULATION OF WHICH 60 PERCENT OF THE NITROGEN IS IN THE UREA–FORMALDEHYDE FORM AND SHALL CONFORM TO THE APPLICABLE STATE FERTILIZER LAWS. IT SHALL BE GRANULATED SO THAT 80 PERCENT IS HELD ON A 16–MESH SCREEN, UNIFORM IN COMPOSITION, DRY AND FREE–FLOWING. MULCH: CLEAN HAY OR FREE STRAW MULCH.

AREAS TO BE GRASSED SHALL BE GRADED TO REMOVE DEPRESSIONS, UNDULATIONS, AND IRREGULARITIES IN THE SURFACE BEFORE GRASSING.

PLACING TOPSOIL: AREAS TO BE GRASSED SHALL HAVE A MINIMUM TOPSOIL OVER OF TWO INCHES. TOPSOIL SHALL NOT BE PLACED WHEN THE SUBGRADE IS EXCESSIVELY WET, EXTREMELY DRY OR IN A CONDITION OTHERWISE DETRIMENTAL TO THE PROPOSED PLANTING OR PROPER GRADING

TILLAGE: THE AREA TO BE GRASSED SHALL BE THOROUGHLY TILLED TO A DEPTH OF FOUR INCHES USING A PLOW AND DISC HARROW OR ROTARY TILLING MACHINERY UNTIL A SUITABLE BED HAS BEEN PREPARED AND NO CLODS OR CLUMPS REMAIN LARGER THAN 1–1/2 INCHES IN DIAMETER.

APPLICATION OF LIME: THE PH OF THE SOIL SHALL BE DETERMINED. IF THE PH IS BELOW 5.0, SUFFICIENT LIME SHALL BE ADDED TO PROVIDE A PH BETWEEN 5.5 AND 6.5. THE LIME SHALL BE THOROUGHLY INCORPORATED INTO THE TOP THREE TO FOUR INCHES OF THE SOIL. LIME AND FERTILIZER MAY BE APPLIED IN ONE OPERATION.

APPLICATION OF FERTILIZER: FERTILIZER SHALL BE APPLIED AT THE RATE OF 6 POUNDS PER 1,000 SQUARE FEET AND SHALL BE THOROUGHLY INCORPORATED INTO THE TOP THREE TO FOUR INCHES OF SOIL.

ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED AS SPECIFIED HEREIN. IMMEDIATELY BEFORE SEEDS ARE SOWN AND AFTER FERTILIZER AND LIME ARE APPLIED, THE GROUND SHALL BE SCARIFIED AS NECESSARY AND SHALL BE RAKED UNTIL HE SURFACE IS SMOOTH, FRIABLE, AND OF UNIFORMLY FINE TEXTURE. AREAS TO BE GRASSED SHALL BE SEEDED EVENLY WITH A MECHANICAL SPREADER, RAKED LIGHTLY, ROLLED WITH A 200–POUND ROLLER, AND WATERED WITH A FINE SPRAY.

SEEDS SHALL BE APPLIED AT THE FOLLOWING RATE:

SEEDS RATE OF APPLICATION

BERMUDA 6 LBS./1000 SQ.FT.

SEEDED AREAS SHALL BE MULCHED AT THE RATE OF NOT LESS THAN 1–1/2" LOOSE MEASUREMENT OVER ALL SEEDED AREAS. SPREAD BY HAND, BLOWER, OR OTHER SUITABLE EQUIPMENT. MULCH SHALL BE CUT INTO THE SOIL WITH EQUIPMENT CAPABLE OF CUTTING THE MULCH UNIFORMLY INTO THE SOIL. MULCHING SHALL BE DONE WITHIN 24 OURS OF THE TIME SEEDING IS COMPLETED.

AFTER SEEDING AND MULCHING, A CULTIPACKER, TRAFFIC ROLLER, OR OTHER SUITABLE EQUIPMENT SHALL BE USED FOR ROLLING THE GRASSED AREAS. AREAS SHALL THEN BE WATERED WITHIN A FINE SPRAY.

ALL AREAS TO BE GRASSED SHALL BE PROTECTED AGAINST EROSION AT ALL TIMES. FOR PROTECTION DURING WINTER MONTHS (NOVEMBER 1ST THRU MARCH 31ST) ITALIAN RYE GRASS SHALL BE PLANTED AT A RATE OF FOUR POUNDS PER 1,000 SQUARE FEET ON ALL AREAS WHICH ARE NOT PROTECTED BY PERMANENT GRASS.

SEEDING DETAIL

NOT TO SCALE

PERMIT PURPOSES ONLY

CONSTRUCTION DETAILS
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE:	SHOWN
DESIGNED BY:	RLC
DRAWN BY:	BLR
REVIEWED BY:	RLC
ISSUE DATE:	9/24/2025
CF/D:	1577.01E02
NOT RELEASED FOR CONSTRUCTION UNTIL DATED	

McNEIL CARROLL ENGINEERING, INC.
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850–234–1730
Fax: 850–234–1731
Professional Engineering Consultants
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288

NO.	DATE	BY	REVISIONS
01			
02			
03			
04			
05			

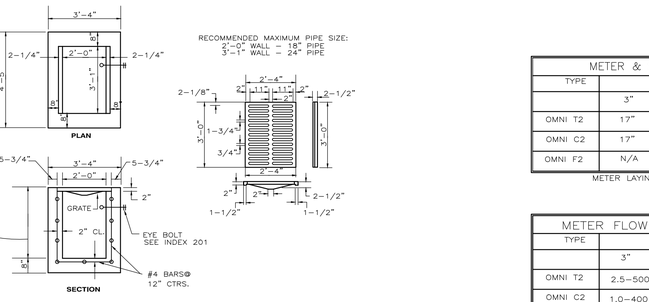
Sean D. McNeil, P.E.
PROFESSIONAL ENGINEER
FL LC # 49303

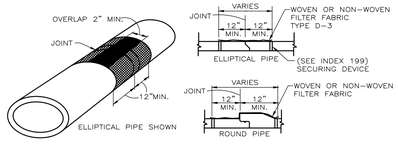
Robert L. Carroll, P.E.
PROFESSIONAL ENGINEER
FL LC # 57988

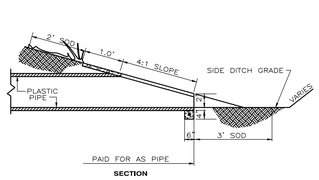
ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/24/25

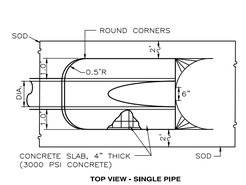
SHEET NUMBER 8 OF 13

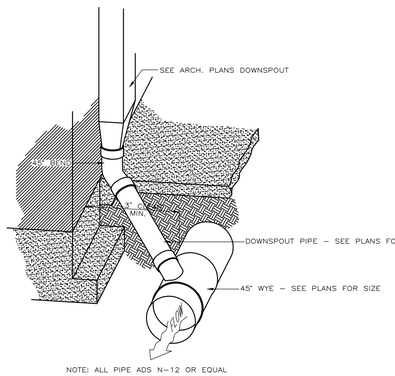
1577.01 – STUDIORES

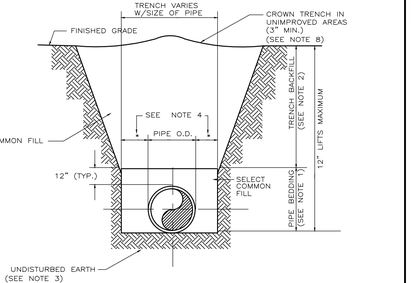












SITE DRAINAGE

ALL OFF-SITE AND ON-SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING:

EXCAVATION, BEDDING, FILTER MATERIAL AND BACKFILL FOR ALL STORM SEWER, SUBSURFACE DRAINS AND DRAINAGE STRUCTURES.

COMPLETE INSTALLATION OF ALL STORM SEWER, SUBSURFACE DRAINS, CATCH BASINS, JUNCTION BOXES, MANHOLES, ETC., INCLUDING ALL RELATED FITTINGS, JOINTS COVERS, GRATES, FRAMES, RUNGS, ETC.

ANY WORK WITHIN STREET OR HIGHWAY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL OF THESE GOVERNING AUTHORITIES HAVE BEEN NOTIFIED.

POLYVINYL CHLORIDE (PVC), FOR PIPE UP TO AND INCLUDING TEN INCHES (10") IN DIAMETER, SHALL CONFORM TO ASTM D3034 SDR 35 WITH ELASTOMERIC GASKET JOINTS CONFORMING TO ASTM D3212.

REINFORCED CONCRETE PIPE, FOR PIPE TWELVE INCHES (12") IN DIAMETER AND UP, SHALL CONFORM TO ASTM C-76, CLASS IV OR AASHTO M-170 WITH BELL AND SPIGOT OR TONGUE AND GROOVE COMPRESSION JOINT CONFORMING TO ASTM C-443.

MANHOLES, CATCH BASINS, ETC. SHALL BE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL BE CONSTRUCTED OF THE FOLLOWING:

REINFORCED PRECAST CONCRETE MANHOLE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C478 OR AASHTO M-199. SECTIONS SHALL BE COMPLETE WITH 3/4" ROUND CAST IN PLACE WROUGHT IRON STEPS.

BRICK SHALL BE SOUND, HARD BURNED THROUGHOUT AND OF UNIFORM SIZE AND QUALITY AND SHALL BE IN ACCORDANCE WITH ASTM C-32, GRADE MS OR MM.

CONCRETE MASONRY SHALL BE SOLID PRECAST SEGMENTAL CONCRETE MASONRY UNITS CONFORMING TO ASTM C-139.

IRON CASTINGS SHALL CONFORM TO ASTM A-48, CLASS 30. BEARING SURFACES BETWEEN CAST IRON FRAMES, COVERS AND GRATES SHALL BE MACHINED, FITTED TOGETHER AND MATCH MARKED TO PREVENT ROCKING.

SYSTEM IDENTIFYING LETTER 2" HIGH SHALL BE STAMPED OR CAST INTO ALL COVERS SO THAT THE MAY BE PLAINLY VISIBLE.

CASTINGS SHALL BE MANUFACTURED BY EAST JORDAN IRON WORKS, INC. NEENAH FOUNDRY COMPANY, VULCAN FOUNDRY COMPANY OR EQUAL.

MANHOLE STEPS FOR BRICK OR CONCRETE MASONRY STRUCTURES SHALL BE CAST IRON ASPHALT COATED, NEENAH FOUNDRY COMPANY "R-1980-E" OR EQUAL.

CONCRETE AND MASONRY MATERIALS FOR CONSTRUCTION OF STORM DRAINAGE STRUCTURES SHALL CONSIST OF THE FOLLOWING:

PORTLAND CEMENT SHALL BE STANDARD BRAND OF PORTLAND CEMENT CONFORMING TO ASTM C-150, TYPE I OR II.

FINE AND COARSE AGGREGATES FOR CONCRETE SHALL BE PER ASTM C-33. AGGREGATES SHALL BE WELL GRADED FROM FINE TO COARSE WITHIN LIMITS SPECIFIED IN ASTM C-33. MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 3/4".

AGGREGATE FOR CEMENT MORTAR SHALL BE CLEAN, SHARP SAND CONFORMING TO ASTM C-144. GRADE SAND FROM COARSE TO FINE WITH 100% PASSING NO. 8 SIEVE, AND NOT OVER 10 TO 30% PASSING NO. 50 SIEVE. HYDRATED LIME SHALL COMPLY WITH ASTM C-207, TYPE S. WATER SHALL BE CLEAN AND FREE FROM DELETERIOUS MATERIALS.

ALL MATERIAL USED FOR CONCRETE AND THE DESIGN OF ALL CONCRETE MIXES SHALL CONFORM WITH THE RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE (ACI 211.1-81).

ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL DEVELOP A 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.

JOINT SEALANT SHALL BE HOT LAID BITUMINOUS SEALER.

RIP RAP SHALL BE SOUND, TOUGH DURABLE ROCK OR BROKEN CONCRETE AS APPROVED BY THE GEOTECHNICAL ENGINEER. RIP RAP SHALL BE AT LEAST EIGHT INCH (8") IN ONE DIMENSION AN SHALL HAVE A VOLUME OF NOT LESS THAN J1/3 CUBIC FOOT. SMALLER PIECES PERMITTED FOR FILLING VOIDS.

REINFORCING STEEL FOR CONCRETE SHALL BE INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 40. WELDED WIRE MESH SHALL CONFORM TO ASTM DESIGNATION A185 FOR SMOOTH WIRE AND ASTM A497 FOR DEFORMED WIRE.

FORMS FOR FOUNDATIONS AND OTHER CONCRETE WORK SHALL BE WOOD. FORMS SHALL BE OF SUFFICIENT STRENGTH TO PREVENT DEFORMATION UNDER LOAD AND TIGHT ENOUGH TO PREVENT LEAKAGE. FOUNDATIONS MAY BE POURED AGAINST EARTH WHERE CONDITIONS PERMIT.

ALL REINFORCEMENT SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH ACI 318-77. WELDED WIRE MESH SHALL BE LAPPED 6-INCHES AT ALL EDGES.

THE MIXING, PLACING, CURING AND FINISHING OF CONCRETE SHALL COMPLY WITH ACI 304 AND ACI 318. ALL EXPOSED SURFACES SHALL BE GIVEN A HARD STEEL TROWEL FINISH WITH NO TROWEL MARKS REMAINING. NO CEMENT SHALL BE DUSTED ON THE SURFACE. ALL CONCRETE SHALL BE CURED BY COATING WITH A CLEAR CURING NO CEMENT CONFORMING TO ASTM C-304, OR BY KEEPING IT WET FOR AT LEAST SIX DAYS AFTER POURING. AFTER THE FORMS ARE STRIPPED, ALL EXPOSED CONCRETE SURFACES SHALL BE POINTED AS NEEDED AND RUBBED TO A UNIFORM FINISH.

CONCRETE, UNLESS OTHERWISE NOTED, SHALL HAVE COMPRESSIVE STRENGTH AFTER 28 DAYS OF 3000 PSI MINIMUM. MIX SHALL BE SO PROPORTIONED TO PROVIDE A MINIMUM OF 517 POUNDS OF CEMENT PER CUBIC YARD.

CONCRETE FILL BELOW GRADE FOR PIPE CRADLES ETC. MAY BE 2500 PSI AT 28 DAYS.

CONCRETE, WHERE EXPOSED TO THE WEATHER, SHALL BE AIR ENTRAINED. AIR ENTRAINMENT SHALL BE ACCOMPLISHED BY THE USE OF ADDITIVES CONFORMING TO ASTM C-260. AIR CONTENT SHALL BE 6% + 1%. ADDITIVE SHALL BE USED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S PRINTED DIRECTIONS.

READY-MIX CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-94.

CEMENT MORTAR SHALL BE AS SPECIFIED HEREINAFTER. USE METHODS OF MIXING MORTAR MATERIALS CAN BE CONTROLLED AND ACCURATELY MAINTAINED DURING WORK PROGRESS. MORTAR SHALL NOT BE MIXED IN GREATER QUANTITIES THAN SATISFACTORY WORKABILITY. RETEMPERING OF MORTAR IS NOT PERMITTED.

MORTAR FOR LAYING BRICK OR CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C-270, TYPE M, AVERAGE COMPRESSIVE STRENGTH 2500 AT 28 DAYS. MORTAR MIX SHALL BE PROPORTIONED BY VOLUME. MORTAR FOR PARGING SHALL CONSISTS OF ONE PART PORTLAND CEMENT AND TWO PARTS SAND.

MORTAR FOR GROUTING OF RIP RAP SHALL CONSIST OF ONE PART PORTLAND CEMENT AND THREE PARTS SAND.

STORM WATER SEWERS: STORM SEWERS SHALL BE INSTALLED IN LOCATIONS AND OF SIZES INDICATED ON DRAWING.

LAY PIPE, EMBED IT FIRMLY TO REQUIRED LINE AND GRADE WITH BELLS OF GROOVE END UP-GRADE. FIT ENDS TOGETHER, EXCAVATE BELL HOLES SO THAT SEWER WILL HAVE SMOOTH AND UNIFORM INVERT THROUGHOUT ITS LENGTH.

CORRUGATED METAL PIPE SHALL BE PLACED ON A FLAT BOTTOM TRENCH WITH HAUNCHES SOLIDLY SUPPORTED BY TAMPED BEDDING MATERIAL.

WHERE GROUND IS FOUND UNSUITABLE TO SUPPORT PIPE, PROVIDE CONCRETE CRADLES. DEPOSIT CONCRETE FULL WIDTH OF TRENCH 4" DEEP MINIMUM TO BOTTOM OF PIPE, REINFORCE CONTINUOUSLY WITH TWO (2) NO. 4 REINFORCING BARS. BEFORE CONCRETE IS SET, EMBED PIPE EVENLY, DEPOSIT REMAINDER OF CONCRETE TO CENTERLINE OF PIPE AND TAMP IN A MANNER TO AVOID DISTURBING PIPE.

WHERE STORM SEWER CROSSES A SANITARY SEWER OR WATER LINE AND THE STORM SEWER IS WITHIN ONE AND A HALF (1-1/2) FEET OF THE SANITARY SEWER PIPE OR WATER LINE, THE INTERSECTION OF THE PIPE OR LINE SHALL BE EMBEDDED IN CONCRETE FOR A DISTANCE OF FIVE FEET (5') EACH WAY FROM CENTERLINE OF INTERSECTION.

PROVIDE POURED CONCRETE FOUNDATIONS FOR DRAINAGE STRUCTURES.

PRECAST CONCRETE BASE MAY BE USED WHERE APPROVED BY THE GEO-TECHNICAL ENGINEER. PRECAST CONCRETE BASE MUST BE SET LEVEL ON SAND CUSHION OF NOT LESS THAN 2" NOR MORE THAN 4".

MANHOLES AND CATCH BASINS SHALL BE CONSTRUCTED OF BRICK, CONCRETE MASONRY OR PRECAST CONCRETE WITH CAST IRON FRAMES, COVERS AND MANHOLE STEPS, AS INDICATED ON DRAWINGS AND SPECIFIED HEREIN.

RIP RAP SHALL BE LAID OVER FILTER FABRIC FROM THE BOTTOM UPWARD, STONES SHALL BE LAID BY HAND WITH EIGHT (8") INCH MINIMUM DIMENSION PERPENDICULAR TO GRADE WITH WELL BROKEN JOINTS, COMPACTED AS IT GOES, TRUE TO LINE. ALL JOINTS SHALL BE FILLED WITH CEMENT MORTAR SURFACE OF STONE TO BE EXPOSED. CLEAN JOINTS WITH SIRE BRUSH.

BEFORE BACKFILLING AROUND DRAINAGE STRUCTURES, ALL FORMS, TRASH AND DEBRIS SHALL BE REMOVED AND CLEARED AWAY. SELECTED EXCAVATED MATERIAL SHALL BE PLACED SYMMETRICALLY ON ALL SIDES IN EIGHT INCH (8") MAXIMUM LAYERS; EACH LAYER SHALL BE MOISTENED AND COMPACTED WITH MECHANICAL OR HAND TAMPERS.

INFILTRATION OF THE STORM DRAINAGE SYSTEM SHALL NOT EXCEED 0.60 GALLONS PER INCH OF INTERNAL PIPE DIAMETER PER ONE HUNDRED FEET (100') OF PIPELINE PER HOUR WITH A MAXIMUM HYDROSTATIC HEAD AT THE CENTER LINE OF THE PIPE OF TWENTY FIVE FEET (25'), OR AS REQUIRED BY GOVERNING CODE AUTHORITIES.

CATCH BASIN FRAMES AND GRATINGS: ASPHALT COATED GRAY CAST IRON, ANSI/ASTM A 48, CLASS 30 B.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUPPLY ALL MATERIALS NECESSARY TO COMPLETE DRAINAGE.

TYPE C

GENERAL NOTES

1. THESE INLETS ARE SUITABLE FOR BICYCLE AND PEDESTRIAN AREAS AND ARE TO BE USED IN DITCHES, MEDIANS AND OTHER AREAS SUBJECT TO INFREQUENT TRAFFIC LOADINGS BUT ARE NOT TO BE PLACED IN AREAS SUBJECT TO ANY HEAVY WHEEL LOADS.

2. INLETS SUBJECT TO MINIMAL DEBRIS SHOULD BE CONSTRUCTED WITHOUT SLOTS. WHERE DEBRIS IS A PROBLEM INLETS SHOULD BE CONSTRUCTED WITH SLOTS. SLOTTED INLETS LOCATED WITHIN ROADWAY CLEAR ZONES AND IN AREAS ACCESSIBLE TO PEDESTRIANS SHALL HAVE TRAVERSABLE SLOTS. THE TRAVERSABLE SLOT MODIFICATION IS NOT ADAPTABLE TO INLET TYPE H. SLOTS MAY BE CONSTRUCTED AT EITHER OR BOTH ENDS AS SHOWN ON PLANS.

3. STEEL GRATES ARE TO BE USED ON ALL INLETS WHERE BICYCLE TRAFFIC IS ANTICIPATED. STEEL GRATES ARE TO BE USED ON ALL INLETS WITH TRAVERSABLE SLOTS. EITHER CAST IRON OR STEEL GRATES MAY BE USED ON INLETS WITHOUT SLOTS WHERE BICYCLE TRAFFIC IS NOT ANTICIPATED. EITHER CAST IRON OR STEEL GRATES MAY BE USED ON ALL INLETS WITH NON-TRAVERSABLE SLOTS. SUBJECT TO THE SELECTION DESCRIBED ABOVE, WHEN ALTERNATE G GRATE IS SPECIFIED IN THE PLANS, EITHER THE STEEL GRATE, HOT DIPPED GALVANIZED AFTER FABRICATION, OR THE CAST IRON GRATE MAY BE USED, UNLESS THE PLANS STIPULATE THE PARTICULAR TYPE.

4. RECOMMENDED MAXIMUM PIPE SIZES SHOWN ARE FOR CONCRETE PIPE. PIPE SIZES LARGER THAN THOSE RECOMMENDED MUST BE CHECKED FOR FIT.

5. ALL EXPOSED CORNERS AND EDGES OF CONCRETE ARE TO CHAMFERED 3/4".

6. PAVEMENT TO BE USED ON INLETS WITHOUT SLOTS AND INLETS WITH NON-TRAVERSABLE SLOTS ONLY WHEN CALLED FOR IN THE PLANS; BUT REQUIRED ON ALL TRAVERSABLE SLOT INLETS. COST TO BE INCLUDED IN CONTRACT UNIT PRICE FOR INLETS. QUANTITIES SHOWN ARE FOR INFORMATION ONLY.

7. TRAVERSABLE SLOTS CONSTRUCTED IN EXISTING INLETS SHALL BE PAID FOR AS INLETS PARTIAL, AND SHALL INCLUDE THE COST FOR SLOT OPENINGS, PAVING AND ANY REQUIRED REPLACEMENT GRATES.

8. SODDING TO BE USED ON ALL INLETS NOT LOCATED IN PAVED AREAS AND PAID FOR UNDER CONTRACT UNIT PRICE FOR SODDING, SY.

9. FOR SUPPLEMENTARY DETAILS SEE INDEX NO. 201.

FDOT TYPE "C" INLET DETAIL

NOT TO SCALE

ON RAMPS THAT ARE PERPENDICULAR WITH THE CURB LINE, THE DOME PATTERN SHALL BE IN-LINE WITH THE DIRECTION OF TRAVEL. ON RAMPS INTERSECTING CURBS ON A RADIUS, THE DOME PATTERN SHALL BE IN-LINE WITH THE DIRECTION OF TRAVEL TO THE EXTENT PRACTICAL.

BASE-TO-BASE SPACING SHALL BE 0.65" MIN BETWEEN DOMES

TOP WIDTH OF DOME SHALL BE A MINIMUM OF 50% AND A MAXIMUM OF 65% OF THE BASE DIAMETER.

ALL SIDEWALK CURB RAMPS SHALL HAVE DETECTABLE WARNING SURFACES THAT EXTEND THE FULL WIDTH OF THE RAMP AND IN THE DIRECTION OF TRAVEL 24 INCHES FROM THE BACK OF CURB. DETECTABLE WARNING SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT INDEX 304. TRANSITION SLOPES ARE NOT TO HAVE DETECTABLE WARNINGS.

CURB RAMP DETECTABLE WARNING DETAIL

NOT TO SCALE

COST OF FILTER FABRIC JACKET TO BE INCLUDED IN COST OF PIPE CULVERTS.
FOR ALL PIPE TYPES – CONCRETE PIPE SHOWN

FILTER FABRIC JACKET DETAIL

NOT TO SCALE

METER & STRAINER LAYING LENGTH				
TYPE	SIZE			
	3"	4"	6"	8"
OMNI T2	17"	19"	23"	N/A
OMNI C2	17"	20"	24"	N/A
OMNI F2	N/A	51-⅞"	67-⅝"	N/A

METER LAYING LENGTH INCLUDES STRAINER.

METER FLOW OPERATING RANGE (GPM)				
TYPE	SIZE			
	3"	4"	6"	8"
OMNI T2	2.5-500	3-1,000	4-2,000	N/A
OMNI C2	1.0-400	1.5-800	3-1,600	N/A
OMNI F2	N/A	1.5-1,000	3-2,000	N/A

METER LAYING LENGTHS & OPERATING RANGE

NOT TO SCALE

MINIMUM TECHNICAL STANDARDS CHECKLIST FOR UTILITY AS-BUILTS

CITY OF PANAMA CITY BEACH
DATED MAY, 2012

SURVEYORS AND MAPPERS MUST MEET THE FOLLOWING MINIMUM STANDARDS OF ACCURACY, COMPLETENESS, AND QUALITY FOR THE CITY OF PANAMA CITY BEACH TO ACCEPT AS-BUILTS:

1. MUST IDENTIFY THE RESPONSIBLE SURVEYOR AND MAPPER.
2. SHALL STATE THE TYPE OF SURVEY IT DEPICTS AND THE PURPOSE OF THE SURVEY.
3. MUST BEAR THE NAME, CERTIFICATE OF AUTHORIZATION NUMBER, AND STREET AND MAILING ADDRESS OF THE BUSINESS ENTITY ISSUING THE AS-BUILT SURVEY, ALONG WITH THE NAME AND LICENSE NUMBER OF THE SURVEYOR IN RESPONSIBLE CHARGE.
4. MUST REFLECT A SURVEY DATE, WHICH IS THE DATE OF ACQUISITION. WHEN THE GRAPHICS OF THE AS-BUILT SURVEY ARE REVISED, BUT THE SURVEY DATE STAYS THE SAME, THE AS-BUILT SURVEY MUST LIST DATES FOR ALL REVISIONS.
5. MUST BE SIGNED AND SEALED BY THE SURVEYOR IN RESPONSIBLE CHARGE.
6. A DESIGNATED "NORTH ARROW" AND EITHER A STATED SCALE OR GRAPHIC SCALE SHALL BE SHOWN.
7. APPROPRIATE LINE TYPES, LINE WEIGHTS, AND LINE WIDTHS SHALL BE USED ON THE AS-BUILT DRAWING TO DIFFERENTIATE EXISTING FROM PROPOSED AND WATER FROM SEWER, RECLAIM, AND STORM. ALL PHYSICAL ITEMS (I.E. PIPES, VALVES, ETC.), SURVEYED BOUNDARIES, AND EASEMENTS SHOULD BE CLEARLY MARKED, AND DIMENSIONED, AND IDENTIFIED BY SIZE AND MATERIAL.
8. ALL UTILITIES IN THE PUBLIC RIGHT OF WAY AND WITHIN EASEMENTS OR TO THE END OF THE PUBLICLY OWNED PORTION OF THE UTILITY (I.E. METER AND BACKFLOW PREVENTER, CLEANOUT, ETC.) SHALL BE SHOWN WITH ASSOCIATED SIZES LABELED. THIS INCLUDES, BUT IS NOT LIMITED TO, STUB-OUTS/LATERALS, METERS, BFP'S, WATER MAINS, FORCE MAINS, GRAVITY SEWER MAINS, MANHOLES, STORM WATER PIPING AND ASSOCIATED STRUCTURES, VALVES, FIRE HYDRANTS, LIFT STATIONS, ETC. ALL PIPE LINE WORK MUST BE CONNECTED WITHIN THE SITE AS WELL AS THE CONNECTION TO EXISTING UTILITIES ADJACENT TO THE SITE (IT IS THE SURVEYOR'S RESPONSIBILITY TO COORDINATE WITH ALL CONTRACTORS FOR LOCATIONS AND SIZING). ALL UTILITY CONNECTIONS TO THE BUILDINGS MUST BE SHOWN.
9. ALL PROPOSED UTILITY/INGRESS/EGRESS EASEMENTS MUST BE SHOWN ON THE DRAWING AND MUST HAVE THE ASSOCIATED LEGAL DESCRIPTION WRITTEN.
10. EDGE OF PAVEMENT, ROADS (ASPHALT SHADED), CURBS, DRIVEWAY CONNECTIONS, BUILDINGS, PARKING LOTS, RIGHT-OF-WAY, AND STREET NAMES MUST BE SHOWN IN ALL APPLICATIONS. ALL ITEMS MENTIONED ABOVE MUST BE FIELD LOCATED.
11. IF A LIFT STATION IS TO BE DEDICATED TO THE CITY THE PLAN MUST SHOW A DETAIL SCALED AT 1"=10' SHOWING ALL IMPROVEMENTS INCLUDING: WATER AND SEWER SERVICES, MANHOLES, INVERTS, RIMS, BFP'S, YARD HYDRANTS, CONTROL PANELS, FENCING, PARCEL BOUNDARY, LEGAL DESCRIPTION OF PARCEL BOUNDARY, WET WELL, VALVE BOX, FORCE MAIN, FLOW METER (IF APPLICABLE), DRIVEWAY, GATE.
12. PROPERTY BOUNDARY MUST BE CLEARLY LABELED AND DIMENSIONED.
13. INVERTS, GRATES, TOPS, RIMS MUST BE SHOWN FOR ALL STORM WATER DRAINAGE STRUCTURES. INVERTS (PIPES AND CLEANOUTS) AND RIMS MUST BE SHOWN FOR ALL GRAVITY SEWER MANHOLES. SLOPES MUST BE SHOWN ON EACH RUN OF PIPE FOR REVIEW AND APPROVAL.
14. "AS-BUILT" PROFILE OF ALL DIRECTIONAL BORES AND JACK-AND-BORES INDICATING GRADE AND PIPE ELEVATIONS AT 10 FOOT INTERVALS SHALL BE PROVIDED ON AS-BUILT PLAN SHEETS BASED ON BORE LOGS DEVELOPED BY BORING CONTRACTOR DURING INSTALLATION. PROFILES SHALL USE HORIZONTAL STATIONING WHICH TIES TO STATIONING ON PLANS. PROFILES SHALL ALSO SHOW EXISTING SURFACE ELEVATIONS AS WELL AS ANY PROPOSED SURFACE ELEVATIONS ON THE PROFILE. SURFACE PROFILES MUST SHOW ANY PAVEMENT, SIDEWALKS, DITCHES, SWALES ETC. NOTE THAT PROFILES LOCATING PIPE SOLELY BY "DEPTH BELOW EXISTING GROUND" WILL NOT BE ACCEPTED.
15. COASTAL SETBACK LINE OR COASTAL CONSTRUCTION CONTROL LINE SHOULD BE DESIGNATED.
16. ELEVATIONS AND LOCATION OF ANY FLOOD ZONES ALONG THE FLOOD HAZARD BOUNDARIES SHALL BE DELINEATED.
17. NEARBY WETLANDS AND OTHER ENVIRONMENTALLY SIGNIFICANT RESOURCES CLEARLY LABELED.
18. STORM WATER MANAGEMENT SYSTEM FEATURES INCLUDING DIMENSIONS OF : WET AND DRY SWALES, WET AND DRY PONDS, CONVEYANCE SYSTEMS, EASEMENTS, ALONG WITH ALL ASSOCIATED M.E.S. STRUCTURES AND INVERTS, OUTFALL STRUCTURES AND INVERTS, SKIMMERS, DISCHARGE STRUCTURES AND INVERTS AND SLOT ELEVATIONS, TOP OF BANK, SLOPE OF BANK AND BOTTOM OF ALL PONDS, SWALES, CLOSED AND OPEN CONVEYANCES. FOR FEMA LOMR SUBMITTALS ALSO PROVIDE: FINISHED FLOOR ELEVATIONS, SPOT ELEVATIONS AND/OR CONTOURS SHOWING LOWEST LOT ELEVATIONS.
19. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVE THE AS-BUILT PRIOR TO SUBMISSION TO THE CITY FOR FINAL APPROVAL. WRITTEN APPROVAL BY THE ENGINEER OF RECORD SHALL BE NOTED ON A TRANSMITTAL WITH A STATEMENT OF NO EXCEPTIONS TO MINIMUM STANDARDS PROVIDED HEREIN.

STORM WATER REQUIREMENTS FOR THE AS-BUILT SURVEYS ONLY APPLY TO PARCELS WITHIN CITY LIMITS. PLEASE SUBMIT THREE (3) HARD COPIES AND ONE (1) DIGITAL (AUTOCAD FORMAT & PDF) FOR REVIEW AND APPROVAL.

NOTE: ALL PIPE ADS N-12 OR EQUAL

DOWNSPOUT DETAIL

NOT TO SCALE

CONCRETE MITERED END DETAIL

NOT TO SCALE

NOTES:

1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (6" LIFTS) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE CITY.
4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW
7. REFER TO SECTION 32.5 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
8. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN CITY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

TRENCHES AND EXCAVATION PITS SHALL NOT BE BACKFILLED UNTIL ALL TESTS AND INSPECTIONS COVERING THE INSTALLATION OF THE STORM DRAINAGE SYSTEM HAVE BEEN PERFORMED AND APPROVED.

ALL TIMBER SHEETING BELOW A PLANE ONE FOOT ABOVE TOP OF PIPE SHALL REMAIN IN PLACE IN ORDER NOT TO DISTURB PIPE GRADING. BEFORE BACKFILLING, REMOVE ALL OTHER SHEETING, BRACING AND SHORING. PIPE TO BE CAREFULLY COMPACTED TO NINETY FIVE PERCENT (95%) OF MAXIMUM DENSITY AS PER ASTM D-1557 UNTIL ONE FOOT (1') OF COVER EXISTS OVER PIPE.

IN STREETS, DRIVES, PARKING LOTS AND OTHER AREAS TO HAVE OR HAVING IMPROVED HARD SURFACES, BACKFILL SHALL BE MATERIAL SPECIFIED AS FOR PIPE BEDDING AND SHALL BE DEPOSITED IN SIX INCH (6"0 LOOSE LAYERS AS OPTIMUM MOISTURE CONTENT (+ 2%) AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 WHERE SERVICES OR UTILITY LINES CROSS STREET, BEDDING SHALL BE CARRIED TO FIVE FEET (5') BEHIND THE CURB, OR WHERE SIDEWALKS EXISTS, TO THE SIDE OF SIDEWALK FARTHEST AWAY FROM THE STREET.

MATERIAL USED FOR BEDDING SHALL MEET CURRENT RECOMMENDATIONS OF THE PIPE MANUFACTURER AND SHALL BE APPROVED BY THE ENGINEER. THE SPECIFIED COHESIONLESS MATERIAL SHALL BE PLACED IN THE TRENCH SIMULTANEOUSLY ON EACH SIDE OF THE PIPE TO THE FULL WIDTH OF THE TRENCH. MATERIAL WILL BE PLACED IN A MAXIMUM LIFT OF SIX (6) INCHES (COMPACTED DEPTH) TO A MINIMUM DEPTH OF ONE (1) FOOT ABOVE THE CROWN OF THE PIPE.

PERFORM ALL TRENCHING REQUIRED FOR THE INSTALLATION OF UTILITIES AS SHOWN ON PLANS AND SPECIFIED HEREIN. MAKE ALL TRENCHES OPEN VERTICAL CONSTRUCTION WITH SUFFICIENT WIDTH TO PROVIDE FREE WORKING SPACE AT BOTH SIDE OF THE TRENCH AND AROUND THE INSTALLED ITEMS AS REQUIRED FOR CAULKING, JOINING, BACKFILLING AND COMPACTING.

PROPERLY SUPPORT ALL TRENCHES IN STRICT ACCORDANCE WITH ALL PERTINENT RULES AND REGULATIONS.

GRADE THE TRENCH BOTTOM TO PROVIDE A SMOOTH, FIRM AND STABLE FOUNDATION FREE OF ROCK POINTS THROUGHOUT THE LENGTH OF THE PIPE. IN AREAS WHERE SOFT, UNSTABLE MATERIALS ARE ENCOUNTERED AT THE SURFACE UPON WHICH COHESIONLESS MATERIAL IS TO BE PLACED, REMOVE THE UNSTABLE MATERIAL AND REPLACE IT WITH MATERIAL APPROVED BY THE ENGINEER, MAKE SUFFICIENT DEPTH TO DEVELOP A FIRM FOUNDATION FOR THE ITEM BEING INSTALLED.

AT EACH JOINT IN PIPE, RECESS THE BOTTOM OF THE TRENCH AS REQUIRED INTO THE FIRM FOUNDATION IN SUCH A MANNER AS TO RELIEVE THE BELL OF THE PIPE OF ALL LOAD AND TO ENSURE CONTINUOUS BEARING OF THE PIPE BARREL ON THE FIRM FOUNDATION.

ACCURATELY SHAPE ALL PIPE SUBGRADE AND FIT THE BOTTOM OF THE TRENCH TO THE PIPE SHAPE; USE A DRAG TEMPLATE SHAPED TO CONFORM TO THE OUTER SURFACE OF THE PIPE IF OTHER METHODS DO NOT PRODUCE SATISFACTORY RESULTS. SHAPING WILL CONFORM TO THE OUTSIDE OF THE PIPE FOR A DEPTH OF NOT LESS THAN 10% OF THE TOTAL HEIGHT (OUTSIDE DIMENSION) OF THE PIPE.

PIPE TRENCHES SHALL BE EXCAVATED TO A DEPTH THAT WILL INSURE A MINIMUM OF THIRTY INCHES OF COVER LESS OTHERWISE SHOWN ON THE DRAWINGS OR DIRECTED.

BACKFILL OF EARTH AROUND MANHOLES SHALL BE FILLED WITH THOROUGHLY COMPACTED SAND OR GRAVEL AT THE EXPENSE OF THE CONTRACTOR.

TRENCHES SHALL BE BACKFILLED WITH EXCAVATED MATERIALS, FREE FROM LARGE CLODS OR STONES. BACKFILL SHALL BE DEPOSITED IN LAYERS NOT TO EXCEED 6-INCHES (6") IN THICKNESS, MOISTENED, AND COMPACTED TO DENSITY EQUAL TO OR GREATER THAN 95% OF THE MAXIMUM DENSITY OF AASHTO STANDARD METHOD T-99 , TO A MINIMUM DEPTH OF 12-INCHES OVER THE PIPE. THE REMAINDER OF THE BACKFILL SHALL BE PLACED IN 8-INCH LAYERS COMPACTED TO 95% MAXIMUM DENSITY UNLESS THE BACKFILL IS BENEATH PAVED OR BUILDING AREAS IN WHICH CASE IT SHALL BE COMPACTED TO 95% OF A MODIFIED PROCTOR.

EXCAVATIONS FOR PIPE LAYING OPERATIONS SHALL BE CONSTRUCTED IN A MANNER TO CAUSE THE LEAST INTERRUPTION TO TRAFFIC. WHEN TRAFFIC MUST CROSS OPEN TRENCHES THE CONTRACTOR SHALL PROVIDE SUITABLE BRIDGES.

TYPE B BEDDING AND TRENCHING DETAIL

NOT TO SCALE

PERMIT PURPOSES ONLY

CONSTRUCTION DETAILS
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE: SHOWN
DESIGNED BY: RLC
DRAWN BY: BLR
REVIEWED BY: RLC
ISSUE DATE: 9/24/2025
CF/D: 1577.01E02
NOT RELEASED FOR CONSTRUCTION
BY:
DATE:

McNEIL-CARROLL ENGINEERING, INC.
Professional Engineering Consultants
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850-234-1730
Fax: 850-234-1731

NO.	DATE	BY	REVISIONS
01			
02			
03			
04			
05			

Sean D. McNeil, P.E.
PROFESSIONAL ENGINEER
FL LC # 49303

Robert L. Carroll, P.E.
PROFESSIONAL ENGINEER
FL LC # 57988

ROBERT L. CARROLL
No. 57988
9/24/25

SHEET NUMBER 9 OF 13

1577.01 – STUDIORES

SITE UTILITIES

MATERIALS: WHERE GROUND IS FOUND UNSUITABLE TO SUPPORT PIPE, PROVIDE CRADLES OF 2500 PSI. CONCRETE FULL WIDTH OF TRENCH WITH TWO NO. 4 REINFORCING BARS CONTINUOUSLY ALONG THE BOTTOM OF PIPE.

BACKFILL, UNLESS OTHERWISE NOTED, SHALL BE COARSE SAND, FINE GRAVEL OR EARTH HAVING A LOW PLASTICITY INDEX, FREE OF ROCKS, DEBRIS AND OTHER FOREIGN MATERIALS AND DEFINED AS ALL PASSING THROUGH A 3/8" SIEVE AND NOT MORE THAN TEN PERCENT (10%) BY VOLUME PASSING THROUGH A 200 MESH SIEVE.

UTILITY PIPING AND FITTINGS SHALL BE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL CONFORM TO THE FOLLOWING: MANHOLES STRUCTURES SHALL BE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL BE CONSTRUCTED OF THE FOLLOWING:

REINFORCED PRECAST CONCRETE MANHOLE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI. CONCRETE AND CONFORM TO ASTM C-478 OR AASHTO M-199. SECTIONS SHALL BE COMPLETE WITH 3/4" ROUND CAST IN PLACE WROUGHT IRON STEPS.

BRICK SHALL BE SOUND, HARD BURNED THROUGHOUT AND OF UNIFORM SIZE AND QUALITY AND SHALL BE IN ACCORDANCE WITH ASTM C-32, GRADE MS OR MM.

CONCRETE MASONRY SHALL BE SOLID PRECAST SEGMENTAL CONCRETE MASONRY UNITS CONFORMING TO ASTM C-139.

IRON CASTING SHALL CONFORM TO ASTM A-48, CLASS 30. BEARING SURFACES BETWEEN CAST IRON FRAMES, COVERS, GRATES SHALL BE MACHINED, FITTED TOGETHER AND MATCH MARKED TO PREVENT ROCKING. SYSTEM IDENTIFYING LETTER 2" HIGH SHALL BE STAMPED OR CAST INTO ALL COVERS SO THAT THEY MAY BE PLAINLY VISIBLE. CASTING SHALL BE MANUFACTURED BY EAST JORDAN IRON WORKS, INC., NEENAH FOUNDRY COMPANY OR EQUAL.

CONCRETE AND MASONRY MATERIALS FOR CONSTRUCTION OF SITE UTILITY STRUCTURES AND PADS SHALL CONSIST OF THE FOLLOWING:

PORTLAND CEMENT SHALL BE STANDARD BRAND OF PORTLAND CEMENT CONFORMING TO ASTM C-150, TYPE I OR II.
FINE OR COARSE AGGREGATES FOR CONCRETE SHALL BE PER ASTM C-33. AGGREGATES SHALL BE WELL GRADED FROM FINE TO COARSE WITHIN LIMITS SPECIFIED IN ASTM C-33. MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 3/4".
AGGREGATE FOR CEMENT MORTAR SHALL BE CLEAN, SHARP SAND CONFORMING TO ASTM C-144. GRADE SAND FROM COARSE TO FINE WITH 100% PASSING NO. 8 SIEVE, AND NOT OVER 10% TO 30% PASSING NO. 50 SIEVE.
HYDRATED LIME SHALL COMPLY WITH ASTM C-207, TYPE S.
WATER SHALL BE CLEAN AND FREE FROM DELETERIOUS MATERIALS.

REINFORCING STEEL FOR CONCRETE SHALL BE INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 40.

FORMS FOR CONCRETE WORK SHALL BE WOOD. FORMS SHALL BE SUFFICIENT STRENGTH TO PREVENT DEFORMATIONS UNDER LOAD AND TIGHT ENOUGH TO PREVENT LEAKAGE. FOUNDATIONS MAY BE POURED AGAINST EARTH WHERE CONDITIONS PERMIT.

CONCRETE, UNLESS OTHERWISE NOTED, SHALL HAVE COMPRESSIVE STRENGTH AFTER 28 DAYS OF 3000 PSI MINIMUM. MIX SHALL BE SO PROPORTIONED TO PROVIDE A MINIMUM OF 517 POUNDS OF CEMENT PER CUBIC YARD. CONCRETE FILL BELOW GRADE FOR THRUST BLOCKS, PIPE CRADLES ETC. MAY BE 2500 PSI. AT 28 DAYS.

CONCRETE, WHERE EXPOSED TO THE WEATHER, SHALL BE AIR ENTRAINED. AIR ENTRAINMENT SHALL BE ACCOMPLISHED BY THE USE OF ADDITIVES CONFORMING TO ASTM C-260. AIR CONTENT SHALL BE 6% + 1%. ADDITIVE SHALL BE USED IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED DIRECTIONS.

READY-MIX CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-94.

TYPE M, AVERAGE COMPRESSIVE STRENGTH 2500 PSI. AT 28 DAYS. MORTAR MIX SHALL BE PROPORTIONED BY VOLUME.

MORTAR FOR PARGING SHALL CONSIST OF ONE PART PORTLAND CEMENT AND TWO PARTS SAND.

BACKFILL SHALL BE SAME MATERIAL SPECIFIED FOR PIPE BEDDING. WHERE SERVICE OR UTILITY LINES CROSS A STREET, BEDDING SHALL BE CARRIED TO FIVE FEET (5') BEHIND THE CURB, OR WHERE SIDEWALKS EXIST, TO THE SIDE OF THE SIDEWALK FARTHEST AWAY FROM THE STREET.

FLUSHING REQUIREMENTS FOR WATER AND SEWER FORCE MAINS

FLUSHING TIME SHALL BE AT LEAST THAT AMOUNT OF TIME NEEDED TO FLUSH 6 TIMES THE PIPE VOLUME AFTER 3 FPS VELOCITY IS REACHED OR UNTIL CLEAR, WHICHEVER IS LONGER. MAXIMUM LENGTH OF PIPE BETWEEN FLUSHING ASSEMBLIES SHALL BE 5,000 FEET.

SEWER COLLECTION SYSTEM

POLY (VINYL CHLORIDE) PIPE (PVC): PLASTIC GRAVITY SEWER PIPE AND FITTINGS SHALL BE UNPLASTICIZED POLYVINYL CHLORIDE (PVC) MEETING AND/OR EXCEEDING ASTM SPECIFICATIONS D-3034 (LATEST EDITION).

PIPE LENGTHS SHALL NOT EXCEED 20 FEET AND PROVISIONS SHALL BE MADE AT EACH JOINT TO ACCOMMODATE EXPANSION AND CONTRACTIONS.

COMPLY WITH REQUIREMENTS OF FS RR-F-621, FOR TYPE AND STYLE REQUIRED.

MATERIALS FOR SEWER FORCE MAINS: PVC PIPE FOR FORCE MAINS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SDR-21 FOR PRESSURE RATING OF 200 PSI 230 C (73 DEGREES F). HDPE FORCE MAIN SHALL BE SDR-11. PIPE JOINTS SHALL BE INTEGRAL BELL AND SPIGOT TYPE WITH RUBBER RING SEALING GASKET. THE PIPE BELL SHALL BE DESIGNED TO BE AT LEAST AS STRONG AS THE PIPE WALL. STANDARD LENGTHS SHALL BE 20 FEET, EXCEPT THAT 15% OF TOTAL FOOTAGE FOR A PARTICULAR PROJECT MAY BE RANDOM LENGTHS OF NOT LESS THAN 10 FEET EACH. EACH PIECE OF PIPE SHALL BE TESTED BY THE MANUFACTURER OF 6000 PSI FOR A MINIMUM OF 5 SECONDS. THE BELL SHALL BE TESTED WITH THE PIPE. ALL PIPE SHALL BE LISTED BY UNDERWRITER'S LABORATORIES, INC., AND BY FACTORY MUTUAL AS APPROVED FOR USE IN UNDERGROUND MUNICIPAL WATER DISTRIBUTION SYSTEMS AND PRIVATE FIRE PROTECTION SYSTEM. CAST IRON OR DUCTILE IRON FITTINGS SHALL BE USED WITH PVC PIPE.

CAST IRON FITTINGS SHALL BE MECHANICAL JOINT AND SHALL CONFORM TO ANSI SPECIFICATION A21.10 FOR SIZES 3 INCHES THROUGH 12 INCHES AND SHALL BE CLASS 250. FITTINGS 14 INCHES AND LARGER SHALL BE CLASS 150 AND SHALL BE OF THE DIMENSIONS AND METAL THICKNESSES AS SHOWN IN THE HANDBOOK OF CAST IRON PIPE AS PUBLISHED BY THE CAST IRON PIPE RESEARCH ASSOCIATION. CAST IRON FITTINGS MAY BE USED IN DUCTILE IRON OR CAST IRON LINES, EXCEPT WHERE SHOWN OTHERWISE ON THE DRAWINGS.

DUCTILE IRON FITTINGS SHALL BE DESIGNED FOR PRESSURE RATING OF 250 PSI AND SHALL BE IN ACCORDANCE WITH ANSI SPECIFICATIONS A21.10. FITTING SHALL BE MECHANICAL JOINT. DUCTILE IRON FITTINGS MAY BE USED IN DUCTILE IRON OR CAST IRON LINES, EXCEPT WHERE SHOWN OTHERWISE ON THE DRAWINGS.

THE EXTERIOR OF ALL CAST IRON AND DUCTILE IRON FITTINGS SHALL BE COATED WITH AN APPROVED BITUMINOUS COATING. THE INTERIOR OF THE PIPE SHALL BE EPOXY LINED (PROTECTO 401) IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION (40 MILS NOMINAL DRY FILM THICKNESS).

MATERIALS FOR CONCRETE MANHOLES: PRECAST OF CAST-IN-PLACE, AT CONTRACTOR'S OPTION. USE CONCRETE WHICH WILL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.

INSPECTIONS AND TESTS: IT IS IMPERATIVE THAT ALL SEWERS AND MANHOLES BE BUILT PRACTICALLY WATERTIGHT AND THAT THE CONTRACTOR MUST ADHERE RIGIDLY TO THE SPECIFICATIONS FOR MATERIAL AND WORKMANSHIP.

THE ALLOWABLE LIMIT OF GROUNDWATER INFILTRATION FOR THE GRAVITY SYSTEM OF NEW SEWERS OR ANY ONE TRUNK, OR INTERCEPTOR, SHALL BE IN COMPLETE ACCORDANCE WITH ASTM 425-71T AND SHALL NOT EXCEED A LIMIT OF INFILTRATION EQUAL TO 0.2 GAL/INCH DIAMETER/HOUR/100 LINEAR FEET OF PIPE.

THE TEST WILL BE MADE BY MEASURING THE INFILTRATED FLOW OF WATER OVER A MEASURING WEIR SET UP IN THE INVERT OF THE SEWER, OR BY ALTERNATE METHOD APPROVED BY THE ENGINEER, A KNOWN DISTANCE FROM A TEMPORARY BULKHEAD OR OTHER LIMITING POINT OF INFILTRATION. AFTER THE SEWER OF SEWERS HAVE BEEN PUMPED OUT, AND NORMAL INFILTRATION CONDITIONS PREVAIL, TESTS SHALL BE STARTED.

TESTS SHALL BE RUN CONTINUOUSLY FOR A PERIOD OF NOT LESS THAN THREE HOURS, WITH WEIR READINGS TAKEN AT 20 MINUTE INTERVALS.

PRESSURE AND LEAKAGE TESTS OF SEWAGE FORCE MAIN PIPING

CONTRACTOR SHALL FURNISH ALL GAUGES, METERS, PRESSURE PUMPS, EQUIPMENT, FITTINGS, AND LABOR NEEDED TO TEST THE LINE. THE COST OF THESE ITEMS SHALL BE INCLUDED IN THE PRICE OF THE PIPE. CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS PRIOR TO START OF TEST. ALL PIPE INSTALLED SHALL BE TESTED AND WRITTEN ACCEPTANCE ISSUED BY THE ENGINEER PRIOR TO CONNECTION OF NEW LINE TO EXISTING LINES.

THE CONTRACTOR MAY TEST THE SYSTEM WITH JOINTS EXPOSED OR BACKFILLING COMPLETE AT HIS OPTION. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL WATER USED. CARE SHALL BE USED TO PREVENT BACKFLOW OF TEST WATER INTO POTABLE WATER SOURCE. POTABLE WATER SOURCE SHALL BE DISCONNECTED PRIOR TO PRESSURIZING TEST LINE. WATER USED DURING TEST SHALL BE TAKEN FROM A CONTAINER, NOT DIRECTLY FROM THE EXISTING WATER SYSTEM.

AT LEAST 24 HOURS PRIOR TO THE START OF THE PRESSURE AND LEAKAGE TEST, PRESSURE SHALL BE RAISED TO 150 PSIG AND HELD TO ALLOW ANY "SOIL CREEP" OR OTHER STRESS RELAXATION TO OCCUR. IF ANY PRESSURE REDUCTION OCCURS DURING THE 24 HOUR "SHAKEDOWN" PERIOD, REESTABLISH THE REQUIRED HYDROSTATIC TEST PRESSURE, THEN PROCEED WITH THE LEAKAGE TEST.

THE PRESSURE REQUIRED FOR THE FIELD HYDROSTATIC PRESSURE TEST SHALL BE 150 PSI. THE CONTRACTOR SHALL PROVIDE TEMPORARY PLUGS AND BLOCKING NECESSARY TO MAINTAIN THE REQUIRED TEST PRESSURE. CORPORATION COCKS AT LEAST ¾ INCHES IN DIAMETER, PIPE RISERS AND ANGLE GLOBE VALVES SHALL BE PROVIDED AT EACH PIPE DEAD-END AND HIGH POINTS IN ORDER TO BLEED AIR FROM THE LINE. DURATION OF PRESSURE TEST SHALL BE AT LEAST TWO HOURS. ALL LEAKS EVIDENT AT THE SURFACE SHALL BE REPAIRED AND LEAKAGE ELIMINATED REGARDLESS OF TOTAL LEAKAGE AS SHOWN BY TEST. LINES WHICH FAIL TO MEET TESTS SHALL REPAIRED AND RETESTED AS NECESSARY UNTIL TEST REQUIREMENTS ARE COMPLIED WITH. DEFECTIVE MATERIALS, PIPES, VALVES AND ACCESSORIES SHALL BE REMOVED AND REPLACED. THE PIPE LINES SHALL BE TESTED IN SUCH SECTION AS MAY BE DIRECTED BY THE ENGINEER BY SHUTTING OFF VALVES OR INSTALLING TEMPORARY PLUGS AS REQUIRED. THE LINE SHALL BE FILLED WITH WATER, ALL AIR REMOVED, AND TEST PRESSURE SHALL BE MAINTAINED IN THE PIPE FOR THE ENTIRE TEST PERIOD BY MEANS OF A GASOLINE OR ELECTRIC DRIVEN TEST PUMP TO BE FURNISHED BY THE CONTRACTOR. ACCURATE MEANS SHALL BE PROVIDED FOR MEASURING THE WATER REQUIRED TO MAINTAIN THIS PRESSURE. THE AMOUNT OF WATER REQUIRED IS A MEASURE OF THE LEAKAGE.

NO PIPE INSTALLATION WILL BE ACCEPTED UNTIL THE LEAKAGE (EVALUATED ON A PRESSURE BASIS OF 150 PSI) IS LESS THAN 2.2 GALLONS PER 24 HOURS PER THOUSAND FEET PER INCH NOMINAL DIAMETER. THE FOLLOWING TABULATES THE ALLOWABLE LEAKAGE:

ALLOWABLE LEAKAGE PER 1000 FT OF PIPELINE (IN GALLONS)

DURATION OF TEST	2	3	4	6	8	10	12	14
1 HOUR	0.18	0.28	0.37	0.55	0.74	0.92	1.10	1.29
2 HOURS	0.37	0.55	0.74	1.10	1.47	1.84	2.20	2.57

WHERE ANY SECTION OF A MAIN IS PROVIDED WITH CONCRETE REACTION BACKING THE HYDROSTATIC PRESSURE TEST SHALL NOT BE MADE UNTIL AT LEAST FIVE (5) DAYS HAVE ELAPSED. AFTER THE CONCRETE REACTION BACKING WAS INSTALLED. IF HIGH EARLY-STRENGTH CEMENT IS USED IN THE CONCRETE REACTION BACKING, THE HYDROSTATIC PRESSURE TEST SHALL NOT BE MADE UNTIL AT LEAST THREE (3) DAYS HAVE ELAPSED.

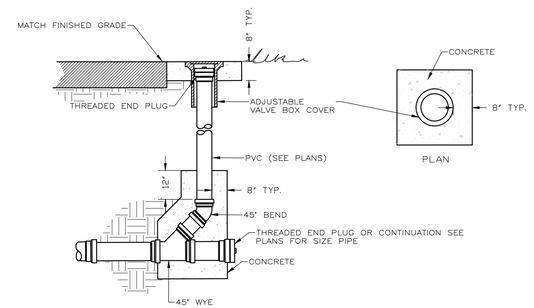
LEAKAGE TESTS FOR GRAVITY SEWER

LINES SHALL BE TESTED FOR LEAKAGE BY LOW PRESSURE AIR TESTING. LOW PRESSURE AIR TESTING FOR CONCRETE PIPES SHALL BE AS PRESCRIBED IN ASTM C 828. LOW PRESSURE AIR TESTING FOR PVC PIPE SHALL BE AS PRESCRIBED IN ASTM F1417, AND PRESSURE DROP LIMITS SHALL BE DETERMINED BY USING ASTM F1417 TABLE 1, SHOWN BELOW. LOW PRESSURE AIR TESTING PROCEDURES FOR OTHER PIPE MATERIALS SHALL USE THE PRESSURES AND TESTING TIMES PRESCRIBED IN ASTM C 828 AND ASTM C 924, AFTER CONSULTATION WITH THE PIPE MANUFACTURER. VISIBLE LEAKS ENCOUNTERED SHALL BE CORRECTED REGARDLESS OF LEAKAGE TEST RESULTS. WHEN LEAKAGE EXCEEDS THE MAXIMUM AMOUNT SPECIFIED, SATISFACTORY CORRECTION SHALL BE MADE AND RETESTING ACCOMPLISHED. TESTING, CORRECTION, AND RETESTING SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

ASTM F1417 TABLE 1
MINIMUM SPECIFIED TIME REQUIRED FOR 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

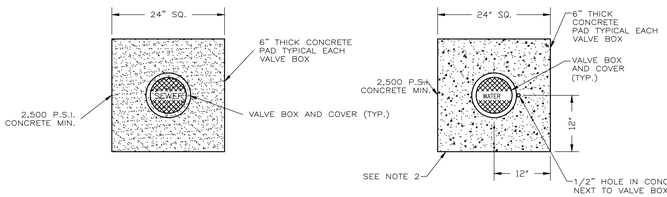
1. SEE PRACTICE UNI-B-6-90.
2. CONSULT WITH PIPE AND APPURTENANCE MANUFACTURER FOR MAXIMUM TEST PRESSURE FOR PIPE SIZE GREATER THAN 30IN DIA.

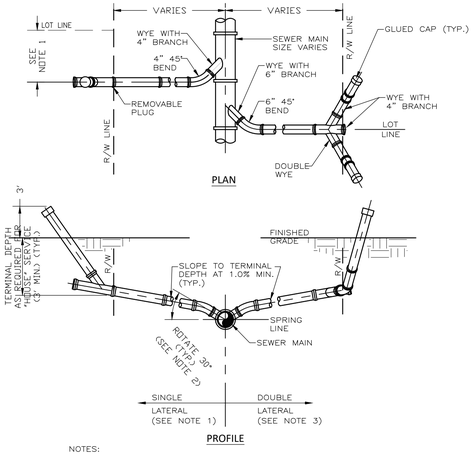
PIPE DIAMETER IN.	MINIMUM TIME MIN:S	LENGTH FOR MINIMUM TIME,FT	TIME FOR LONGER LENGTH,S	SPECIFICATION TIME FOR LENGTH (L) SHOWN, MIN:S							
				100FT	150FT	200FT	250FT	300FT	350FT	400FT	450FT
4	3:46	597	0.380L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	0.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342L	14.10	14.10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470L	19.50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46



NOTE: SEE SEWER SIZE IN PLANS

SEWER CLEANOUT DETAIL
NOT TO SCALE





NOTES:

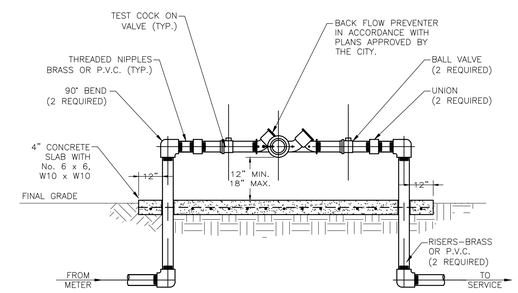
1.) LOCATE SINGLE LATERAL AS NEAR TO CENTER OF LOT AS POSSIBLE.

2.) INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.

3.) DOUBLE SERVICE LATERALS ONLY PERMITTED ON TAPS TO EXISTING GRAVITY MAINS WERE EXISTING ROAD PAVEMENT MUST BE CUT.

4.) ALL PIPE FITTINGS SHALL BE PVC ASTM 3034 SDR35, GREEN IN COLOR.

SERVICE LATERAL DETAIL
NOT TO SCALE

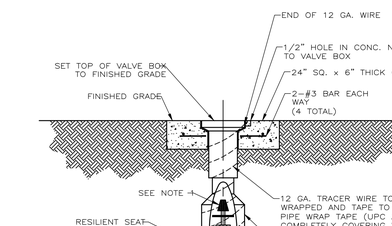


NOTES:

1.) ALL PIPE AND FITTINGS 2" AND SMALLER SHALL BE THREADED SCHEDULE 40 BRASS OR PVC.

2.) PROVIDE PROTECTION AGAINST FREEZING, INSULATION OR "HOTBOX".

REDUCED PRESSURE BACK FLOW PREVENTER FOR 3/4,1,1-1/2 & 2"
NOT TO SCALE

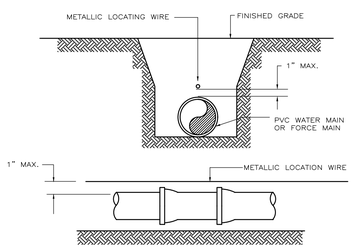


NOTES:

1.) THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

2.) FOR VALVE COLLAR PADS THAT FALL ON SLOPES GREATER THAN 1:6, SEE DETAIL W-20 FOR PAD.

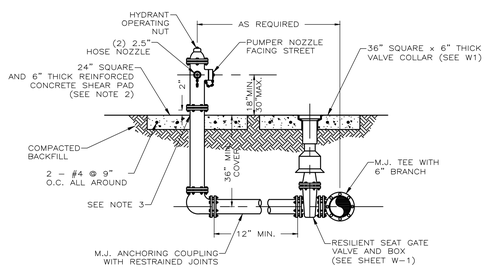
WATER GATE VALVE & BOX DETAIL (4" TO 12")
NOT TO SCALE



NOTES:

1. PVC PIE SHALL REQUIRE INSULATED METALLIC LOCATING WIRE (12 GAUGE COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE BURIED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE.
2. LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX AND BE CAPABLE OF EXTENDING 12" ABOVE TOP OF BOX IN SUCH A MANNER SO AS NOT TO INTERFERE WITH VALVE OPERATION.
3. USE DUCT TAPE AS NECESSARY TO HOLD WIRE DIRECTLY ON THE TOP OF THE PIPE.
4. ALL SPLICES SHALL BE MADE USING A WATER TIGHT SEALING METHOD APPROVED BY THE CITY.

PVC PIPE LOCATING WIRE DETAIL
NOT TO SCALE



NOTES:

1.) FIRE HYDRANT SHALL BE SUPPLIED WITHOUT A WEEP HOLE OR WITH A PERMANENTLY PLUGGED WEEP HOLE.

2.) THE SHEAR PAD MAY BE RECESSED UP TO 6 INCHES BELOW FINISHED GRADE.

3.) CLEARANCE BETWEEN BOTTOM OF BOLTS AND TOP OF SHEAR PAD SHALL BE A 6" MINIMUM.

4.) HYDRANT SHALL BE AVK MODEL 2780 NOSTALGIC, AMERICAN DARLING B-84-B, OR US FIRE HYDRANT, MODEL SENTINEL 250 WITH SS VALVE ROD.

5.) A WEATHER SHIELD SHALL BE PROVIDED TO PROTECT OPERATING STEM OR NUT.

6.) THE HYDRANT'S UPPER AND LOWER STEM, BREAK COUPLING, INTERNAL PINS AND CLIPS, AND ALL EXTERNAL BOLTING SHALL BE MANUFACTURED OF STAINLESS STEEL.

5-1/4" FIRE HYDRANT ASSEMBLY DETAIL
NOT TO SCALE

PERMIT PURPOSES ONLY

CONSTRUCTION DETAILS
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE:	SHOWN
DESIGNED BY:	RLC
DRAWN BY:	BLR
REVIEWED BY:	RLC
ISSUE DATE:	9/24/2025
CF/D:	1577.01E02
NOT RELEASED FOR CONSTRUCTION BY: DATE:	

McNEIL — CARROLL ENGINEERING, INC.
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850-234-1730
Fax: 850-234-1731
Professional Engineering Consultants
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288

NO.	DATE	BY	REVISIONS
01			
02			
03			
04			
05			

Sean D. McNeil, P.E.
PROFESSIONAL ENGINEER
FL LIC # 49303

Robert L. Carroll, P.E.
PROFESSIONAL ENGINEER
FL LIC # 57988

ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER
9/24/25

SHEET NUMBER 10 OF 13

1577.01 – STUDIORES

WATER DISTRIBUTION SYSTEM

PRODUCTS: PROVIDE ELLS, TEES, REDUCING TEES, WYES, COUPLINGS, AND OTHER REQUIRED PIPING ACCESSORIES OF SAME TYPE AND CLASS OF MATERIALS AS CONDUIT, OR OF MATERIAL HAVING EQUAL OR SUPERIOR PHYSICAL AND CHEMICAL PROPERTIES AS ACCEPTABLE TO THE ENGINEER.

UNPLASTICIZED POLYVINYL CHLORIDE (PVC PIPE SHALL HAVE AN INTEGRATED BELL–TYPE JOINT DESIGNED FOR CONVEYING POTABLE WATER UNDER PRESSURE.

RING–TYPE NEOPRENE GASKETS SHALL BE PROVIDED IN RECESSED IN THE BELLS TO MAKE JOINTS WATER TIGHT. ALL PIPES SHALL BE SUITABLE FOR USE AT MAXIMUM HYDROSTATIC PRESSURES OF 165 PSI AT 75 DEGREES F AND MEETING AND/OR EXCEEDING THE MINIMUM REQUIREMENTS OF AWWA C–900–07 MADE TO SDR 25 DIMENSIONS. MAXIMUM LAYING LENGTHS SHALL BE 40 FEET WITH MANUFACTURER'S OPTION TO SUPPLY UP TO 15 PERCENT RANDOMS (MINIMUM LENGTH EQUALS 10 FT.). ALL FITTINGS SHALL BE CAST IRON WITH MECHANICAL.

PIPE FITTINGS SHALL BE ASSEMBLED WITH A NON–TOXIC LUBRICANT AS RECOMMENDED BY THE MANUFACTURER. PVC PIPE SHALL BE AS MANUFACTURED BY THE U.S. PIPE COMPANY, THE CERTAIN–TEED PRODUCTS CORPORATION, THE JOHNS–MANSVILLE COMPANY, THE ETHYL CORPORATION, OR APPROVED EQUAL.

PROVIDE VALVES AND FLOW CONTROL DEVICES AS INDICATED:

MINIMUM WORK PRESSURE, 160 PSI, UNLESS OTHERWISE INDICATED.

GATE VALVES: STANDARD SHUT–OFF VALVES WITH MAXIMUM WORK PRESSURE CAST INTO BODY, OUTSIDE–SCREW–AND–YOKE TYPE COMPLYING WITH AWWA C–500. ALL VALVES SHALL BE COUNTERCLOCKWISE.

FOUR–INCHES AND OVER: SHALL BE CAST–IRON BODY, FULLY BRONZE MOUNTED DOUBLE–DISC, PARALLEL SEAL VALVES WIDE FLANGE OR SPIGOT END DEPENDING ON INSTALLATION. FLANGED GATE VALVES SHALL BE PROVIDED WITH 125 POUND AMERICAN STANDARD FLANGES.

ALL VALVES TO BE INSTALLED ABOVE THE GROUND SHALL BE FITTED WITH WHEEL–TYPE HAND OPERATORS. ALL VALVES TO BE SET BELOW GRADE SHALL BE FITTED WITH HUB–TYPE OPERATORS AND SHALL HAVE A CAT–IRON VALVE BOX INSTALLED CONCENTRICALLY OVER THE VALVE.

UNDER FOUR–INCHES: GATE VALVES UNDER FOUR–INCHES SHALL BE IRON OR BRONZE BODY, SOLID WEDGE VALVES EQUIPPED WITH OPERATING HAND WHEELS.

ALL ECCENTRIC VALVES 10–INCHES OR LARGER SHALL BE GEAR OPERATED WITH HAND WHEELS FOR ABOVE GROUND VALVES AND HUB OPERATED FOR BELOW GROUND VALVES.

ALL ECCENTRIC VALVES 8–INCHES AND SMALLER SHALL BE LEVEL OPERATED FOR ABOVE GROUND VALVES AND HUB OPERATED FOR BELOW GROUND VALVES.

ALL HUB OPERATED UNITS SHALL BE PROVIDED A CAST–IRON VALVES BOX AND COVER.

CHECK VALVES: THE CHECK VALVES OVER THREE INCHES SHALL BE IRON BODY, BRONZE MOUNTED, HORIZONTAL SWING CHECK WITH FLANGED ENDS. ALL WORK PARTS SHALL BE SPRING LOCATED TO PREVENT SLAMMING. THE CHECK VALVES SHALL BE CLOW F–2955, OR APPROVED EQUAL.

CHECK VALVES UNDER THREE INCHES SHALL BE SCREWED END, BRONZE BODY, SILENT CHECK VALVES AS MANUFACTURED BY CRANE COMPANY, NO. 34 OR APPROVED EQUAL.

PROVIDE ANCHORAGES FOR TEE, PLUGS, CAPS, AND BENDS.

AFTER INSTALLATION, APPLY A FULL COAT OF ASPHALT OR OTHER ACCEPTABLE CORROSION–RETARDING MATERIAL TO SURFACES OF RODS AND CLAMPS.

CLAMPS, STRAPS AND WASHERS: STEEL ANSI/ASTM A–506

RODS: STEEL, ANSI/ASTM A–575

ROD COUPLINGS: MALLEABLE IRON, ANSI/ASTM A–197

BOLTS: STEEL, ANSI/ASTM A–307

CAST IRON WASHERS: ANSI/ASTM A–126, CLASS A

WATER SERVICE IDENTIFICATIONS: PLASTIC LINE MARKS, NOMENCLATURE "CAUTION, BURIED WATER LINE BELOW".

FLEXIBLE COUPLINGS: STEEL MIDDLE RING, TWO STEEL FOLLOWER RINGS, TWO RESILIENT GASKETS AND STEEL BOLTS. DRESSER TYPE 38 OR APPROVED EQUAL.

INSPECTION AND HYDROSTATIC TESTING: AFTER THE PIPE HAS BEEN LAID AND BACKFILLED AS SPECIFIED EACH VALVED SECTION OF NEWLY LAID PIPE SHALL BE SUBJECTED TO HYDROSTATIC PRESSURE OF 150 PSI.

THE DURATION OF EACH PRESSURE TEST SHALL BE AT LEAST TWO HOURS OR UNTIL THE LINE HAS BEEN COMPLETELY INSPECTED FOR VISIBLE LEAKS.

PERMISSIBLE LEAKAGE: NO PIPE INSTALLATION WILL BE ACCEPTABLE UNTIL OR UNLESS THIS LEAKAGE (EVALUATED ON A PRESSURE BASIS OF 150 PSI) IS LESS THAN 4 U.S. GALLONS PER 24 HOURS PER THOUSAND FEET PER INCH NOMINAL DIAMETER IN ACCORDANCE WITH AWWA C600.

DISINFECTION SHALL BE AFTER THE DISTRIBUTION SYSTEM HAS BEEN TESTED TO THE SATISFACTION OF THE ENGINEER AND SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA SPECIFICATION C–651 WHICH PROVIDES FOR THE INJECTION OF A 50 PPM SOLUTION OF CHLORINE REMAINING FOR 24 HOURS.

IN THE PROCESS OF CHLORINATING WATER PIPE, ALL VALVES OR OTHER APPURTENANCES SHALL BE OPERATED WHILE THE PIPE LINE IS FILLED WITH CHLORINATING AGENT.

WATER VALVES 12" AND LESS SHALL BE EPOXY COATED RESILIENT SEAT GATE VALVE.

MAIN PIPE SIZE	HORIZ. BENDS			TEES					REDUCERS				PLUGS
	90°	45°	22.5°	SIZE / LENGTH					SIZE / LENGTH				
24	90	38	18	X24 / 177	X20 / 139	X16 / 94	X12 / 40	X10 / 6	X20 / 64	X16 / 117	X12 / 158		214
20	78	32	15	X20 / 148	X16 / 105	X12 / 56	X10 / 25	X8 / 0	X16 / 65	X12 / 115	X10 / 149		184
16	66	27	13	X16 / 116	X12 / 70	X10 / 42	X8 / 12		X12 / 64	X10 / 90	X8 / 111		151
12	51	22	10	X12 / 83	X10 / 59	X8 / 32	X6 / 0		X10 / 34	X8 / 62	X6 / 86		118
10	44	18	9	X10 / 66	X8 / 41	X6 / 8			X8 / 33	X6 / 61	X4 / 81		100
8	37	15	7	X8 / 50	X6 / 21	X4 / 0	X3 / 0		X6 / 35	X4 / 59			83
6	29	12	5	X6 / 30	X4 / 0				X4 / 32	X3 / 44			63
4	21	8	4	X4 / 14									45
3	17	7	4	X3 / 10									36

NOTES:

1.) RESTRAIN TO NEXT FULL JOINT BEYOND GIVEN LENGTH.

2.) RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.

3.) ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.

4.) ALL VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.

5.) PIPE SIZES ARE GIVEN IN INCHES.

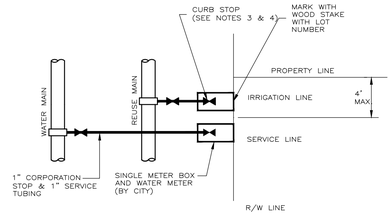
6.) PIPE LENGTHS ARE GIVEN IN FEET.

7.) LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 180 PSI.

8.) THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON THE USE OF LIGHTLY COMPACTED CLEAN SAND WITH AT LEAST A 95% COARSE PARTICLE CONTENT. ACTUAL SOIL CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE

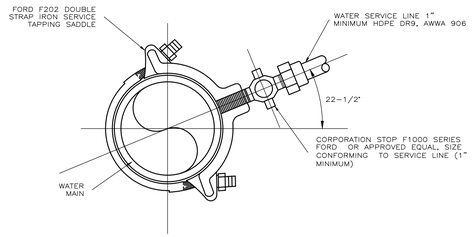
NOT TO SCALE



NOTES:
1. ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3. EACH SERVICE SHALL TERMINATE AT A CURB STOP WHICH SHALL BE FASTENED TO A 1" x 4" x 30" STAKE PAINTED WHITE AND MARKED WITH THE NUMBER OF THE LOT TO BE SERVED.
4. CURB STOP SHALL BE A FORD BALL METER VALVE B43–342W, B43–344W OR CITY APPROVED EQUAL.
5. ALL SERVICE TAPS TO BE LOCATED IN FIELD. TAPS SHALL BE NO CLOSER THAN AND WILL NOT BE SET IN DRAINAGE SWALES, EASEMENTS OR SIDEWALKS.
6. MAINTAIN A 3 FOOT MINIMUM SEPARATION BETWEEN POTABLE AND REUSE WATER SERVICES.

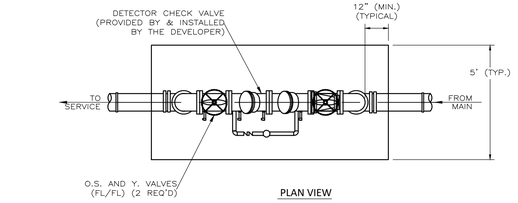
TYPICAL CITY SERVICE

NOT TO SCALE

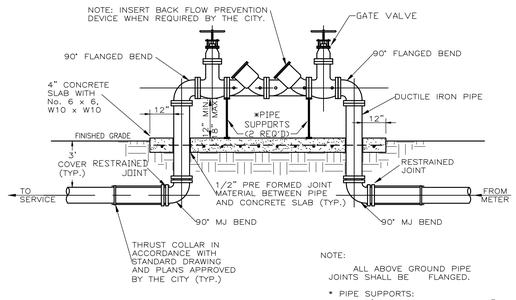


TYPICAL WATER SERVICE CONNECTION

N.T.S.



PLAN VIEW



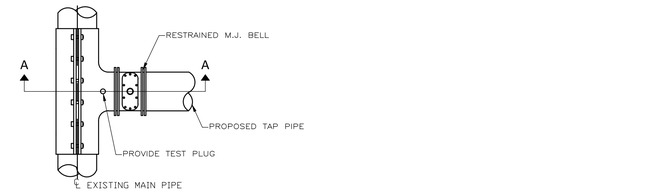
SECTION

NOTE:
ALL ABOVE GROUND PIPE JOINTS SHALL BE FLANGED.

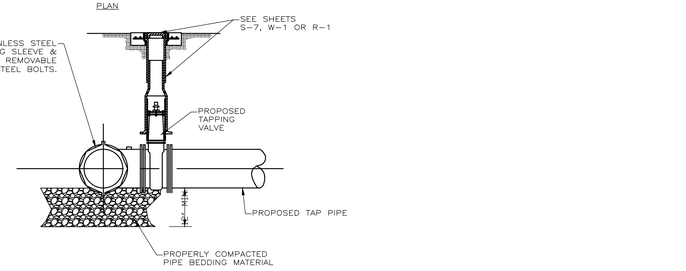
* PIPE SUPPORTS:
1 REQ'D UNDER CENTER FOR 6",
2 REQ'D FOR 8" AND LARGER

DOUBLE DETECTOR CHECK VALVE ASSEMBLY DETAIL

NOT TO SCALE



PLAN



SECTION A–A

NOTES:

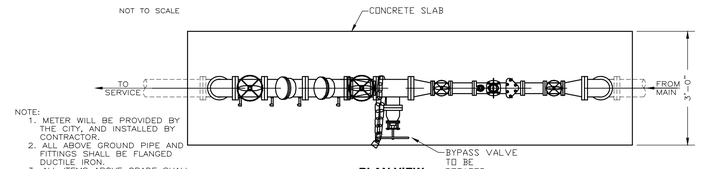
1.) NO TAPPING CUTS SHALL BE MADE BEFORE:
A 60 MINUTE TEST AT 100 P.S.I. FOR FORCEMAINS, OR 150 P.S.I. FOR POTABLE WATERMAINS AND RECLAIM WATERMAINS IS PERFORMED.

2.) ALL TAPS MUST BE PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP PIPE DIAMETERS (WHICHEVER IS LARGER) FROM A JOINT OR FITTING.

3.) CONTRACTOR TO SUPPLY A DRY HOLE, PROPERLY CONFIGURED, FOR TAPPING CREW TO WORK AND A BACK–HOE TO LOWER MACHINE INTO HOLE. TAPPING ASSEMBLY MUST BE BOLTED ON & PRESSURE TESTED BY THE CONTRACTOR & WITNESSED BY THE CITY PRIOR TO TAP.

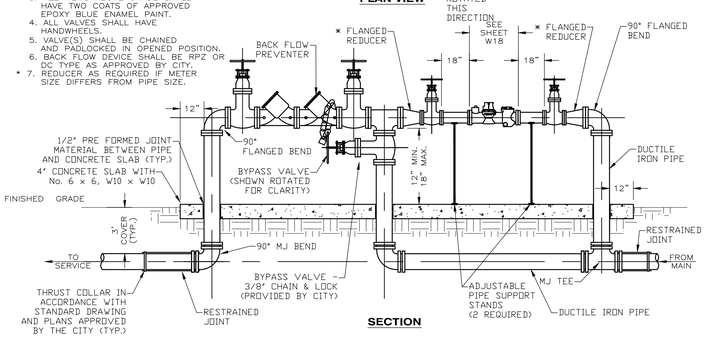
TAPPING SLEEVE ASSEMBLY AND VALVE BLOCKING DETAIL

NOT TO SCALE



PLAN VIEW

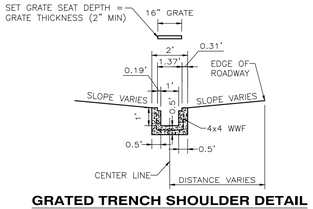
NOTE:
1. METER WILL BE PROVIDED BY THE CITY, AND INSTALLED BY CONTRACTOR.
2. ALL ABOVE GROUND PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON.
3. ALL ITEMS ABOVE GRADE SHALL HAVE TWO COATS OF APPROVED EPOXY BLUE ENAMEL PAINT.
4. ALL VALVES SHALL HAVE HANDWHEELS.
5. VALVE(S) SHALL BE CHAINED AND PADLOCKED IN OPENED POSITION.
6. BACK FLOW DEVICE SHALL BE RPZ OR DC TYPE AS APPROVED BY CITY.
* 7. REDUCER AS REQUIRED IF METER SIZE DIFFERS FROM PIPE SIZE.



SECTION

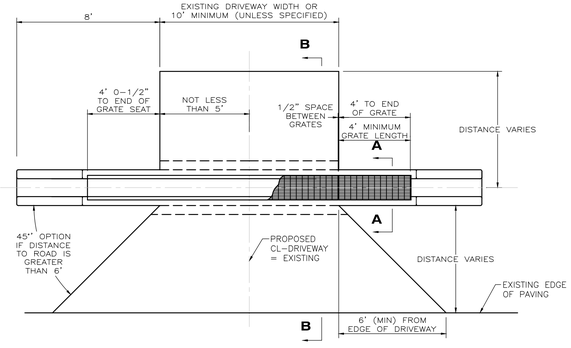
4" AND 6" WATER METER & BACK FLOW WITH BYPASS

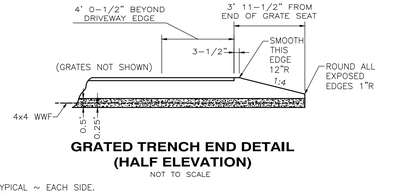
NOT TO SCALE



GRATED TRENCH SHOULDER DETAIL SECTION A-A

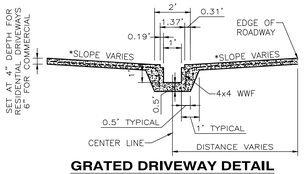
NOT TO SCALE





GRATED TRENCH END DETAIL (HALF ELEVATION)

NOT TO SCALE



GRATED DRIVEWAY DETAIL SECTION B-B *ALGEBRAIC DIFFERENCE IN SLOPE NOT TO EXCEED 12%

NOT TO SCALE

NOTES:
1. DIMENSIONS OF CONCRETE ARE TYPICAL ~ EACH SIDE.
2. CONCRETE IS 3000 PSI (MINIMUM).
3. COVER AND DISTANCE FROM ENDS FOR WELDED WIRE FABRIC IS 3 INCHES.
4. SAW CUT EXISTING ASPHALT DRIVES AT 5 FEET BEYOND EDGE OF PROPOSED TRENCH.
5. SAW CUT CONCRETE DRIVES AT 5 FEET BEYOND EDGE OF PROPOSED TRENCH OR NEXT JOINT IF JOINT IS WITHIN 10 FEET.
6. MATCH EXISTING CONCRETE DRIVE THICKNESS, WITH A MINIMUM OF 4 INCHES FOR RESIDENTIAL.
7. MATCH EXISTING FLARES DIMENSIONS UNLESS OTHERWISE DIRECTED.
8. ANY ADDITIONAL DRIVEWAY MODIFICATIONS MUST BE PRE–APPROVED BY THE COUNTY ENGINEER OR INSPECTOR.
9. A PREFABRICATED SYSTEM WITH SHOP DRAWINGS APPROVED BY PUBLIC WORKS ENGINEERING MAY BE SUBSTITUTED.
10. COUNTY MAY REQUIRE WIDER GRATE BASED ON FIELD CONDITIONS.

GENERALIZED DETAIL OF GRATED DRIVEWAY WITH 4 FOOT TRENCH SHOULDERS

NOT TO SCALE

PERMIT PURPOSES ONLY

CONSTRUCTION DETAILS
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE: SHOWN
DESIGNED BY: RLC
DRAWN BY: BLR
REVIEWED BY: RLC
ISSUE DATE: 9/24/2025
CF/D: 1577.01E02
NOT RELEASED FOR CONSTRUCTION BY:
DATE:

McNEIL — CARROLL ENGINEERING, INC.
Professional Engineering Consultants
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850-234-1730
Fax: 850-234-1731

NO.	DATE	BY	REVISIONS
01			
02			
03			
04			
05			

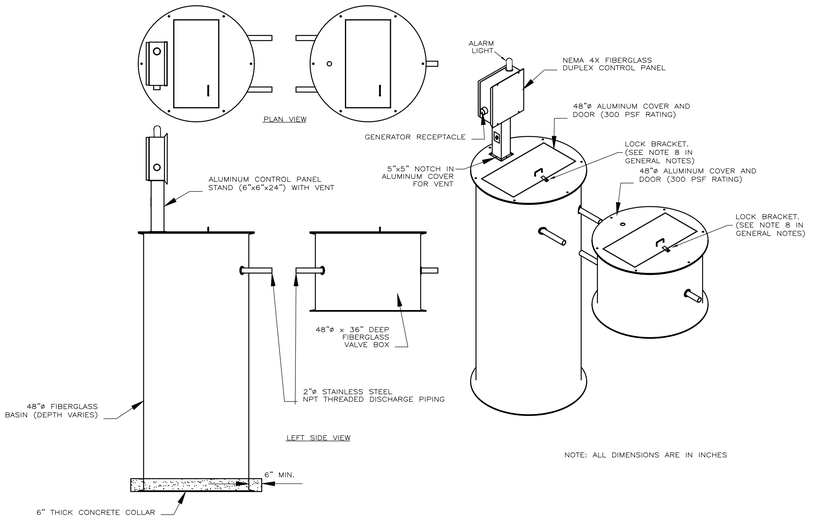
Sean D. McNeil, P.E.
PROFESSIONAL ENGINEER
FL LIC # 49303

Robert L. Carroll, P.E.
PROFESSIONAL ENGINEER
FL LIC # 57988

ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER 9/24/25

SHEET NUMBER 11 OF 13

1577.01 – STUDIORES



NOTE: ALL DIMENSIONS ARE IN INCHES

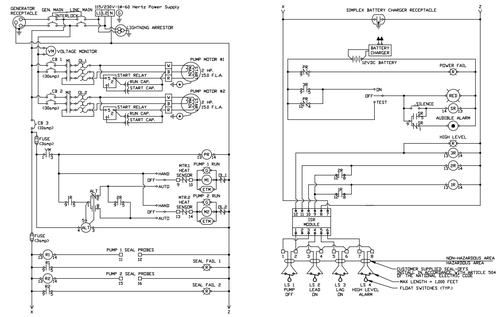
PUMP INFORMATION	
MANUFACTURER: BARNES	
TYPE: GRINDER	
MODEL: SGV5032L	
VOLTAGE: 240	
PHASE: 3	
HP / RPM: 5 / 3450	
GPM: 50	
TDH: 51.02	
FORCE MAIN DIAMETER: 3"	
✳IMPELLER DIAMETER: 6.25"	

WET WELL INFORMATION		
A	TOP ELEVATION :	15.10
B	HIGH LEVEL ALARM:	9.82
C	TURN ON LEVEL 2 PUMP:	9.32
D	TURN ON LEVEL 1 PUMP:	8.82
E	TURN OFF LEVEL:	7.49
F	INVERT ELEVATION:	6.41
G	INFLUENT DIAMETER:	8"
H	INFLUENT ELEVATION:	10.82
I	TOTAL DEPTH:	8.69'
J	WET WELL DIAMETER:	48"

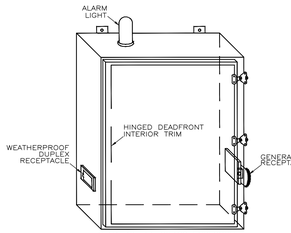
NOTES: (1) ELECTRICAL SERVICE (VOLTAGE AND PHASE) MUST BE VERIFIED PRIOR TO ORDERING EQUIPMENT.
(2) WET WELL AND VALVE BOX MUST BE THE SAME DIAMETER.
✳12 VANE IMPELLER

GENERAL NOTES:

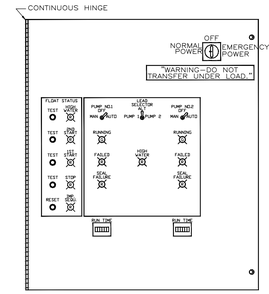
1. ALL EXPOSED METAL SHALL BE PAINTED WITH 2 COATS OF EXTERIOR ENAMEL PAINT.
2. WET WELL AND VALVE VAULT SHALL BE COATED WITH COAL TAR INSIDE AND OUT EXCEPT TOP SURFACE OF COVERS. (TWO COATS, 9 MILS EACH.)
3. BASE AND FIRST RISER UNIT TO BE CAST MONOLITHIC.
4. VALVE VAULT SHALL BE SIZED TO PERMIT EASY REMOVAL OF CHECK VALVE SPINDLES WITH MINIMUM CLEARANCES AS SHOWN FOR 6" DIAMETER PIPE AND SMALLER. CLEARANCES SHALL INCREASE AS REQUIRED FOR LARGER PIPE SIZES.
5. VALVE VAULT SHALL HAVE SEALED FLOOR AND DRAIN.
6. ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH WALL SLEEVE OR NON-SHRINK GROUT.
7. THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN WET WELL.
8. WET WELL AND VALVE VAULT COVERS SHALL BE ALUMINUM WITH 316 S.S. HARDWARE AND LOCK BRACKET. SIZE AS REQUIRED BY PUMP MANUFACTURER AND APPROVED BY THE CITY.
9. FLEXIBLE COUPLING SHALL BE SLEEVE TYPE.
10. ALL HARDWARE IN WET WELL AND VALVE BOX TO BE STAINLESS STEEL.
11. CONTRACTOR WILL INSTALL A "P" TRAP BETWEEN EACH VAULT AND WET WELL.
12. THE CONTROL PANEL SHALL HAVE A PORTABLE POWER GENERATOR RECEPTACLE PER F.D.E.P. RULE 62-604.400.
13. THE CONTRACTOR SHALL PROVIDE CERTIFIED ENGINEERING CALCULATIONS TO VERIFY ADEQUATE BUOYANCY RESTRAINT OF WET WELL. DESIGN OF HIGH WATER TABLE SHOULD BE ASSUMED AT GRADE.
14. DUCTILE IRON PIPE AND FITTINGS SHALL HAVE A POLYETHYLENE LINING (40 MILS NOMINAL).



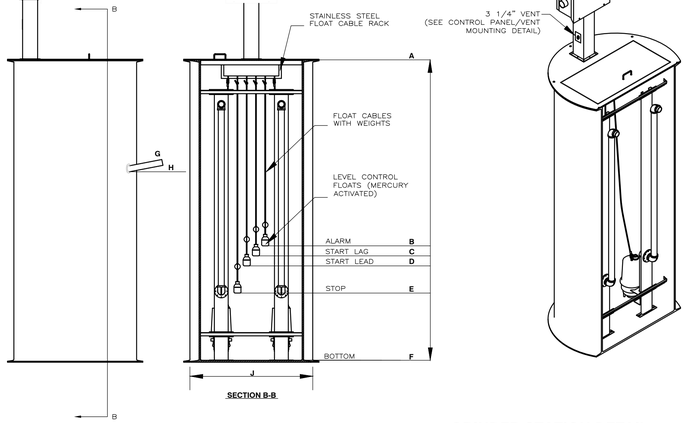
Notes:
1) LEVEL SWITCHES MUST BE RATED A MINIMUM OF 2 AMPS @ 120 VOLTS
2) TORQUE ALL WHITE FIELD WIRING TERMINALS TO 8 IN.LBS.
3) FIELD WIRING MUST BE 60°C COPPER WIRE MINIMUM.
4) ——— ITEMS NOT SUPPLIED IN PANEL
5) SURGE CAPACITOR TO BE INCLUDED.
6) MOTOR OVERLOAD PHASE PROTECTION TO BE INCLUDED.
7) LIGHTNG ARRESTOR TO BE INCLUDED.



DUPLEX GRINDER LIFT STATION CONTROL PANEL PHYSICAL LAYOUT

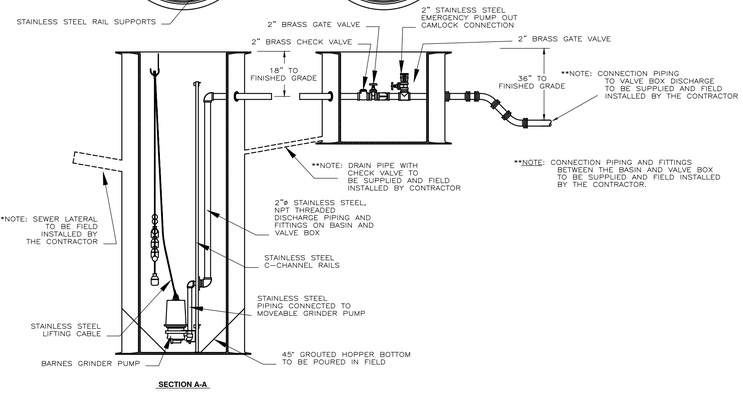


DUPLEX GRINDER LIFT STATION CONTROL PANEL DEADFRONT DETAIL



GRINDER STATION DETAIL

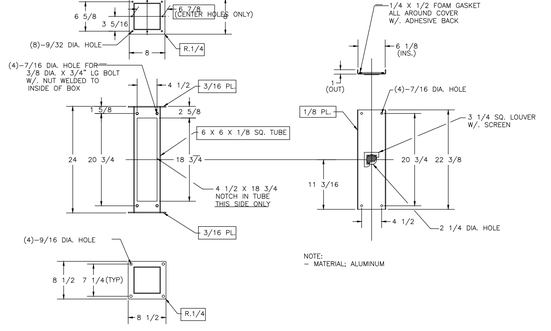
NOT TO SCALE



SECTION A-A

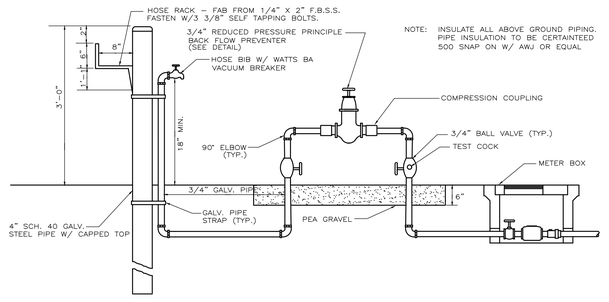
GRINDER STATION CONTROL PANEL DETAIL

NOT TO SCALE



CONTROL PANEL/VENT MOUNTING DETAIL

NOT TO SCALE



HOSE BIB ASSEMBLY DETAIL

NOT TO SCALE

PERMIT PURPOSES ONLY

CONSTRUCTION DETAILS
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE: SHOWN
DESIGNED BY: RLC
DRAWN BY: BLR
REVIEWED BY: RLC
ISSUE DATE: 9/24/2025
C#/D: 1577.01E02
NOT RELEASED FOR CONSTRUCTION BY: DATE:

McNEIL — CARROLL ENGINEERING, INC.
Professional Engineering Consultants
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850-234-1730
Fax: 850-234-1731

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Sean D. McNeil, P.E.
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ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER 9/24/25

SHEET NUMBER 12 OF 13

1577.01 - STUDIORES

ASPHALTIC CONCRETE PAVING

PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, ETC. NECESSARY AND INCIDENTAL TO THE COMPLETION OF ALL PAVEMENT AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

SUBMIT A "LETTER OF INTENT" FOR THE FOLLOWING:

ASPHALT PAVING MATERIAL AND MIX DESIGN. PROVIDE COPIES OF MATERIALS CERTIFICATES SIGNED BY MATERIAL PRODUCER AND CONTRACTOR, CERTIFYING THAT EACH MATERIAL ITEM COMPLIES WITH, OR EXCEEDS, SPECIFIED REQUIREMENTS.

WEATHER LIMITATIONS: APPLY PRIME AND TACK COATS WHEN AMBIENT TEMPERATURE IS ABOVE 50 DEGREES F. (10 DEGREES C), AND WHEN TEMPERATURE HAS NOT BEEN BELOW 35 DEGREES F. (1 DEGREE C) FOR 12 HOURS IMMEDIATELY PRIOR TO APPLICATION. DO NOT APPLY WHEN BASE IS WET OR CONTAINS AN EXCESS OF MOISTURE.

CONSTRUCT ASPHALT CONCRETE SURFACE COURSE WHEN ATMOSPHERIC TEMPERATURE IS ABOVE 40 DEGREES F. (4 DEGREES C), AND WHEN BASE IS DRY. SURFACE COURSE MAY BE PLACED WHEN AIR TEMPERATURE IS ABOVE 30 DEGREES F. (–1 DEGREE C) AND RISING.

GRADE CONTROL: ESTABLISH AND MAINTAIN REQUIRED LINES AND ELEVATIONS.

THE SUBCONTRACTOR SHALL WARRANT ALL ASPHALT PAVING AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWO YEARS.

PRODUCTS: USE LOCALLY AVAILABLE MATERIALS AND GRADATIONS WHICH EXHIBIT A SATISFACTORY RECORD OF PREVIOUS INSTALLATIONS.

AGGREGATE: CRUSHED STONE, CRUSHED GRAVEL, AND SHARP–EDGED NATURAL SAND.

MAXIMUM AGGREGATE SIZE SHALL BE NO GREATER THAN ONE–HALF OF THE DESIGN THICKNESS OF THE WEARING OR BINDER COURSE.

SURFACE PREPARATION: PROOF ROLL PREPARED BASE SURFACE TO CHECK FOR UNSTABLE AREAS AND AREAS REQUIRING ADDITIONAL COMPACTION.

NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT BASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.

PRIME COAT: APPLY AT RATE OF 0.2 TO 0.5 GAL. PER SQ. YD., OVER COMPACTED BASE. APPLY MATERIAL TO PENETRATE AND SEAL, BUT NOT FLOOD SURFACE. CURE AND DRY AS LONG AS NECESSARY TO ATTAIN PENETRATION AND EVAPORATION OF VOLATILE.

TACK COAT: APPLY TO CONTACT SURFACE OF PREVIOUSLY CONSTRUCTED ASPHALT OR PORTLAND CEMENT CONCRETE AND SURFACES ABUTTING OR PROJECTING INTO ASPHALT CONCRETE PAVEMENT. DISTRIBUTE AT RATE OF 0.05 TO 0.51 GAL. PER SQ. YD. OF SURFACE.

ALLOW TO DRY UNTIL AT PROPER CONDITION TO RECEIVE PAVING.

ASPHALT CONCRETE MIX: THIS ITEM SHALL CONSIST OF A WEARING SURFACE CONSTRUCTED OF ASPHALTIC CONCRETE ON A PREPARED BASE.

THE MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH THOSE SET FORTH FOR ASPHALTIC CONCRETE IN THE LATEST F.D.O.T. EDITION OF THE STANDARD SPECIFICATIONS.

THE ASPHALTIC CEMENT SHALL MEET THE REQUIREMENTS OF AASHTO SPECIFICATIONS M–20, VISCOSITY GRADE AC–20 (PENETRATION GRADE 60–70).

JOB MIX FORMULA: THE MARSHALL TESTING WILL BE USED IN ESTABLISHING THE JOB MIX FORMULA AND FOR CONTROL TESTING THROUGHOUT THE WORK.

THE DENSITY OF FIELD SAMPLES SHALL NOT BE LESS THAN 95% OF THE MARSHALL LABORATORY COMPACTED MIXTURE COMPOSED OF THE SAME MATERIALS IN LIKE PROPORTIONS.

THE THICKNESS OF THE SURFACE SHALL BE AS SPECIFIED IN THE SITE WORK PLANS. THIS REQUIREMENT SHALL BE CHECKED BY CORES AND WHERE A DEFICIENCY OF MORE THAN 1/4" EXISTS, THE CONTRACTOR SHALL BE REQUIRED TO CORRECT THE DEFICIENCY EITHER BY REPLACING THE FULL THICKNESS OR OVERLAYING THE AREAS TO THE SATISFACTION OF THE ENGINEER.

SAND ASPHALT BASE

PLACE ASPHALT CONCRETE MIXTURE ON PREPARED SURFACE, SPREAD AND STRIKE–OFF. SPREAD MIXTURE AT MINIMUM TEMPERATURE OF 225 DEGREES F. (107 DEGREES C).

PLACE IN STRIPS NOT LESS THAN 10' WIDE, UNLESS OTHERWISE ACCEPTABLE TO THE ENGINEER. AFTER FIRST STRIP HAS BEEN PLACED AND ROLLED, PLACE SUCCEEDING STRIPS AND EXTENDED ROLLING TO OVERLAP PREVIOUS STRIPS. COMPLETE BASE COURSE FOR A SECTION BEFORE PLACING SURFACE COURSE.

MAKE JOINTS BETWEEN OLD AND NEW PAVEMENTS, OR BETWEEN SUCCESSIVE DAYS' WORK, TO ENSURE CONTINUOUS BOND BETWEEN ADJOINING WORK. CLEAN CONTACT SURFACES AND APPLY TACK COAT.

BEGIN ROLLING WHEN MIXTURE WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT.

ACCOMPLISH BREAKDOWN OR INITIAL ROLLING IMMEDIATELY FOLLOWING ROLLING OF JOINTS AND OUTSIDE EDGE. CHECK SURFACE AFTER BREAKDOWN ROLLING, AND REPAIR DISPLACED AREAS BY LOOSENING AND FILLING, IF REQUIRED, WITH HOT MATERIAL. CONTINUE SECOND ROLLING UNTIL MIXTURE HAS BEEN THOROUGHLY COMPACTED.

PERFORM FINISH ROLLING WHILE MIXTURE IS STILL WARM ENOUGH FOR REMOVAL OF ROLLER MARKS. CONTINUE ROLLING UNTIL ROLLER MARKS ARE ELIMINATED AND COURSE HAS ATTAINED MAXIMUM DENSITY. AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED. ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC UNTIL MIXTURE HAS COOLED ENOUGH NOT TO BECOME MARKED.

TEST IN–PLACE ASPHALT CONCRETE COURSES FOR PAVING AS DIRECTED BY ENGINEER FOR SMOOTHNESS.

THICKNESS: IN–PLACE COMPACTED THICKNESS WILL NOT BE ACCEPTABLE IF EXCEEDING FOLLOWING ALLOWABLE VARIATION FROM REQUIRED THICKNESS:

BASE COURSE: 1/2" PLUS OR MINUS
SURFACE COURSE: 1/4" PLUS OR MINUS

SURFACE SMOOTHNESS: TEST FINISHED SURFACE OF EACH ASPHALT CONCRETE COURSE FOR SMOOTHNESS, USING 10' STRAIGHT EDGE APPLIED PARALLEL WITH, AND AT RIGHT ANGLES TO CENTER OF PAVED AREAS. SURFACES WILL NOT BE ACCEPTABLE IF EXCEEDING THE FOLLOWING TOLERANCES FOR SMOOTHNESS:

BASE COURSE SURFACE: 1/4"
WEARING COURSE SURFACE: 3/16"
CHECK SURFACED AREAS AT INTERVALS AS DIRECTED BY ENGINEER.

FIELD DENSITY AND SOIL BEARING CAPACITY TESTS SHALL BE PERFORMED BY THE GEOTECHNICAL ENGINEER. PROVIDE INSPECTION, CERTIFICATION OF PAVEMENT CONSTRUCTION. FIELD TESTS AND CORE SAMPLES OF THE COMPLETE PAVEMENT CONSTRUCTION.

MISCELLANEOUS PAVEMENT

WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING:

CONCRETE SIDEWALKS, CURBS, CURB AND GUTTER, INCLUDING POROUS FILL.

CONCRETE LIGHT POLE BASES.

SUBMIT A "LETTER OF INTENT" FOR THE FOLLOWING:

CONCRETE MIX DESIGN.

THIS SUBCONTRACTOR SHALL WARRANT ALL ASPHALT PAVING AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWO (2) YEARS.

POROUS FILL SHALL BE CLEAN COARSE SAND, FREE DRAINING GRAVEL, OR CRUSHED ROCK ALL AS APPROVED BY THE GEOTECHNICAL ENGINEER.

POROUS FILL UNDER SIDEWALKS, ETC., SHALL BE GRADED BETWEEN 3/8" AND NO. 200 SIEVE.

POROUS FILL SHALL BE CAPABLE OF BEING COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM–1557.

STEEL REINFORCING BARS SHALL CONFORM TO "SPECIFICATIONS FOR DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT", ASTM A–615 GRADE NO. 60, HAVING A MINIMUM YIELD STRENGTH OF 60,000 PSI.

TIE WIRE SHALL BE BLACK ANNEALED WIRE, 16 GAUGE MINIMUM. BAR SUPPORTS SHALL CONFORM TO THE "BAR SUPPORT SPECIFICATIONS" CONTAINED IN "MANUAL OF STANDARD PRACTICE" AS PUBLISHED BY CRSI AND WCRSI. BAR SUPPORTS AND ACCESSORIES WITHIN 1/2" OF SURFACE OF CONCRETE EXPOSED TO WEATHER SHALL BE NON–CORROSIVE.

CEMENT SHALL BE GRAY PORTLAND CEMENT, TYPE I OR II, CONFORMING TO ASTM C–150 OR ASTM C–175 FOR AIR–ENTRAINING PORTLAND CEMENT.

CONCRETE AGGREGATES SHALL CONFORM TO ASTM C–33.

FINE AND COARSE AGGREGATES SHALL BE REGARDED AS SEPARATE INGREDIENTS AND EACH SHALL CONFORM TO THE APPROPRIATE GRADING REQUIREMENTS OF ASTM C–33.

AIR–ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C–260. EXPANSION JOINTS SHALL BE 1/2" THICK CANE FIBER EXPANSION JOINTS, CONFORMING TO ASTM D–1751.

EXPANSION JOINT SEALANT SHALL BE TRAFFIC GRADE, SELF LEVELING TREMCO THC–900" OR PERCORA CORPORATION "NF–200". COLOR SHALL BE BLACK. SHALL BE AS RECOMMENDED BY SEALANT MANUFACTURER.

CURING COMPOUND SHALL BE CLEAR, CONFORMING TO ASTM C–309. CURING COMPOUND SHALL BE COMPATIBLE WITH PAINTS, ETC., SCHEDULED OR SPECIFIED FOR APPLICATION TO CONCRETE SURFACE.

ALL CONCRETE, UNLESS OTHERWISE NOTED, SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS. MIX DESIGN SHALL BE SO PROPORTIONED TO PROVIDE A MINIMUM OF 517 POUNDS OF CEMENT PER CUBIC YARD.

ALL CONCRETE SHALL BE PROPORTIONED TO HAVE A SLUMP OF 4" MAXIMUM. TOLERANCE IN SLUMP SHALL NOT EXCEED ACI RECOMMENDATIONS.

READY–MIXED CONCRETE SHALL CONFORM TO ASTM C–94 AND THE NATIONAL READY MIX CONCRETE ASSOCIATION.

POROUS FILL SHALL BE LAID AND COMPACTED TO A MINIMUM DEPTH OF 3", UNLESS OTHERWISE INDICATED, UNDER ALL SIDEWALKS, ETC..

POROUS FILL SHALL BE COMPACTED TO NOT LESS THAN 95% MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D–1557.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUPPLY ALL MATERIALS NECESSARY TO COMPLETE PAVING.

SITE IMPROVEMENTS

ALL OFF–SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING:

SITE RELATED FENCING.
GUARD POSTS, GUARD RAIL AND POSTS AND SIGN POSTS LOCATED ON THE SITE.
TRAFFIC CONTROL SIGNS. GUARD POSTS,

GUARD RAIL AND POSTS AND SIGN POSTS:

STEEL SHAPES SHALL CONFORM TO ASTM A–36.
STEEL PIPE SHALL CONFORM TO ASTM A–53, E OR S, TYPE B.
STEEL PIPE SHALL CONFORM TO ASTM A–501.

SHOP COAT SHALL BE RUST INHIBITING RED OXIDE, RED LEAD OR LEAD CHROMATE OR EQUAL. IT IS THE INTENT TO PERMIT THE USE OF THE FABRICATORS STANDARD PRIME COATING.

ASPHALT BASED COATING IS NOT PERMITTED.

CONCRETE FOR SETTING FENCE AND GUARD RAIL POSTS AND SETTING AND FILLING OF SIGN AND GUARD POSTS SHALL BE PORTLAND CEMENT COMPLYING WITH ASTM C–150, AGGREGATES COMPLYING WITH ASTM C–33, AND CLEAN WATER. MIX MATERIALS TO OBTAIN CONCRETE WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI, USING AT LEAST 4 SACKS OF CEMENT PER CU. YD., 1" MAXIMUM SIZE AGGREGATES, MAXIMUM 3" SLUMP, AND 2% TO 4% ENTRAINED AIR. PREPARE TO CONFORM TO ASTM C–94

MISCELLANEOUS NOTES

THE CONTRACTOR IS CAUTIONED TO VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE PROJECT PRIOR TO BIDDING.

THE ENGINEER HAS ATTEMPTED TO LOCATE EXISTING STRUCTURES AND EXISTING UTILITIES IN THE PROJECT AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATIONS OF THESE STRUCTURES OR UTILITIES AND TO DETERMINE IF OTHER STRUCTURES OR UTILITIES WILL BE ENCOUNTERED DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL TAKE WHATEVER STEPS NECESSARY TO PROVIDE FOR THEIR PROTECTION AND RELOCATION OF UTILITIES IN CONFLICT WITH NEW CONSTRUCTION BY APPROPRIATE UTILITY COMPANY.

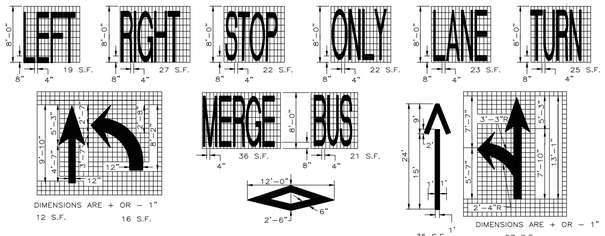
THE CONTRACTOR SHALL PLACE AND MAINTAIN ADEQUATE BARRICADES, CONSTRUCTION SIGNS, FLASHING LIGHTS, TORCHES, RED LANTERNS AND GUARDS DURING PROGRESS OF CONSTRUCTION WORK IN ACCORDANCE WITH STATE STANDARDS AND UNTIL IT IS SAFE FOR BOTH PEDESTRIAN AND VEHICULAR TRAFFIC.

CONTRACTOR IS RESPONSIBLE FOR REPLACING EXISTING SURROUNDINGS (I.E., ASPHALT, SIDEWALKS, CURBS, ETC.) THAT ARE DAMAGED DURING CONSTRUCTION. REPLACEMENT SHALL MATCH EXISTING.

ALL SITE WORK MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

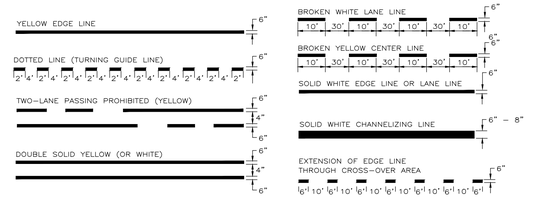
CONTRACTOR SHALL HAVE ALL PERMITS PRIOR TO CONSTRUCTION IN WETLANDS, COUNTY RIGHT OF WAY, ETC.

CONSTRUCTION PLANS ARE BASED ON FIELD SURVEY AND OTHER DATA AS SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL LOCATIONS OF NEW AND EXISTING CONNECTIONS NECESSARY TO COMPLETE THE INTENT OF THE PLANS. IN THE EVENT THERE IS A CONFLICT DUE TO UNFORESEEN OBSTRUCTIONS OR SHORT FALLS TO CONNECTIONS (WHICH DOES NOT MEET THE INTENT OF THE CONSTRUCTION PLANS), THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY FOR DIRECTION. THE CONTRACTOR SHALL RELOCATE OR REMOVE OBSTACLES AS DIRECTED BY OWNER.



PAVEMENT ARROWS AND MESSAGE DETAILS

NOT TO SCALE



BASIC COLOR RULE

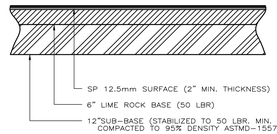
WHITE LINES SEPARATE FLOWS IN SAME DIRECTION
YELLOW LINES SEPARATE FLOWS IN OTHER OPPOSITE DIRECTION
YELLOW DOTTED LINES MAY BE USED IN SPECIAL CASES

TYPES OF PERMANENT LONGITUDINAL LINES

NOT TO SCALE

TESTING SCHEDULE				
ITEM	TEST	TEST IDENTIFICATION	TEST REQUIREMENTS	TEST FREQUENCY
UTILITY TRENCH FILL & BACKFILL	MAXIMUM DENSITY OPTIMUM MOISTURE	AASHTO T–180 ASTM D–1557	N/A	PER SOIL TYPE
	FIELD DENSITY	AASHTO T–191, T–204 ASTM D–1556, D–2937	95% OF MAXIMUM DENSITY	ONE PER 500 LF HORIZONTAL OR ONE PER 750SY WITH A MINIMUM OF 3 TESTS, ALTERNATING LIFTS (12") ONE PER SOIL TYPE
	GRADATION	AASHTO M–92	(15% PASSING NO. 200)	
FILL & BACKFILL UNDER ROADWAYS AND STRUCTURES	MAXIMUM DENSITY OPTIMUM MOISTURE	AASHTO T–180 ASTM D–1557	N/A	PER SOIL TYPE
	FIELD DENSITY	AASHTO T–191, T–204, T–238 ASTM D–1556, D–2937, D–2922	98% OF MAXIMUM DENSITY	ONE PER 500 LF OR ONE PER 750SY WITH A MINIMUM OF 3 TESTS, ALTERNATING LIFTS (12")
	GRADATION	AASHTO M–92	(15% PASSING NO. 200)	ONE PER SOIL TYPE
SUBGRADE	BEARING VALUES	LBR–FDOT	40 (MIN.)	ONE PER SITE OR AT MATERIAL CHANGES
	MAXIMUM DENSITY OPTIMUM MOISTURE	AASHTO T–180 ASTM D–1557	N/A	PER SOIL TYPE
	FIELD DENSITY & THICKNESS	AASHTO T–191, T–204 ASTM D–1556, D–2937	98% OF MAXIMUM DENSITY	ONE PER 500 LF HORIZONTAL OR ONE PER 750SY WITH A MINIMUM OF 3 TESTS
BASE	MAXIMUM DENSITY OPTIMUM MOISTURE	AASHTO T–180 ASTM D–1557	N/A	ONE PER SOURCE OR AT MATERIAL CHANGES
	FIELD DENSITY & THICKNESS	AASHTO T–191, T–204 ASTM D–1556, D–2937	98% OF MAXIMUM DENSITY	ONE PER 500 LF HORIZONTAL OR ONE PER 750SY WITH A MINIMUM OF 3 TESTS
ASPHALT	MATERIALS QUALITY BITUMEN CONTENT & GRADATION	AASHTO T–164, T–30 ASTM D–2172	FDOT SPEC. 320, 330, 334 FDOT SPEC. 916	MIN. ONE PER DAY FOR GRADATION OR AS REQUIRED BY INSPECTOR
	FIELD DENSITY & THICKNESS	ASTM D–2950	95% OF LAB DENSITY	ONE PER 500 LF HORIZONTAL OR ONE PER 750SY WITH A MINIMUM OF 3 TESTS
CONCRETE (MISC. SITE WORK)	SLUMP TEST	AASHTO T–119 ASTM C–143	2" TO 3"	AS REQUIRED BY INSPECTOR OR ONE PER SET OF CYLINDERS
	COMPRESSIVE STRENGTH	AASHTO T–23 ASTM C–31	4000 PSI	ONE SET OF 3 CYLINDERS PER 50CY PER DAY
	AIR CONTENT	AASHTO T–199	3% TO 6%	ONE PER SET OF CYLINDERS

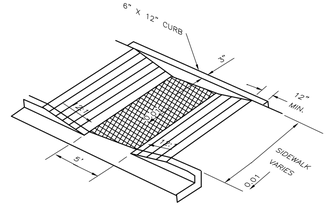
NOTE: 1. CONCRETE FOR SITE WORK INCLUDES BUT IS NOT LIMITED TO CURB, CURB & GUTTER, SIDEWALKS, CONCRETE PAVING, ETC.
2. THIS TEST SCHEDULE APPLIES TO SITE WORK ONLY. SEE ARCHITECT'S SPECIFICATIONS FOR FOUNDATION/BUILDING TESTING.

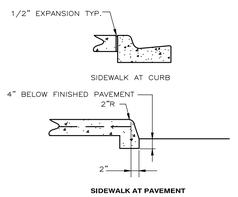


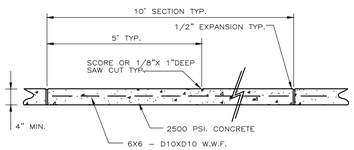
WITHIN 4" OF SUBGRADE BOTTOM ALL SILTY AND PEATY SOILS OR ANY OTHER ORGANIC SOILS SHALL BE REMOVED. FILL SOILS SHALL BE SANDS TO SLIGHTLY SILTY SANDS CONTAINING NO MORE THAN 15% BY DRY WEIGHT, FINER THAN THE U.S. NO. 200 MESH SIEVE AND COMPACTED TO A DENSITY OF 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY THROUGHOUT ITS FULL DEPTH.

ASPHALTIC PAVEMENT DETAIL

NOT TO SCALE



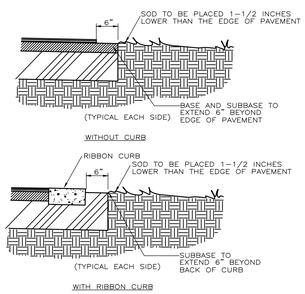




NOTE: MAX CROSS SLOPE OF 2.00%

CONCRETE SIDEWALK DETAIL

NOT TO SCALE



EDGE OF PAVEMENT DETAIL

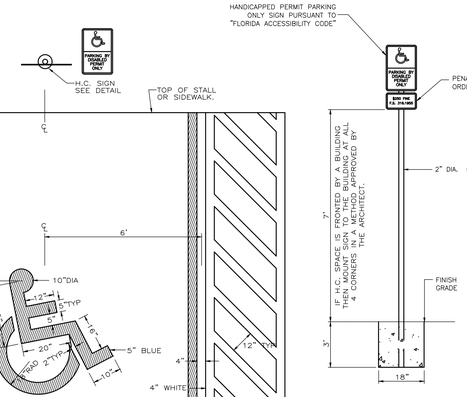
NOT TO SCALE

1. PEDESTRIAN PATHWAYS WITH RUNNING SLOPES STEEPER THAN 20:1 ARE CONSIDERED RAMPS. RAMP RUNNING SLOPES SHALL NOT EXCEED 12:1. RAMP CROSS SLOPES SHALL NOT EXCEED 0.02.
2. THE LOCATION AND ORIENTATION OF CURB CUT RAMPS SHALL BE AS SHOWN IN THE PLANS.
3. RAMPS RUNS SHALL HAVE A TACTILE SURFACE. RAMP LANDINGS ADJOINING VEHICULAR WAYS SHALL HAVE A TACTILE SURFACE 36" WIDE BORDERING THE VEHICULAR WAY. TACTILE SURFACES SHALL BE CONSTRUCTED BY TEXTURING TO A DEPTH NOT EXCEEDING 1/8" BY USE OF A TAMP OR ROLLER FABRICATED WITH AN IMPRINTING SURFACE OF EITHER 1" MESH 0.250 WIRE CLOTH (PLAIN WEAVE, CONVENTIONAL CRIMP), #6 EXPANDED METAL (STANDARD) OR 3 LB. EXPANDED METAL GRATING. TRANSITION SLOPES ARE NOT TO HAVE TACTILE SURFACES.
4. WHERE A CURB CUT RAMP IS CONSTRUCTED WITHIN EXISTING CURB, CURB AND GUTTER AND/OR SIDEWALK, THE EXISTING CURB OF CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE DROP CURB OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. THE EXISTING SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE OR WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5' LONG.

HANDICAP RAMP DETAIL

NOT TO SCALE

SIDEWALK UTILITY STRIP TRANSITION

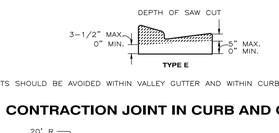


HANDICAP STRIPING DETAIL

NOT TO SCALE

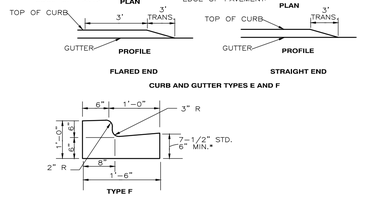
H.C. SIGN POST DETAIL

NOT TO SCALE



SAW CUTS SHOULD BE AVOIDED WITHIN VALLEY GUTTER AND WITHIN CURB AND GUTTER ENDINGS.

CONTRACTION JOINT IN CURB AND GUTTER



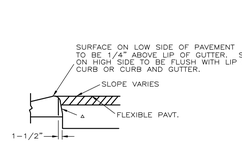
* WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT. THE THICKNESS OF THE LIP SHALL BE 6", UNLESS OTHERWISE SHOWN ON PLANS.

NOTE:
FOR USE ADJACENT TO CONCRETE OF FLEXIBLE PAVEMENT, CONCRETE SHOWN.
FOR DETAILS DEPICTING USAGE ADJACENT TO FLEXIBLE PAVEMENT, SEE DIAGRAM RIGHT.
EXPANSION JOINT, PERFORMED JOINT FILLER AND JOINT SEAL ARE REQUIRED BETWEEN CURB & GUTTER AND CONCRETE PAVEMENT ONLY, SEE DIAGRAM RIGHT.

GENERAL NOTES

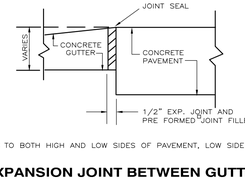
1. FOR CURB, GUTTER AND CURB AND GUTTER PROVIDE 1/8" – 1/4" CONTRACTION JOINTS AT 10' CENTERS (MAX.). CONTRACTION JOINTS ADJACENT TO CONCRETE PAVEMENT ON TANGENTS AND FLAT CURVES ARE TO MATCH THE PAVEMENT JOINTS, WITH INTERMEDIATE JOINTS NOT TO EXCEED 10' CENTERS. CURB, GUTTER AND CURB AND GUTTER EXPANSION JOINTS SHALL BE LOCATED IN ACCORDANCE WITH SECTION 520 OF THE STANDARD SPECIFICATIONS.
2. ENDS OF CURBS TYPES B AND D SHALL TRANSITION FROM FULL TO ZERO HEIGHTS IN 3 FEET.

MODIFIED TYPE D CURB DETAIL



A APPLIES TO BOTH HIGH AND LOW SIDES OF PAVEMENT, LOW SIDE SHOWN.

CURB AND GUTTER AND TYPE A CURB ADJACENT TO FLEXIBLE PAVEMENT



□ APPLIES TO BOTH HIGH AND LOW SIDES OF PAVEMENT, LOW SIDE SHOWN

EXPANSION JOINT BETWEEN GUTTER AND CONCRETE PAVEMENT

PERMIT PURPOSES ONLY

CONSTRUCTION DETAILS
STUDIORES
THOMAS DRIVE
BAY COUNTY, FLORIDA

SCALE:	SHOWN
DESIGNED BY:	RLC
DRAWN BY:	BLR
REVIEWED BY:	RLC
ISSUE DATE:	9/24/2025
CF/D:	1577.01E02
NOT RELEASED FOR CONSTRUCTION BY: DATE:	

McNEIL — CARROLL ENGINEERING, INC.
Professional Engineering Consultants
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288
17800 Panama City Beach Parkway
Panama City Beach, Florida 32413
Phone: 850–234–1730
Fax: 850–234–1731

NO.	DATE	BY	REVISIONS
01			
02			
03			
04			
05			

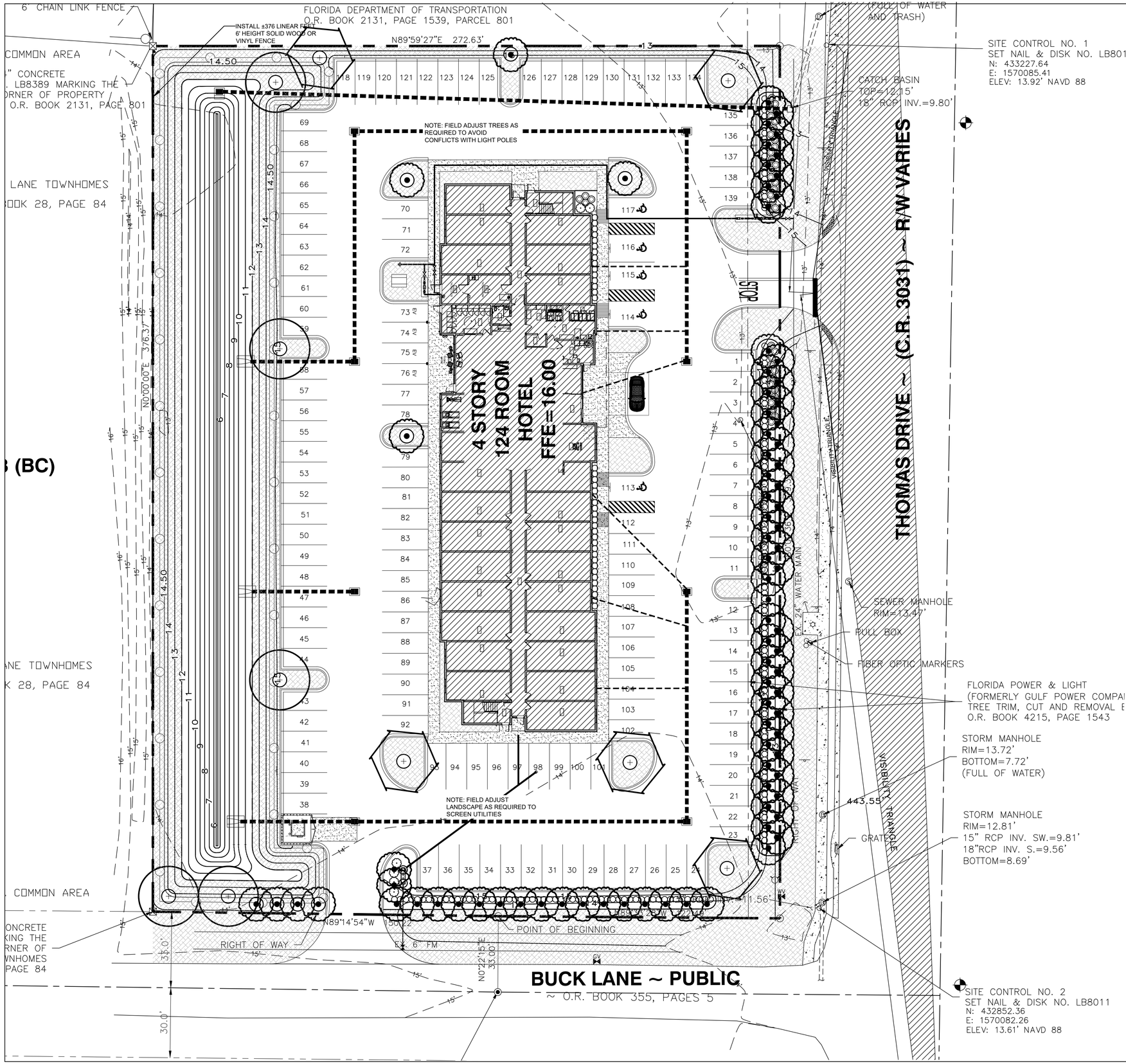
Sean D. McNeil, P.E.
PROFESSIONAL ENGINEER
FL LIC # 48903

Robert L. Carroll, P.E.
PROFESSIONAL ENGINEER
FL LIC # 57988

ROBERT L. CARROLL LICENSE No. 57988 STATE OF FLORIDA PROFESSIONAL ENGINEER 9/24/25

SHEET NUMBER 13 OF 13

1577.01 – STUDIORES



GRAPHIC SCALE

0 10 20 40 60 80

SCALE IN FEET

LANDSCAPE NOTES:

1. ALL PLANT MATERIAL FLORIDA #1 OR BETTER.
2. FERTILIZE ALL PLANTINGS WITH OSMOCOTE OR OTHER APPROVED SLOW RELEASE FERTILIZER AT MANUFACTURER'S RECOMMENDED RATE BEFORE MULCHING.
3. DECREASE PLANT SPACING AS REQUIRED TO ALLOW PLACEMENT OF THE DESIGNATED NUMBER OF PLANTS PER GROUPING.
4. APPLY CASARON OR OTHER APPROVED PRE-EMERGENT HERBICIDE TO ALL PLANTING AREAS BEFORE MULCHING.
5. MULCH ALL AREAS OF TREE, SHRUB AND GROUNDCOVER MASS PLANTINGS WITH 3" PINESTRAW MULCH.
6. SOD ALL DISTURBED AREAS.
7. AUTOMATIC IRRIGATION SYSTEM TO PROVIDE 100% COVERAGE OF ALL LANDSCAPE AREAS.
8. PROVIDE BACKFLOW PREVENTION PER CITY REQUIREMENTS.
9. PROVIDE RAIN SHUT OFF DEVICE PER FL. STATE LAW.

LANDSCAPE LEGEND

GROUNDCOVER

32,000± S.F. INCLUDING 10% FOR WASTE
'TIFF 419' BERMUDA
CYANODON DACTYLON 'TIFF 419'

205 DWARF YAUPON HOLLY
ILEX VOMITORIA 'NANA'
3 GAL. 30" O.C.

37 'PETITE RED' OLEANDER
NERIUM OLEANDER 'PETITE RED'
3 GAL. 3' O.C.

6 'SWEET' VIBURNUM
VIBURNUM ODORATISSIMUM
3 GAL. 4' O.C.

84 CABBAGE PALM
SABAL PALMETTO
10-14' HEIGHT STAGGERED

5 LIVE OAK
QUERCUS VIRGINIANA
6' HEIGHT

5 BALD CYPRESS
TAXODIUM DISTICHUM
6' HEIGHT

OVERALL REQUIREMENT - (10% LANDSCAPE REQUIREMENT)

TOTAL SITE AREA	LANDSCAPE AREA REQUIRED	LANDSCAPE AREA PROVIDED
103,074 SQ. FT.	10,307 SQ. FT. (10%)	36,790 SQ. FT. (36%)

PARKING AREA		
REQUIRED	REQUIRED	PROVIDED
PER 2,700 S.F. PARKING STALLS	FOR 24,838 S.F.	
1 CANOPY TREE	10 CANOPY TREES	10 CANOPY TREES

BUILDING FRONTAGE		
REQUIRED	REQUIRED	PROVIDED
20 S.F. PER 1,000 S.F. BLDG.	FOR 15,231 S.F. BLDG.	
	305 S.F.	305 S.F.
1 SHRUB PER 5 L.F. BLDG	FOR 235 L.F. BLDG.	
	47 SHRUBS	47 SHRUBS

10' LANDSCAPE BUFFER - EAST (THOMAS DRIVE)		
REQUIRED	REQUIRED	PROVIDED
PER 50 L.F. FRONTAGE	FOR 354 L.F. FRONTAGE	
3 CANOPY TREES	22 CANOPY TREES	0 CANOPY TREES *
5 UNDERSTORY TREES	36 UNDERSTORY TREES	58 UNDERSTORY TREES
20 SHRUBS	142 SHRUBS	142 SHRUBS
* UNDERSTORY TREES SUBSTITUTED FOR CANOPY TREES DUE TO OVERHEAD POWER		

10' LANDSCAPE BUFFER - SOUTH (BUCK LANE)		
REQUIRED	REQUIRED	PROVIDED
PER 50 L.F. FRONTAGE	FOR 150 L.F. FRONTAGE	
3 CANOPY TREES	9 CANOPY TREES	9 CANOPY TREES
5 UNDERSTORY TREES	15 UNDERSTORY TREES	15 UNDERSTORY TREES
20 SHRUBS	60 SHRUBS	60 SHRUBS

SOURCE DATA FOR SITE PLAN PROVIDED BY MCNEIL CARROLL

22110-EXTENDED STAY

Alan D. Holt, A.S.L.A.
LANDSCAPE ARCHITECT, PA
FL LA#1659
PO BOX 2549 PANAMA CITY, FL 32402
TELEPHONE: (850)914-9006 E-MAIL:alan@alandholtasla.com

EXTENDED STAY
THOMAS DRIVE

BAY COUNTY, FL

DATE	ISSUE/REVISION
07/07/22	PERMIT DRAWING
04/08/25	PERMIT DRAWING

REGISTERED LANDSCAPE ARCHITECT ALAN D. HOLT LA0001659 STATE OF FLORIDA

APRIL 8, 2025

LANDSCAPE PLAN SHEET NUMBER

LP1

ONE OF ONE