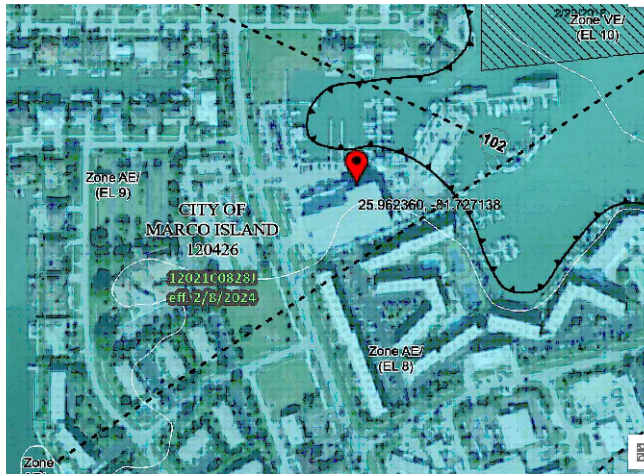


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C-3	EXISTING CONDITIONS PLAN - OVERALL W/ AERIAL
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EAST SITE PLANS	
C-5	EXISTING CONDITIONS / DEMO - EAST
C-6	SITE PLAN - EAST
C-7	GRADING & DRAINAGE PLAN - EAST
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C-31	STORMTECH DETAILS

ATTACHMENTS
LANDSCAPE PLANS
LIGHTING PLANS

FEMA Flood Information

THE FLOOD MAP FOR THE SELECTED AREA IS NUMBER 12021C0828J,
ZONE A/E (EL 9) , EFFECTIVE 2/8/2024

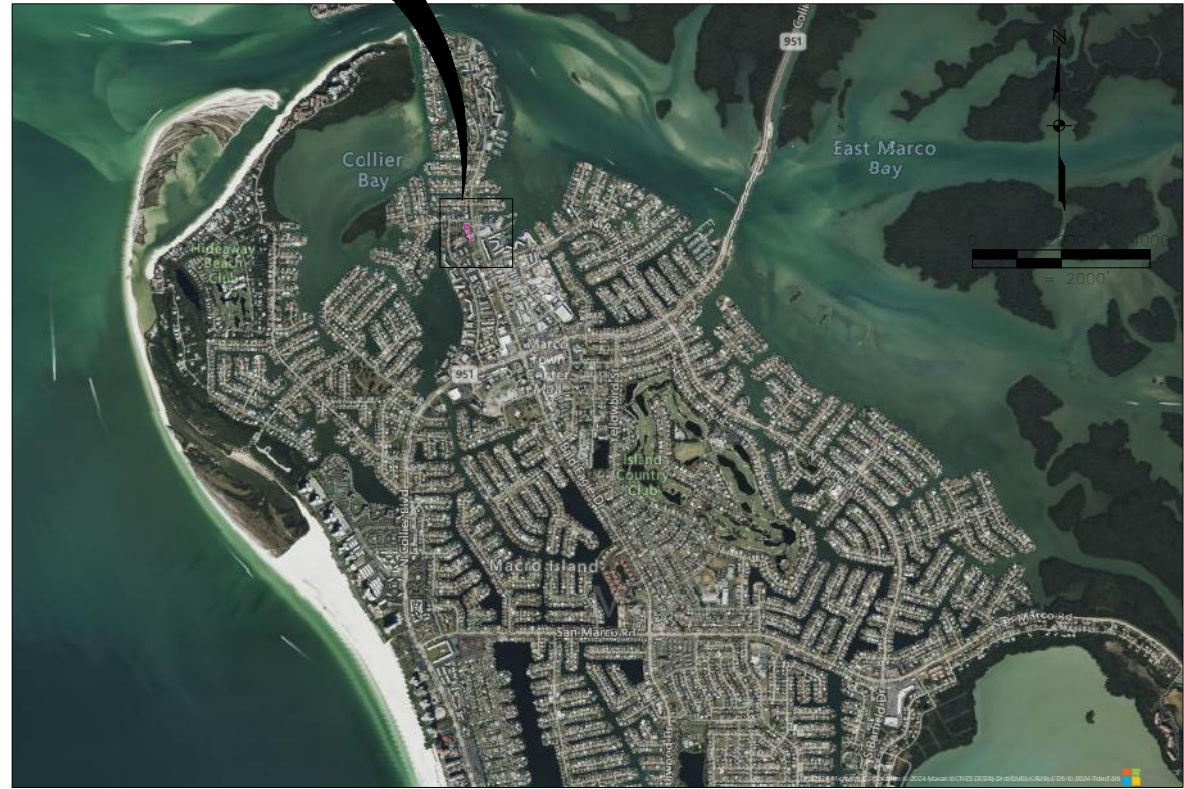


REVISION	DESCRIPTION	DATE
△	REVISED PER CITY CORRESPONDENCE	07/03/2026
△	REVISED PER COMMENTS DATED 08/20/2025	11/25/2025
△	REVISED PER COMMENTS DATED 8/14/2024	05/16/2025

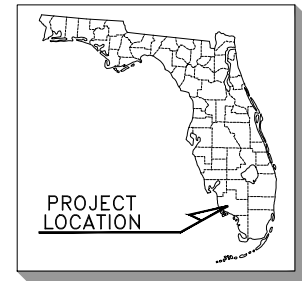
SITE DEVELOPMENT PLANS for ROSE MARINA

SECTIONS 5 & 8, TOWNSHIP 52 SOUTH, RANGE 26 EAST
COLLIER COUNTY, FLORIDA

Project Location



LOCATION MAP



Utility Services

WATER & SEWER SERVICE:
MARCO ISLAND UTILITIES
50 Bald Eagle Drive
Marco Island, FL 34145
PHONE (239) 394-3880

ELECTRIC SERVICE:
LEE COUNTY ELECTRIC COOPERATIVE
4980 BAYLINE DR, FORT MYERS, FL 33917
PHONE (800) 599-2356

PHONE SERVICE:
CENTURY LINK
6438 NAPLES BLVD #100
NAPLES, FLORIDA 34109
PHONE (239) 596-6220

CABLE TELEVISION:
COMCAST
301 TOWER ROAD
NAPLES, FLORIDA 34113
PHONE (239) 793-3577

WASTE DISPOSAL:
WASTE MANAGEMENT OF
COLLIER COUNTY
4500 EXCHANGE AVENUE
NAPLES, FL 34104, 34112
PHONE (239) 249-2212

FIRE CONTROL DISTRICT:
MARCO ISLAND FIRE DISTRICT
1280 SAN MARCO ROAD
MARCO ISLAND, FLORIDA 34145
PHONE (239) 389-5040

Owner

ROSE MARINA
951 BALD EAGLE DRIVE
NAPLES, FL 34145

Collier County Folio Nos.

56930080005, 57991760004, 57920080001

Size of Parcel

8.78 ACRES

PROJECT CONSULTANTS

PROJECT MANAGEMENT:
TURRELL, HALL & ASSOCIATES, INC.
3584 EXCHANGE AVE
NAPLES, FL 34104
PHONE: (239) 643-0166

ENGINEERING:
HAGAN ENGINEERING
1250 TAMiami TRAIL N., STE 203B
NAPLES, FL 34102
PHONE: (239) 852-8239

SURVEYING:
AGNOLI, BARBER & BRUNDAGE, INC.
7400 TAMiami TRAIL NORTH SUITE 200
NAPLES, FL 34108
PHONE: (239) 566-2203

STRUCTURAL ENGINEERING:
ATLAS STRUCTURAL ENGINEERING
12610 WORLD PLAZA LANE BUILDING 61, STE. 2
FORT MYERS, FL 34102
PHONE: (239) 274-6820

CE ENGINEERING & CONSULTING, LLC
3948 RUXTEN RD.
NAPLES, FL 34116

LANDSCAPING:
PLACEMAKER DESIGN STUDIO, LLC
415 PLAZA DRIVE
DUNEDIN, FL 34698
PHONE: (727) 726-6124

TRAFFIC ENGINEERING:
NORMAN J. TREBILCOCK, AICP, PE
TREBILCOCK CONSULTING SOLUTIONS, PA
1205 PIPER BOULEVARD, SUITE 202
NAPLES, FL 34110
PHONE: (239) 566-9551

LEGAL DESCRIPTION

LOTS 11, 12, 13, AND 14, BLOCK "133", MARCO BEACH UNIT 4, AS RECORDED IN PLAT BOOK 6, PAGES 32-37, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 1.05 ACRES OF LAND MORE OR LESS. AND
PART OF TRACT "A", MARCO BEACH UNIT 4, (PLAT BOOK 6, PAGES 32-37), AS DESCRIBED IN OR. 232, PAGE 24, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 3.49 ACRES OF LAND MORE OR LESS. AND
PART OF TRACT "A", MARCO BEACH UNIT 4, (PLAT BOOK 6, PAGES 32-37), AS DESCRIBED IN OR. 252, PG. 876, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 2.23 ACRES OF LAND MORE OR LESS. AND
TRACT "B", MARCO BEACH UNIT 11, AS RECORDED IN PLAT BOOK 6, PAGES 80-86, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 2.18 ACRES OF LAND MORE OR LESS. AND
LOT 1, BLOCK 783, MARCO BEACH UNIT 11, AS RECORDED IN PLAT BOOK 12, PAGES 24-26, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 0.93 ACRES OF LAND MORE OR LESS.
(ALL) SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

BUILDING CONSTRUCTION AND FIRE PROTECTION INFORMATION

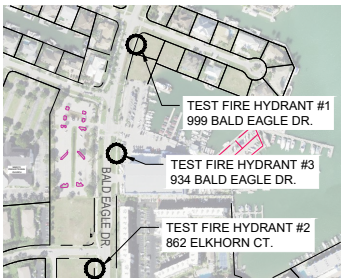
CONSTRUCTION TYPE PER NFPA	TYPE V
HAZARD	ORDINARY
NUMBER OF FLOORS (STORIES)	1
TOTAL SQUARE FOOTAGE UNDER ROOF	6500 S.F.
BUILDING AREA FOR NEED FIRE FLOW	6500 S.F.
SPRINKLERED	YES
* FIRE FLOW REQUIRED (ROUNDED UP)	2,200 GPM
** DISCOUNTED FIRE FLOW REQUIRED	1,000 GPM
*** FIRE FLOW AVAILABLE @ TIME OF TEST	3,219 GPM

* FROM NFPA TABLE 18.4.5.2.1 "MINIMUM REQUIRED
FIRE FLOW AND FLOW DURATION FOR BUILDINGS

** 75% REDUCTION FOR SPRINKLERED BUILDING;
MIN. 1,000 G.P.M.

*** TEST PERFORMED 7/31/2024 @ HYDRANTS LOCATED
@ 999 BALD EAGLE DRIVE AND 934 BALD EAGLE
DRIVE by MARCO ISLAND FIRE RESCUE,
LOCATED 50 BLAD EAGLE DRIVE,
MARCO ISLAND 34145

- FLOW-PSI: 3,219 GPM
- STATIC: 82 PSI
- RESIDUAL: 50 PSI
- GPM (ESTIMATED @ 20 PSI): 4,601 GPM



TEST HYDRANT LOCATIONS
SCALE: 1" = 400'



1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

DECEMBER 2023

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

Christopher Hagan
Digitally signed by
Christopher Hagan
Date: 2026.07.16
14:56:11 -04'00'

SHEET
C-1

GENERAL NOTES

1. ELEVATIONS ARE REFERENCED TO AMERICAN GEODETIC VERTICAL DATUM N.A.V.D. OF 1988.
2. THE LOCATION OF EXISTING UTILITIES, PAVEMENT, VEGETATION, AND MISCELLANEOUS IMPROVEMENTS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
3. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHOULD NOTIFY THE OWNER/ENGINEER WITHOUT DELAY.
4. EXISTING FACILITIES SHALL BE RESTORED TO A CONDITION EQUIVALENT TO THAT WHICH EXISTED PRIOR TO COMMENCING CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, ROADWAY AND TRAFFIC DESIGN STANDARDS, (LATEST EDITION), CITY OF MARCO ISLAND DEVELOPMENT STANDARDS AND SPECIFICATIONS AND CITY OF MARCO ISLAND UTILITIES REQUIREMENTS.
6. LOCATIONS OF INLETS AND STORM DRAINS MAY BE FIELD ADJUSTED TO PRESERVE EXISTING VEGETATION.
7. THE CONTRACTOR IS REQUIRED TO ADJUST ALL VALVE BOXES, MANHOLE RIMS, GRATES, ETC. AS NECESSARY TO MATCH PROPOSED GRADES.
8. CONTRACTOR SHALL NOTIFY THE CITY OF MARCO ISLAND DIVISION OF DEVELOPMENT REVIEW A MINIMUM OF 72 HOURS PRIOR TO ALL REQUIRED INSPECTIONS.
9. CONTRACTOR TO PROVIDE SILT FENCE, STAKED HAY BALES AND OTHER APPROPRIATE MEASURES TO EFFECT THE FILTRATION OF SURFACE WATER FLOWS AND TO PROVIDE EROSION PROTECTION DURING CONSTRUCTION ACTIVITIES. PROTECTION IS TO BE MAINTAINED DURING THE CONSTRUCTION PERIOD UNTIL DISTURBED SOILS HAVE BEEN STABILIZED WITH GRASS OR SUITABLE EROSION PROTECTION TREATMENT.
10. ALL UNPAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED AND MULCHED UNLESS NOTED OTHERWISE.
11. EXISTING OFF-SITE DRAINAGE PATTERNS SHALL BE MAINTAINED DURING CONSTRUCTION.
12. CONTRACTOR SHALL RETAIN, ON THE WORK SITE, COPIES OF ANY PERMITS NECESSARY FOR CONSTRUCTION.
13. CONTRACTOR SHALL PROMPTLY REPORT ALL FIELD CHANGES TO THE ENGINEER.
14. CONTRACTOR SHALL CLEAR ALL EXCAVATION AND FILL AREAS; ACTUAL LIMITS OF CLEARING SHALL BE DETERMINED IN THE FIELD BY OWNER OR ENGINEER.
15. SITE GRADES MAY BE ADJUSTED IN FIELD BY ENGINEER.
16. LOCATION OF STORM DRAINAGE HEADWALLS ARE SUBJECT TO MODIFICATION IN THE FIELD BY OWNER OR ENGINEER TO PRESERVE EXISTING VEGETATION.
17. CONTRACTOR SHALL USE DESIGNATED CONSTRUCTION ENTRANCES FOR EMPLOYEES AND DELIVERY OF MATERIALS.
18. DURING CONSTRUCTION, GRATE INLET AND JUNCTION BOX OPENINGS SHALL BE COVERED WITH FILTER FABRIC (MIRAFI 140N OR APPROVED EQUAL) TO PREVENT DEBRIS AND FILL FROM FALLING INTO THE INLET.
19. THE CONTRACTOR SHALL ACCURATELY PLOT THE LOCATIONS AND DEPTHS OF ALL IMPROVEMENTS INSTALLED ON A FINAL SET OF RECORDED DRAWINGS WHICH SHALL BE DELIVERED TO THE ENGINEER.
20. CONTRACTOR IS REQUIRED TO OBTAIN FROM THE ENGINEER AND OWNER WRITTEN APPROVAL FOR ANY DEVIATIONS FROM THE PLANS AND/OR SPECIFICATIONS.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND USAGE OF THE EXISTING STREETS ADJACENT TO THE PROJECT. ALL TRAFFIC MAINTENANCE CONTROL SHALL BE IN ACCORDANCE WITH THE FLORIDA MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, AND UTILITY OPERATIONS.
22. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY REQUIRED DEWATERING PERMITS.
23. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY REQUIRED TREE REMOVAL PERMITS.
24. CONTRACTOR SHALL SOD, SEED, AND MULCH ALL MEDIAN ISLANDS.
28. THE REVIEW AND APPROVAL OF IMPROVEMENT PLANS DOES NOT AUTHORIZE THE CONSTRUCTION OF REQUIRED IMPROVEMENTS WHICH ARE INCONSISTENT WITH EXISTING EASEMENTS OF RECORD.
29. EASEMENTS DEPICTED ARE FOR INFORMATIONAL PURPOSES ONLY.
30. IN THE EVENT THAT SANITARY SEWER PIPES ARE DAMAGED AT CONFLICTS DURING CONSTRUCTION, THE CONTRACTOR SHALL BE PREPARED TO REPAIR OR RECONSTRUCT THE LINE PER CITY OF MARCO ISLAND SPECIFICATIONS.
31. ALL SWALE ELEVATIONS SHALL BE AT TOP OF SOD.
32. SHOP DRAWINGS OF ALL MATERIALS BEING USED SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
33. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONSTRUCTION PLANS ON THE JOB SITE DURING ALL PHASES OF CONSTRUCTION.
34. ALL PRELIMINARY AND FINAL 1 YEAR INSPECTIONS OF WATER AND/OR SEWER SHALL BE COORDINATED THROUGH CITY OF MARCO ISLAND UTILITIES WITH A 48 HOUR WRITTEN NOTIFICATION.
35. AN ON-SITE PRE-CONSTRUCTION MEETING FOR WATER AND/OR SEWER IS REQUIRED PRIOR TO CONSTRUCTION.
36. EXOTIC VEGETATION SHALL BE REMOVED FROM THE SITE AND SUBSEQUENT ANNUAL EXOTIC REMOVAL (IN PERPETUITY) SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
37. CONTRACTOR RESPONSIBLE FOR COMPLYING WITH FEDERAL (OSHA), STATE (FLORIDA STATUTES), AND LOCAL TRENCHING AND EXCAVATION SAFETY STANDARDS.

GENERAL UTILITY NOTES

1. ALL WORK TO BE DONE IN ACCORDANCE W / THE COLLIER COUNTY LAND DEVELOPMENT CODE, ORD. 23-19, AS AMENDED AND THE UTILITY STANDARDS AND PROCEDURES, ORD. 2004-31 AND 2007-60, AS AMENDED AND CITY OF MARCO ISLAND UTILITY STANDARDS, AS AMENDED.
2. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AGENCY PRIOR TO COMMENCING WORK WITHIN SUCH AGENCY'S JURISDICTION.
3. PRIOR TO COMPACTION OF SUBGRADE AND ROADWAY CONSTRUCTION ALL SUBSURFACE CONSTRUCTION SUCH AS WATER LINES, SEWER LINES, PUBLIC UTILITIES, AND STORM DRAINAGE MUST BE COMPLETED.
4. ALL WATER MAINS AND FORCE MAINS SHALL HAVE A MINIMUM OF 36" OF COVER FROM FINAL GRADE, MAXIMUM DEPTH 5' FROM FINAL GRADE. FOR DEPTHS GREATER THAN 5' WRITTEN REQUEST MUST BE SUBMITTED TO MIU FOR APPROVAL.
5. WATER LINES AND FORCE MAIN SHALL HAVE A MINIMUM OF 48" OF COVER.
6. ALL CONFLICTS OF WATER LINES OVER OR GRAVITY SEWER LINES UNDER RCP DRAINAGE LINES SHALL BE C900 DR14 (MINIMUM) OR EQUAL FOR 10' EACH WAY OF CONFLICT.
7. ALL PRESSURE LINES (WATER & SEWER) SHALL BE DEFLECTED AROUND CATCH BASINS TO MAINTAIN 5' MINIMUM SEPARATION. 45DEG. BENDS SHALL BE UTILIZED IF NECESSARY.
8. ALL PVC WATER MAIN SHALL BE AWWA C-900, CLASS 200, DR14, UNLESS OTHERWISE NOTED.
9. ALL TEMPORARY BLOWOFFS ARE TO BE REMOVED AFTER SATISFACTORY BACTERIAL TESTING IS COMPLETED AND THE CONNECTION IS MADE TO THE EXISTING WATER MAIN.
10. ALL WATER MAINS MUST BE FLUSHED AND DETERMINED TO BE BACTERIOLOGICAL CLEARED BEFORE CONNECTIONS ARE MADE TO THE PROPOSED WATER DISTRIBUTION SYSTEM.
11. BACTERIOLOGICAL SAMPLING POINTS SHALL BE POSITIONED AT THE BEGINNING OF EACH NEW SYSTEM, AT 1000 FOOT INTERVALS AND ALL DEAD ENDS UNLESS OTHERWISE NOTED. THE SAMPLING POINTS WILL BE UTILIZED BY UTILITIES PERSONNEL FOR WATER MAIN AND BACTERIAL CLEARANCE PROCEDURES. AT THE COMPLETION OF THE PROJECT, WHEN AUTHORIZATION IS GIVEN BY MIU, PERMANENT SAMPLING POINTS SHALL REMAIN EVERY 3000 FEET OR ONE AT 2/3 OF THE LENGTH FROM THE POINT OF CONNECTION TO THE MIU SYSTEM IF THE LINE IS LESS THAN 3000 FEET LONG. ALL OTHERS SHALL BE REMOVED DOWN TO THE MAIN AND PROPERLY CAPPED BY THE CONTRACTOR. THE PERMANENT SAMPLING POINT STILL BE CONSTRUCTED AS SHOWN IN THE UTILITY DETAIL DRAWINGS. MIU WILL REVIEW THE PERMANENT SAMPLING POINT LOCATIONS DURING FINAL PLANS REVIEW.
12. ALL WATER OR FORCE MAIN DIPS SHALL USE C900 DR14 PVC WITH RESTRAINING JOINTS. PIPE CONFLICT FITTINGS ARE SHOWN IN PIPE CONFLICT THE DETAIL. MARKED WITH A 3M MAGNETIC MARKER FOR FUTURE LOCATION.
13. EACH SEWER LATERAL SHALL BE
14. ALL SEWER SERVICES SHALL BE 6" DR26 PVC & CONSTRUCTED AT 0.5% SLOPE MINIMUM PER PLUMBING CODE.
15. ALL INSPECTIONS REQUIRE 48 HOUR NOTICE. CONSTRUCTION-RELATED INSPECTIONS, WHERE APPLICABLE, SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
- a) ALL WATER, REUSE, AND SEWER TAPS AND CONNECTIONS WILL REQUIRE INSPECTION FROM MIU WITHIN CITY RIGHT OF WAY
- b) MASTER METER AND BYPASS PIPING.
- c) JACK & BORE CASINGS.
- d) PRESSURE TESTS.
- e) INFILTRATION/EXFILTRATION TESTS.
- f) LIFT STATION INSTALLATION, PRIOR TO COVER-UP AND START-UP.
- g) LIFT STATIONS START-UP.
- h) CONNECTIONS TO EXISTING POTABLE WATER, NON-POTABLE IRRIGATION WATER AND WASTEWATER SYSTEMS.
- i) 8" DIAMETER OR LARGER CASING INSTALLATIONS.
- j) OTHER SPECIAL REQUIREMENTS AS SPECIFIED BY THE CITY OF MARCO ISLAND STAFF AT THE TIME OF CONSTRUCTION DOCUMENT APPROVAL.
- k) CHLORINATION OF WATER LINES AND REFUSHING OF LINE AFTER CHLORINATION (NEEDS WATER DEPARTMENT INSPECTION ONLY). MIU MAY REQUIRE DE-CHLORINATION OF CHLORINATED FLUSH WATER TO MEET ENVIRONMENTAL REQUIREMENTS. MIU REQUIRES 48 HOUR NOTIFICATION.
- l) INSTALLATION OF TEMPORARY METERS/BACKFLOWS.
- m) POTABLE WATER BACTERIAL TESTING MUST BE DONE BY A TESTING LABORATORY APPROVED BY FDEP. COPIES OF RESULTS WILL BE SUPPLIED TO MIU TO OBTAIN C.O. (CERTIFICATE OF OCCUPANCY).
- n) HOT TAPS TO ANY WATER CONCRETE MAINS, PRESSURE TEST ON LINES 20" AND GREATER, AND CONNECTIONS TO EXISTING POTABLE SYSTEMS GREATER THAN 12" NEED TO BE INSPECTED BY THE WATER DEPARTMENT AND CDES.
- o) FIRE FLOW TESTING.
- * AN INSPECTOR ON BEHALF OF THE CITY OF MARCO ISLAND OR OTHER QUALIFIED EMPLOYEE OF THE COUNTY MUST BE PRESENT DURING INSPECTIONS MARKED WITH AN
16. ALL PVC PIPE 4" TO 12" INSTALLED BELOW PAVED STREETS SHALL BE C900, DR14.
17. METERS & METER BOXES FOR METER SIZES 5/8" X 3/4" THROUGH 2-INCH WILL BE INSTALLED BY MIU WITHIN THE RIGHT OF WAY. ALL METERS AND BOXES THAT ARE ON PRIVATE PROPERTY WILL BE INSTALLED BY CONTRACTOR. METER BOXES THAT ARE IN PAVED AREAS WILL BE TRAFFIC RATED AND FLUSH TO FINAL GRADE. ALL METER BOXES WILL BE DFW 1200 OR LARGER WITH AMR HOLE IN THE CORRECT LOCATION FOR PROPER FIT OF LID TO METER LOCATION. MIU DOES NOT SIZE METERS, THE ENGINEER OF RECORD WILL SIZE THE METER AND DETERMINE THE CORRECT MODEL FOR THE APPLICATION THE METER WILL BE USED IN. CALCULATIONS OF METER SIZING AND MODEL MUST BE PROVIDED ON PLANS. ALL BACKFLOW PREVENTERS WILL BE REDUCE PRESSURE ZERO ASSEMBLIES, MUST BE TESTED AND COPIES OF THE TEST PROVIDED TO MIU, AND ARE NOT THE PROPERTY OF MIU.
18. METERS 2" AND SMALLER WILL BE NEPTUNE, METERS 3" AND LARGER WILL BE SENSUS OMNI C-2 COMPOUND.
19. ALL WATER METER COMPONENTS THAT COME IN CONTACT WITH DRINKING WATER SHALL CONFORM WITH NSF STANDARD 61.
20. CONTRACTOR TO VERIFY CONDUIT SIZE AND LOCATIONS WITH UTILITY PROVIDERS PRIOR TO INSTALLATION.
21. POLYVINYL CHLORIDE PIPE (PVC) FOR PIPE SIZES 4"-12" SHALL MEET THE REQUIREMENTS OF AWWA C-900.
22. BACKFLOW PREVENTER ASSEMBLIES SHALL CONFORM TO AWWA M-14 STANDARDS AND MUST BE REDUCED PRESSURE ZONE (RPZ).
23. FIRE HYDRANTS SHALL BE IN ACCORDANCE WITH I.D.C. OF COLLIER COUNTY OR NFPA REGULATIONS, LATEST REVISIONS, WHICHEVER IS MORE. THE APPROVAL OF THE LOCAL FIRE CONTROL DISTRICT. PAVEMENT REFLECTORS SHALL BE LOCATED AT THE CENTERLINE OF EET RESTRICTIVE, AND M FINISHED PAVEMENT OPPOSITE EACH HYDRANT.
24. FIRE HYDRANTS SHALL NOT BE USED FOR TEMPORARY BACTERIAL SAMPLE POINTS. ONLY TEMP. OR PERMANENT SAMPLE POINTS SHALL BE USED.
25. ALL WATER AND SEWER FACILITIES WITHIN THE PUBLIC ROW WILL BE CONVEYED TO CITY OF MARCO ISLAND FOR OWNERSHIP & MAINTENANCE.
26. HYDRANTS TO BE BAGGED UNTIL BACTERIOLOGICAL SAMPLING IS CLEARED AND OPERATIONAL.
27. ALL DIPS SHALL USE 45 DEG. MECHANICAL JOINT FITTINGS WITH RETAINER GLANDS AND CLASS 200 PVC PIPE.
28. ALL EXISTING METERS, METER BOXES, VALVE RISERS, CLEAN OUTS, HYDRANTS WILL BE ADJUSTED TO FINAL GRADE. THIS MAY REQUIRE TRAFFIC RATED METER BOX LIDS AND CLEAN OUT COVERS. AREAS WHERE ROAD, CROSS WALKS, SIDEWALKS, DRIVEWAYS, MAY BE IN CONFLICT WITH THE CONSTRUCTION OF MAY REQUIRE DEFLECTION OR RELOCATION OF MAINS AND SERVICES.

PAVING, GRADING, AND DRAINAGE NOTES

1. LENGTH OF STORM DRAIN PIPES ARE APPROXIMATE AND ARE MEASURED FROM CENTER OF STRUCTURE.
2. PLACE 18" OF SOD CONTINUOUS ALONG EDGES OF PAVEMENT OF ALL ROADS AND/OR CURB, LAYING PARALLEL WITH THE ROAD MAINTAINING 1" BELOW FINISHED PAVEMENT GRADE.
3. CONTRACTOR TO PROVIDE SILT FENCE, STAKED HAY BALES AND OTHER APPROPRIATE MEASURES TO EFFECT THE FILTRATION OF SURFACE WATER FLOWS AND TO PROVIDE EROSION PROTECTION DURING CONSTRUCTION ACTIVITIES. PROTECTION IS TO BE MAINTAINED DURING THE CONSTRUCTION PERIOD UNTIL DISTURBED SOILS HAVE BEEN STABILIZED WITH GRASS OR SUITABLE EROSION PROTECTION TREATMENT.
4. THE PROPOSED STABILIZED SUBGRADE SHALL HAVE L.B.R. OF 40 AND SHALL BE COMPACTED TO 98% MINIMUM DENSITY AS DETERMINED BY AASHTO T-180.
5. THE PROPOSED LIMEROCK BASE SHALL HAVE L.B.R. OF 100 AND SHALL BE PLACED IN TWO (2) LIFTS, WITH EACH LIFT COMPACTED TO 98% MINIMUM DENSITY AS DETERMINED BY AASHTO T-180.
6. LIMEROCK BASE SHALL BE PRIMED IN ACCORDANCE WITH SECTION 200-8 OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION (CURRENT EDITION.)
8. ONE (1) FIELD DENSITY TEST SHALL BE REQUIRED EVERY 300 LF. OR PART THEREOF ON THE FINISHED SUBGRADE MATERIAL AND ON EACH LIFT OF LIMEROCK BASE MATERIAL.
9. TWO (2) COPIES OF THE L.B.R. MODIFIED (AASHTO T-180) PROCTOR AND COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER.
10. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT WATER DISCHARGED FROM THE SITE DURING CONSTRUCTION SHALL MEET OR EXCEED STATE WATER QUALITY STANDARDS. SPECIFICALLY, THE TURBIDITY OF DISCHARGED WATER SHALL NOT EXCEED 29 NTU ABOVE THE BACKGROUND LEVEL. WATER QUALITY AND SILTATION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL EROSION OF CONTROL MEASURES ARE INSTALLED, ESTABLISHED AND ACCEPTED.
13. ALL FRAME AND GRATE INLETS TO BE HEAVY DUTY TRAFFIC RATED. SEE ASPHALT PAVEMENT SECTION DETAILS SHEET.
14. ROSE MARINA WILL BE RESPONSIBLE FOR THE MAINTENANCE OF THE WATER MANAGEMENT FACILITY.

MIU - MARCO ISLAND UTILITIES

SYMBOLS

	GATE VALVE / PLUG VALVE		IRRIGATION SERVICE (DOUBLE)
	TEE ASSEMBLY		IRRIGATION SERVICE (SINGLE)
	REDUCER		SEWER SERVICE (DOUBLE)
	BLOW OFF		SEWER SERVICE (SINGLE)
	FIRE HYDRANT		WATER SERVICE (DOUBLE)
	FIRE HYDRANT ASSEMBLY W/ GATE VALVE		WATER SERVICE (SINGLE)
	FIRE DEPARTMENT CONNECTION		HEADWALL
	MITERED END SECTION		DRAINAGE INLET (SEE PLAN FOR TYPES)
	MANHOLE W/ NUMBER		THROAT INLET
	PLUG VALVE		FLARED END SECTION
			FLOW ARROW
SYM	SYMMETRICAL		
TBSP	TEMP BACTERIAL SAMPLE POINT		
TOE	TOE OF SLOPE		
TOB	TOP OF BANK		
THK	THICK		
TEMP	TEMPERATURE		
TRANS	TRANSFORMER		
TYP	TYPICAL		
UE	UTILITY EASEMENT		
VERT	VERTICAL		
W	WATER		
WM	WATER MAIN		
W/	WITH		
W/O	WITHOUT		
WD	WOOD		
WT	WEIGHT		
WV	WATER VALVE		
WH	WALL HYDRANT		

LINETYPES

	EXISTING	PROPOSED
BASIN		
RIGHT-OF-WAY LINE		
LAKE MAINTENANCE EASEMENT		
PUBLIC UTILITY EASEMENT		
DRAINAGE EASEMENT		
CENTER LINE		
WETLAND BOUNDARY		
FORCE MAIN		
SANITARY SEWER		
WATER MAIN		
PERIMETER BERM		
DITCH / SWALE		
FENCE LINE		
SILT FENCE		
BULKHEAD		
STRUCTURAL BUFFER		

ABBREVIATIONS

AC	ACRE
ALT	ALTERNATE
APPROX	APPROXIMATE
ASB	ASBESTOS
BM	BENCH MARK
BLDG.	BUILDING
BOT	BOTTOM
CB	CATCH BASIN
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CIP	CAST IRON PIPE
CJ	CONSTRUCTION JOINT
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CV	CHECK VALVE
CF	CUBIC FOOT
CY	CUBIC YARD
CL	CENTER LINE
CLKG	CAULKING
CLF	CHAIN LINK FENCE
COL	COLUMN, COLOR
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CTRS	CENTERS
CU	COPPER
CU IN	CUBIC INCH
DIA, Ø	DIAMETER
DIAC	DIAGONAL
DM	DIMENSION
DIST	DISTANCE
DIP	DUCTILE IRON PIPE
DE	DRAINAGE EASEMENT
DWG	DRAWING
E	EAST
EACH	EACH
EL/ELEV	ELEVATION
EQUIP	EQUIPMENT
ERCP	ELLIPTICAL CONCRETE PIPE
EX, EXIST	EXISTING
FF	FINISHED FLOOR
FFE	FINISHED FLOOR ELEVATION
FM	FORCE MAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FINISH	FINISH
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET
G	NATURAL GAS
GC	GENERAL CONTRACTOR
GI	GALVANIZED IRON
GPM	GALLONS PER MINUTE
GV	GATE VALVE
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GR	GRADE
HOPE	HIGH DENSITY POLYETHYLENE
HOR	HORIZONTAL
HYD	HYDRANT
ID	INSIDE DIAMETER
IDD	IGNA DRAINAGE DISTRICT
IN	IN
LAE	LAKE ACCESS EASEMENT
LINEAL	LINEAL FEET
LME	LAKE MAINTENANCE EASEMENT
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MJ	MECHANICAL JOINT
MAX	MAXIMUM
MECH	MECHANICAL
MES	MITERED END SECTION
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
N	NORTH
NE	NORTHEAST
NW	NORTHWEST
NPW	NON POTABLE WATER
NTS	NOT TO SCALE
NUM/#	NUMBER
NOM	NOMINAL
NG	NATURAL GAS
OC	ON CENTERS
OCEW	ON CENTER EACH WAY
OD	OUTSIDE DIAMETER
PBSP	PERMANENT BACTERIAL SAMPLE POINT
PCF	POUNDS PER CUBIC FOOT
PSF	POUNDS PER SQUARE FOOT
PV	PLUG VALVE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
POLY, PE	POLYETHYLENE
PAVT	PAVEMENT
PC	POINT OF CURVATURE
P	PROPERTY LINE
PLB	PLUMBING
PLWD	PLYWOOD
PW	POTABLE WATER
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVI	POINT OF VERTICAL INTERSECTION
QUAN	QUANTITY
R	RADIUS
RD	ROAD
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
R/W	RIGHT OF WAY
R/W	RIGHT OF WAY
S	SOUTH
SE	SOUTHEAST
SW	SOUTHWEST
SS	STAINLESS STEEL
SAN	SANITARY
SCH	SCHEDULE
SECT	SECTION
SEW	SEWER
SH	SHEET
SPEC	SPECIFICATION
SQ	SQUARE
ST	STREET
STA	STATION
STL	STEEL
STD	STANDARD
SUR	SURFACE

REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HE HAGAN
ENGINEERING

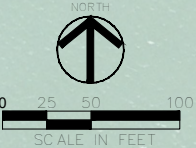
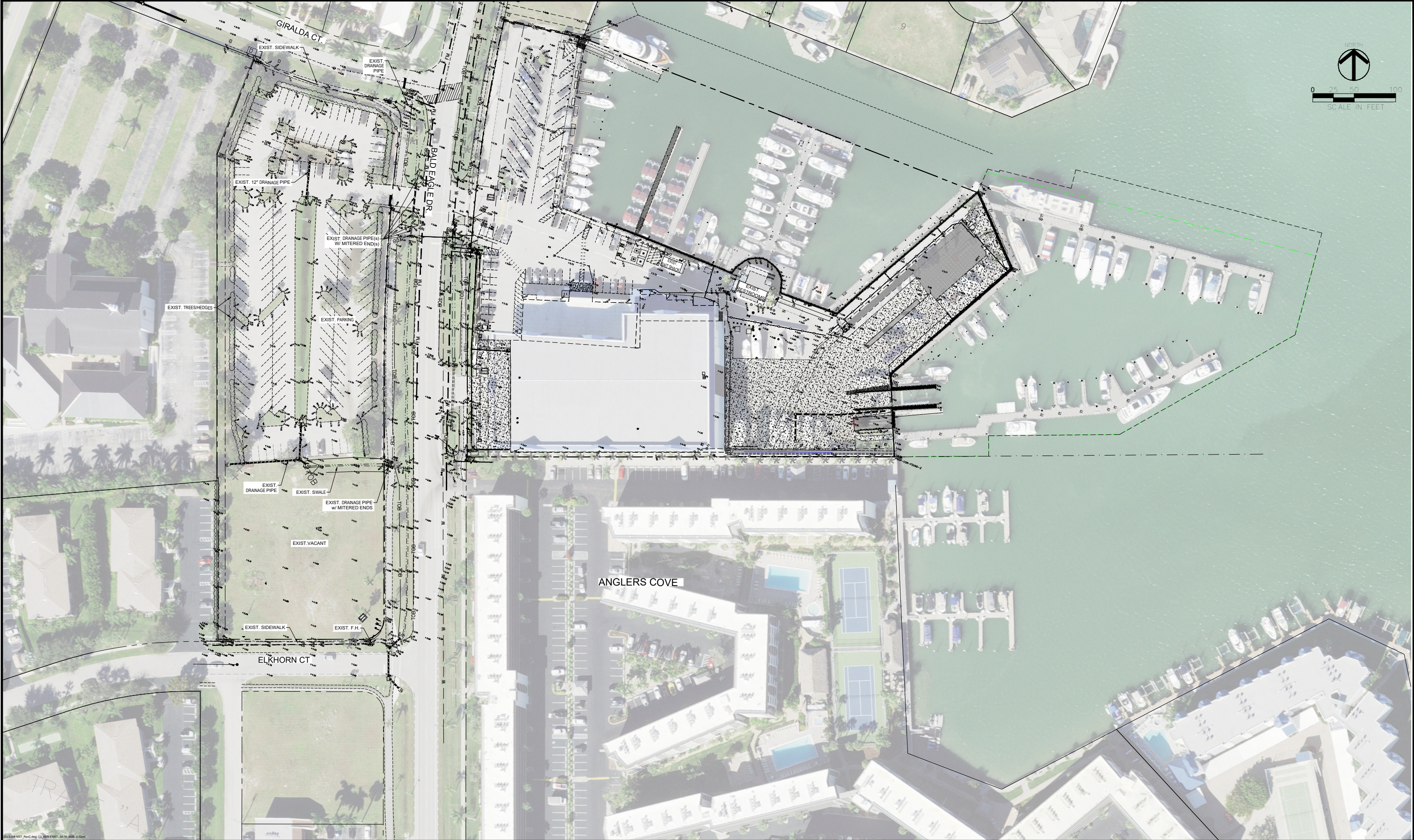
1250 TAMIAHI TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

SITE DEVELOPMENT PLANS

C. D. HAGAN, P.E.
FL REGT. #38649
EB #29474
DATE:

ABBREVIATIONS & GENERAL NOTES

DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	AS SHOWN	C-2



REVISIONS		

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN

ENGINEERING

1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

SITE DEVELOPMENT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

EXISTING CONDITIONS PLAN W/ AERIAL			
DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	AS SHOWN	C-3

2023-298 MST_RevC.dwg, C4_MSP, Jul 16, 2026, 2:32pm

REVISIONS		
	REVISED PER CITY CORRESPONDENCE	07/03/2026
	REVISED PER COMMENTS DATED 06/20/2025	11/25/2025
	REVISED PER COMMENTS DATED 8/14/2024	05/16/2025

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

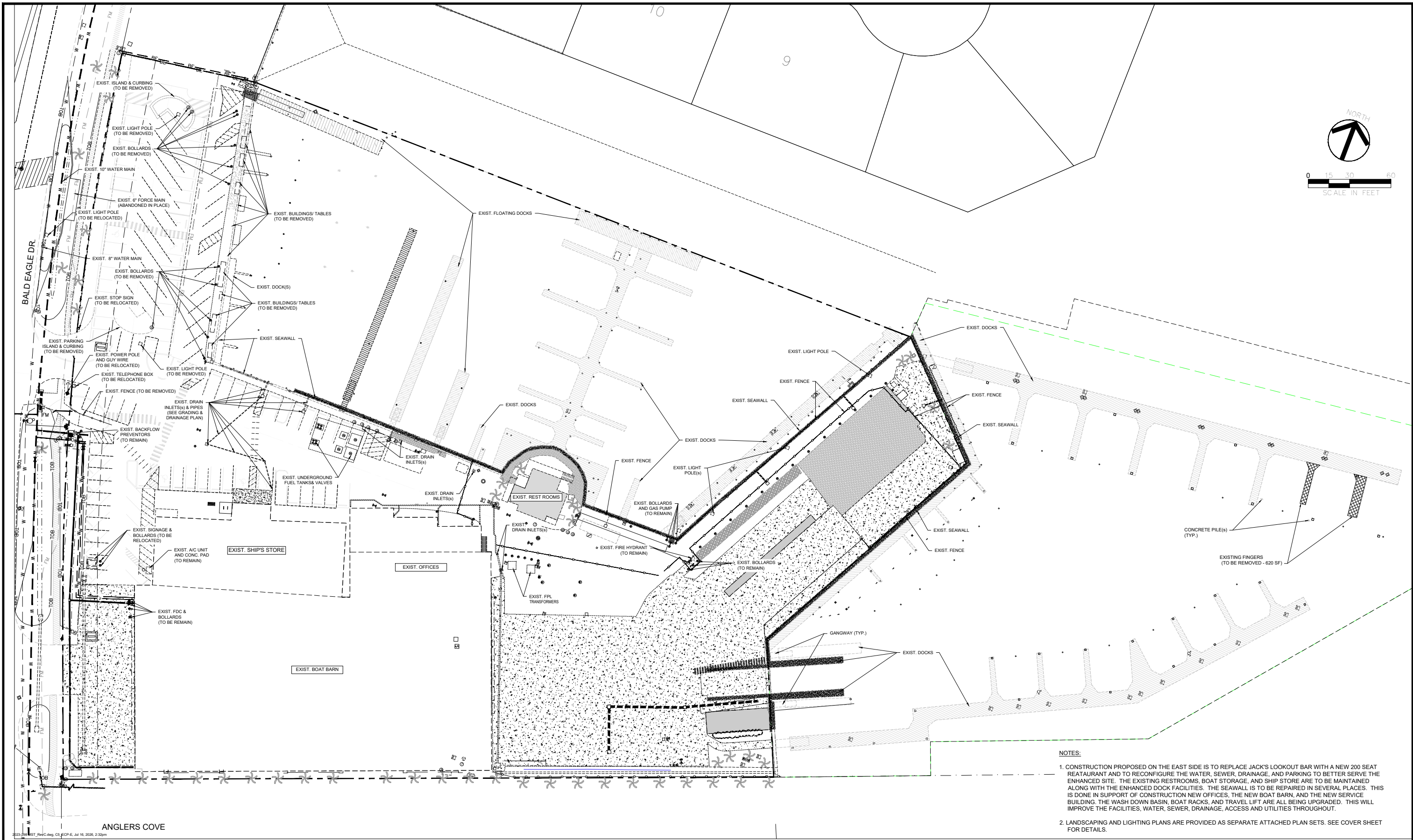
HE HAGAN
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1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

SITE DEVELOPMENT PLANS

C. D. HAGAN, P.E.
FL REGT. #38649
EB #29474
DATE:

MASTER SITE PLAN

DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	AS SHOWN	C-4

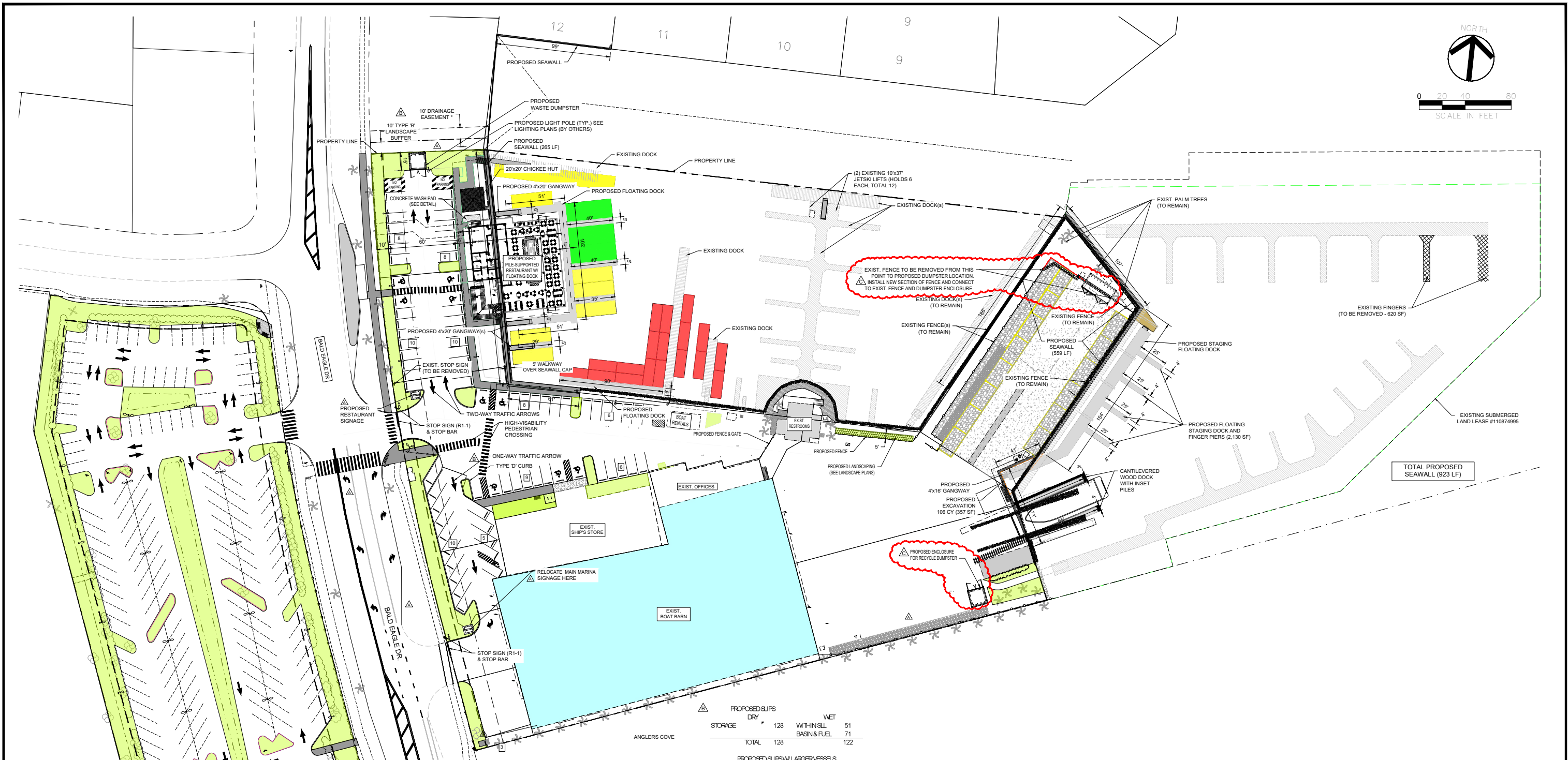


NOTES:

1. CONSTRUCTION PROPOSED ON THE EAST SIDE IS TO REPLACE JACK'S LOOKOUT BAR WITH A NEW 200 SEAT REATAURANT AND TO RECONFIGURE THE WATER, SEWER, DRAINAGE, AND PARKING TO BETTER SERVE THE ENHANCED SITE. THE EXISTING RESTROOMS, BOAT STORAGE, AND SHIP STORE ARE TO BE MAINTAINED ALONG WITH THE ENHANCED DOCK FACILITIES. THE SEAWALL IS TO BE REPAIRED IN SEVERAL PLACES. THIS IS DONE IN SUPPORT OF CONSTRUCTION NEW OFFICES, THE NEW BOAT BARN, AND THE NEW SERVICE BUILDING. THE WASH DOWN BASIN, BOAT RACKS, AND TRAVEL LIFT ARE ALL BEING UPGRADED. THIS WILL IMPROVE THE FACILITIES, WATER, SEWER, DRAINAGE, ACCESS AND UTILITIES THROUGHOUT.

2. LANDSCAPING AND LIGHTING PLANS ARE PROVIDED AS SEPARATE ATTACHED PLAN SETS. SEE COVER SHEET FOR DETAILS.

REVISIONS		ROSE MARINA REDEVELOPMENT PLANS	CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA	HAGAN ENGINEERING 1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239	SITE DEVELOPMENT PLANS	C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	EXISTING CONDITIONS PLAN - EAST			
							DATE	PROJECT NO.	SCALE	SHEET
							DEC 2023	2023-298	As Shown	C-5



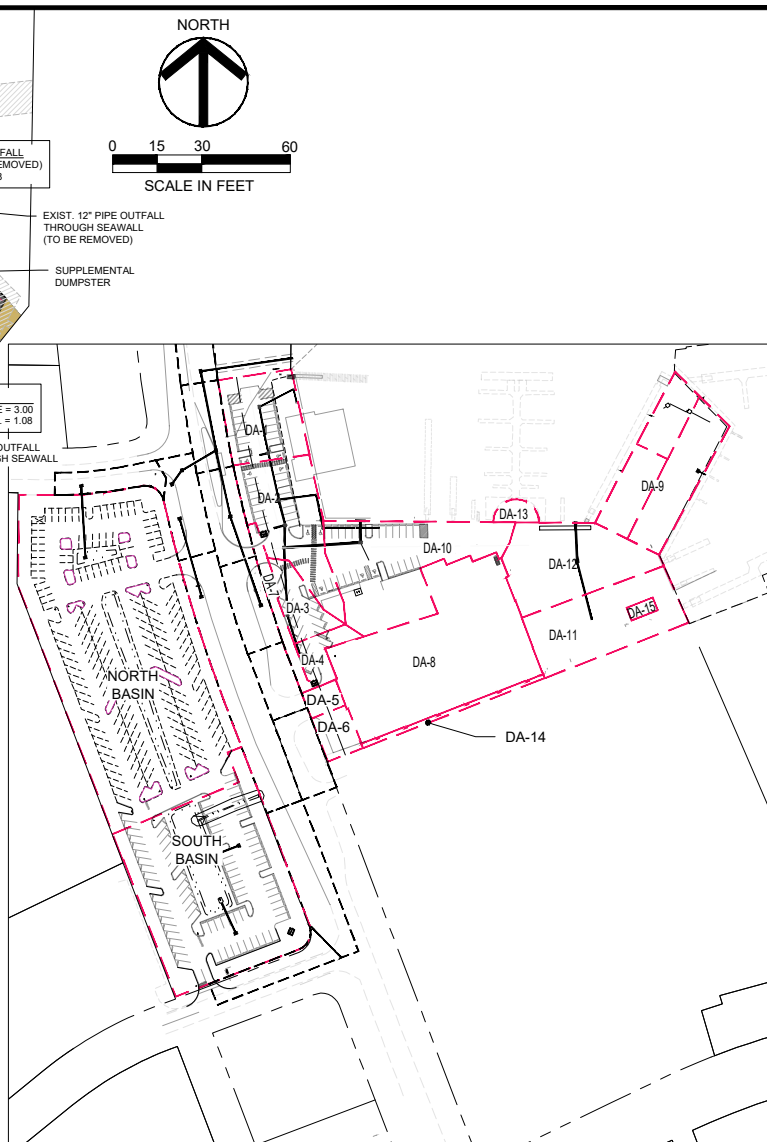
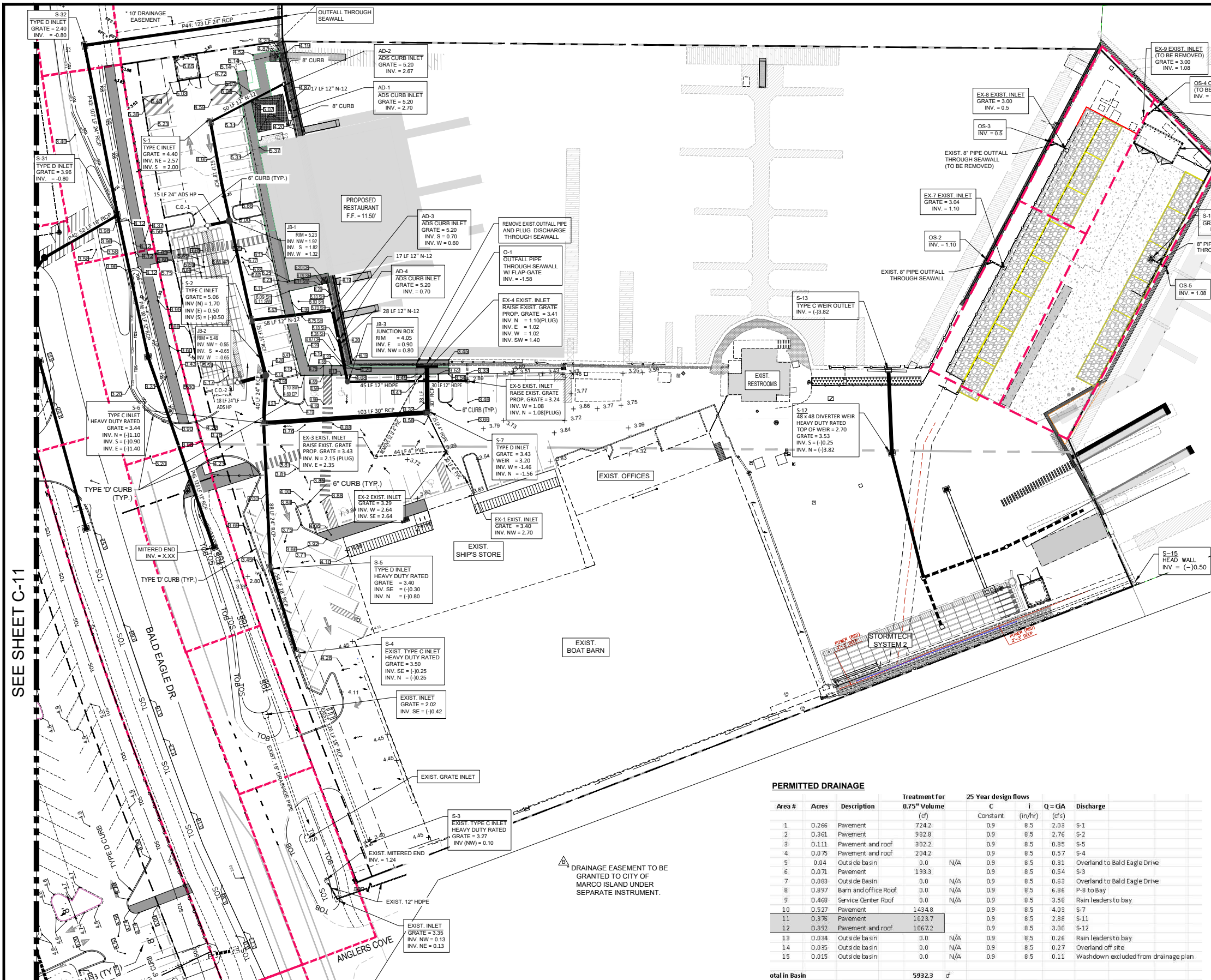
- NOTES:**
- CONSTRUCTION PROPOSED ON THE EAST SIDE IS TO RECONFIGURE THE WATER, SEWER, DRAINAGE, AND PARKING TO BETTER SERVE THE ENHANCED SITE. THE EXISTING BOATER LOUNGE / BATHROOM BUILDING, AND SHIP STORE ARE TO BE MAINTAINED ALONG WITH THE ENHANCED DOCK FACILITIES. THE SEAWALL IS TO BE REPAIRED IN SEVERAL PLACES. THE WASH DOWN BASIN, BOAT RACKS, AND TRAVEL LIFT ARE ALL BEING UPGRADED. THIS WILL IMPROVE THE FACILITIES, WATER, SEWER, DRAINAGE, ACCESS AND UTILITIES THROUGHOUT.
 - LANDSCAPING, LIGHTING, AND CITY OF MARCO UTILITY DETAILS ARE PROVIDED AS SEPARATE ATTACHED PLAN SETS. SEE COVER SHEET FOR DETAILS.
 - SURVEY PROVIDED BY AGNOLI, BARBER & BRUNDAGE (ABB), INC. DATED 01/29/2024
- * APPLICANT OWNED SHORELINE (APPROX. LF): 1,551
* EXISTING OVERWATER STRUCTURE (APPROX. LF): 25,995
* WIDTH OF WATERWAY, MHW TO MHW (APPROX.): N/A
* TIDAL DATUM:
** MLW (NAVD) = -1.68'
** MLW (NAVD) = +0.40'
* PROPOSED OVERWATER STRUCTURE (APPROX. LF): 10,621
* REMOVED OVERWATER STRUCTURE (APPROX. LF): 1,376
* TOTAL OVERWATER STRUCTURE (APPROX. LF): 34,107

△ DRAINAGE EASEMENT TO BE GRANTED TO CITY OF MARCO ISLAND UNDER SEPARATE INSTRUMENT.

PROPOSED SLIPS			
DRY		WET	
STORAGE	128	WITHIN SLL BASIN & FUEL	51
			71
TOTAL	128		122
PROPOSED SLIPS W/ LARGER VESSELS			
		WITHIN SLL BASIN & FUEL	51
			71
TOTAL			122
PROPOSED SLIPS W/ LARGER VESSELS			
DRY		WET	
STORAGE	128	WITHIN SLL BASIN & FUEL	51
			71
TOTAL	128		122
BERTHS			
LENGTH (LOA - FT.)	AVG. WIDTH (FT.)	# SLIPS	
24	9	24	
35	12	35	
40	16	40	
TOTAL		30	

2023-2024 MDT, Rev C, chg, Cb, MSP-E, Jul 16, 2026, 2:33pm

REVISIONS			ROSE MARINA REDEVELOPMENT PLANS	CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA	HE HAGAN ENGINEERING 1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239	SITE DEVELOPMENT PLANS	C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	SITE PLAN - EAST				
									DATE	PROJECT NO.	SCALE	SHEET
△	REVISED PER CITY CORRESPONDENCE	07/03/2026							DEC 2023	2023-298	As Shown	C-6
△	REVISED PER COMMENTS DATED 06/20/2025	11/25/2025										
△	REVISED PER COMMENTS DATED 8/14/2024	05/18/2024										



SEE SHEET C-11

PERMITTED DRAINAGE

Area #	Acres	Description	Treatment for 0.75" Volume		25 Year design flows		Q = QA	Discharge
			(cf)	Constant	i (in/yr)	(cf)		
1	0.266	Pavement	724.2	0.9	8.5	2.03	S-1	
2	0.361	Pavement	982.8	0.9	8.5	2.76	S-2	
3	0.111	Pavement and roof	302.2	0.9	8.5	0.85	S-5	
4	0.075	Pavement and roof	204.2	0.9	8.5	0.57	S-4	
5	0.04	Outside basin	0.0	N/A	0.9	0.31	Overland to Bald Eagle Drive	
6	0.071	Pavement	193.3	0.9	8.5	0.54	S-3	
7	0.083	Outside Basin	0.0	N/A	0.9	0.63	Overland to Bald Eagle Drive	
8	0.897	Barn and office Roof	0.0	N/A	0.9	6.86	P-8 to Bay	
9	0.468	Service Center Roof	0.0	N/A	0.9	3.58	Rain leaders to bay	
10	0.527	Pavement	1434.8	0.9	8.5	4.03	S-7	
11	0.376	Pavement	1073.7	0.9	8.5	2.88	S-11	
12	0.392	Pavement and roof	1067.2	0.9	8.5	3.00	S-12	
13	0.034	Outside basin	0.0	N/A	0.9	0.26	Rain leaders to bay	
14	0.035	Outside basin	0.0	N/A	0.9	0.27	Overland off site	
15	0.015	Outside basin	0.0	N/A	0.9	0.11	Washdown excluded from drainage plan	
total in Basin			5932.3	cf				

PROPOSED DRAINAGE

WATER QUALITY TREATMENT CALCULATIONS

Basin Areas and Flows

#	Area	Acres	Treatment for 0.75" Volume (cf.)	Description	ImperVIOUS	PerVIOUS	Discharge
1	11,591.30	0.268	724.5	PAVEMENT	6,187.44		S-1
				SIDEWALK	945.86		
				"BUILDING(ROOF)"	1,254.92	3,203.08	
2	15,734.83	0.361	983.4	PAVEMENT	10,367.47		S-2
				SIDEWALK	1,188.34		
				"BUILDING(ROOF)"	887.62	3,291.41	
3	4,831.15	0.111	301.9	PAVEMENT	4,027.92		S-5
				SIDEWALK	110.41	692.82	
				"BUILDING(ROOF)"	666.90		S-4
				PAVEMENT	2,468.05	-6.71	
* 5	1,760.23	0.040	110.0	PAVEMENT	1,760.23	0.00	OVERLAND TO BALD EAGLE DR
6	3,079.09	0.071	192.4	PAVEMENT	2,106.54	872.55	S-3
7	4,027.22	0.092	251.7	PAVEMENT	394.93		OVERLAND TO BALD EAGLE DR
				SIDEWALK	149.71	3,492.57	
* 8	39,051.00	0.896	2,440.7	"BUILDING(ROOF)"	39,051.00	0.00	P-8 TO BAY
				PAVEMENT	16,536.57		RAIN LEADERS TO BAY
				SIDEWALK	3,371.89	497.38	
10	23,108.16	0.530	1,444.3	PAVEMENT	15,483.52		S-7
				SIDEWALK	872.02		
				"BUILDING(ROOF)"	556.53	6,196.09	
11	16,399.91	0.376	1,025.0	PAVEMENT	16,399.91	0.00	S-11
12	17,099.81	0.392	1,068.1	PAVEMENT	16,364.07		S-12
				"BUILDING(ROOF)"	390.73	335.01	
* 13	1,467.62	0.034	91.7	"BUILDING(ROOF)"	746.63		RAIN LEADERS TO BAY
				PAVERS	720.34	0.65	
* 14	1,508.09	0.035	94.3	OUTSIDE BASIN		1,508.09	OVERLAND OFF-SITE
* 15	675.12	0.015	42.2	OUTSIDE BASIN	675.12	0.00	WASH-DOWN ARE EXCLUDED FROM DRAINAGE
TOTAL	163,857.62	3.76	7,210.52		143,674.67	20,182.96	163,857.62
	161,947.53						

* THESE AREAS ARE OUTSIDE OF THE DRAINAGE BASINS OR ARE ROOF RUN-OFF AND DRAIN DIRECTLY TO THE BAY, AND ARE EXCLUDED FROM THE CALCULATED TREATMENT VOLUME.

REVISIONS		
△	REVISED PER CITY CORRESPONDENCE	07/03/2026
△	REVISED PER COMMENTS DATED 06/20/2025	11/25/2025
△	REVISED PER COMMENTS DATED 8/14/2024	05/16/2025

ROSE MARINA
REDEVELOPMENT PLANS

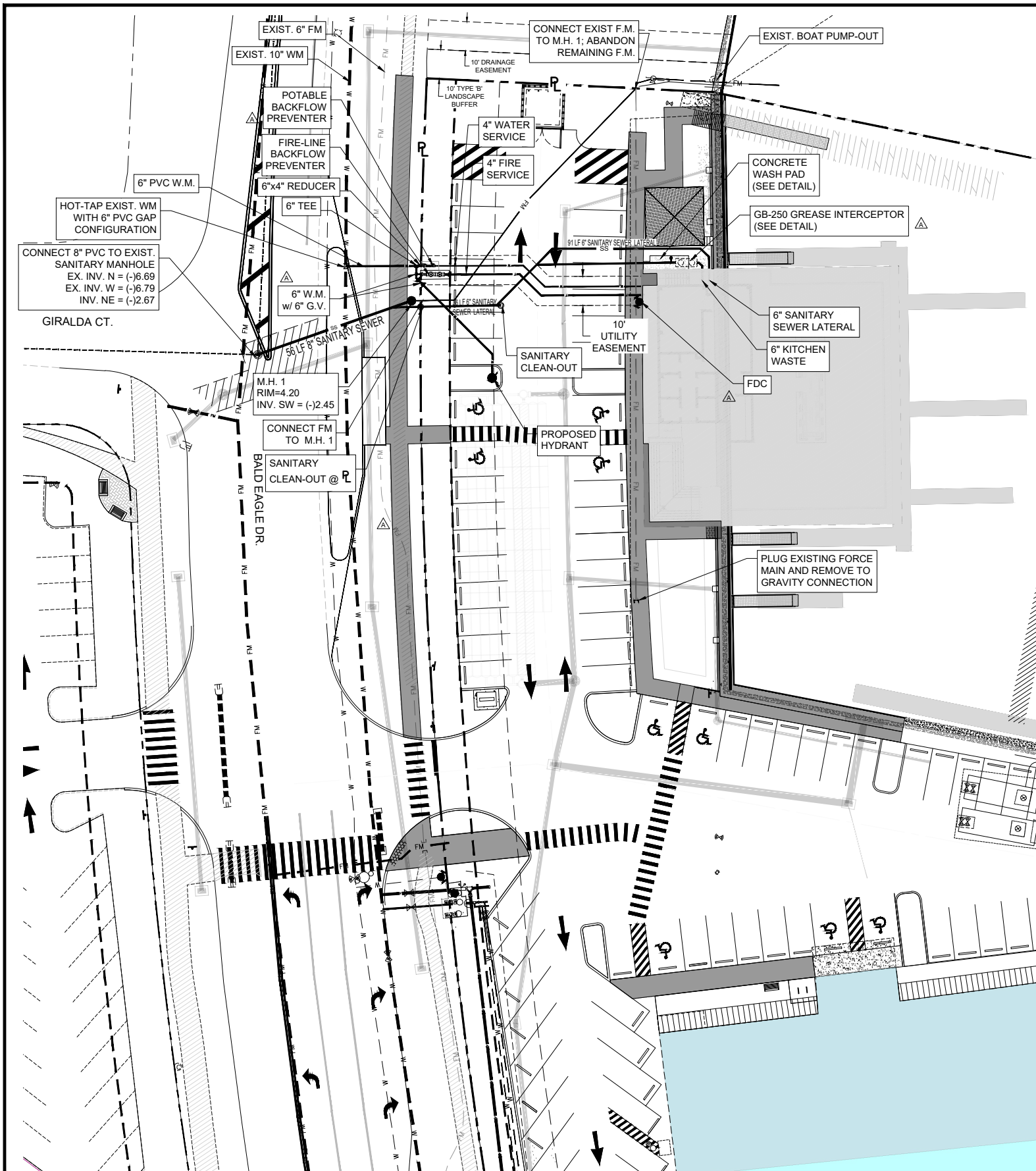
CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN
ENGINEERING
1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

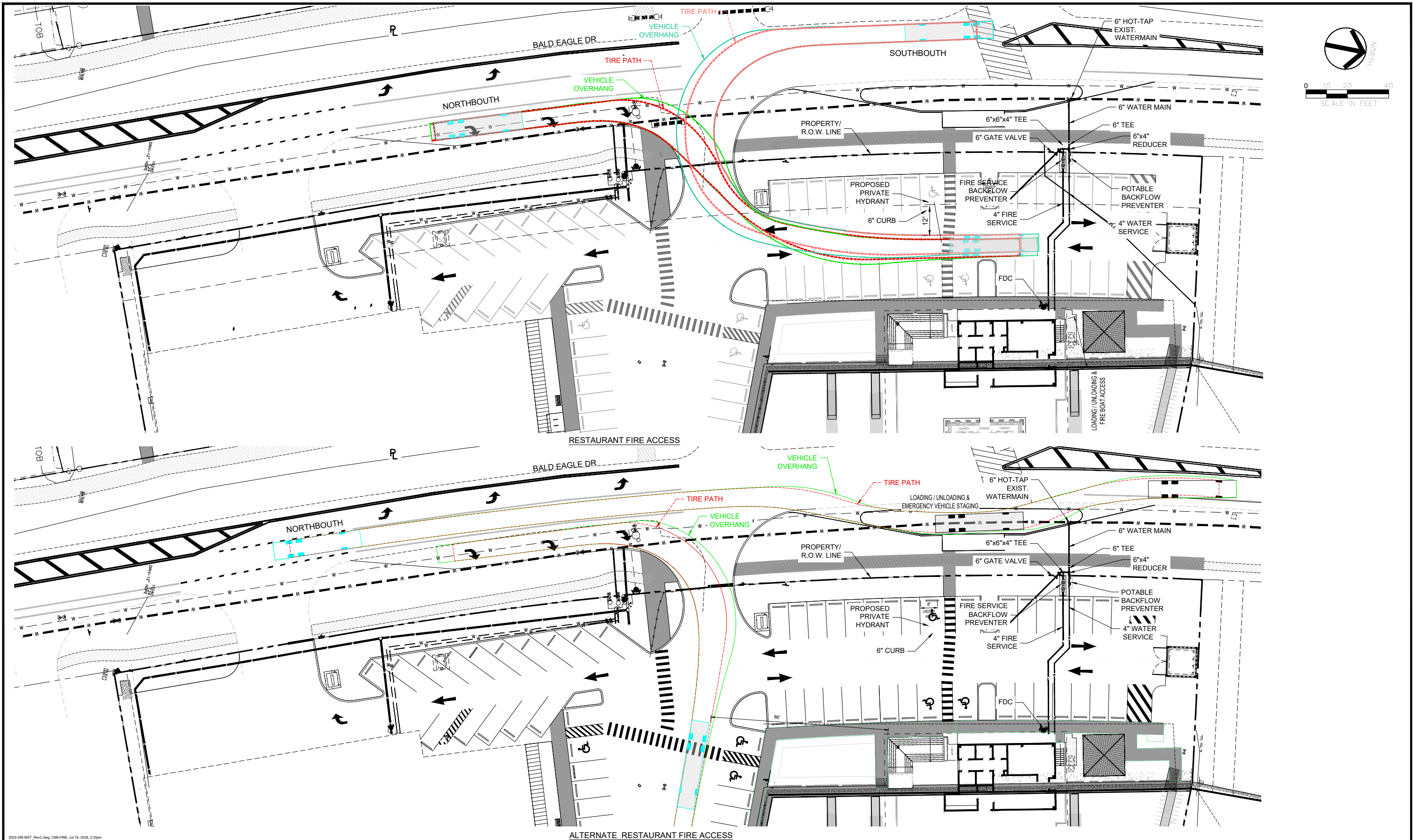
SITE DEVELOPMENT PLANS

MASTER DRAINAGE &
GRADING & PLAN - EAST

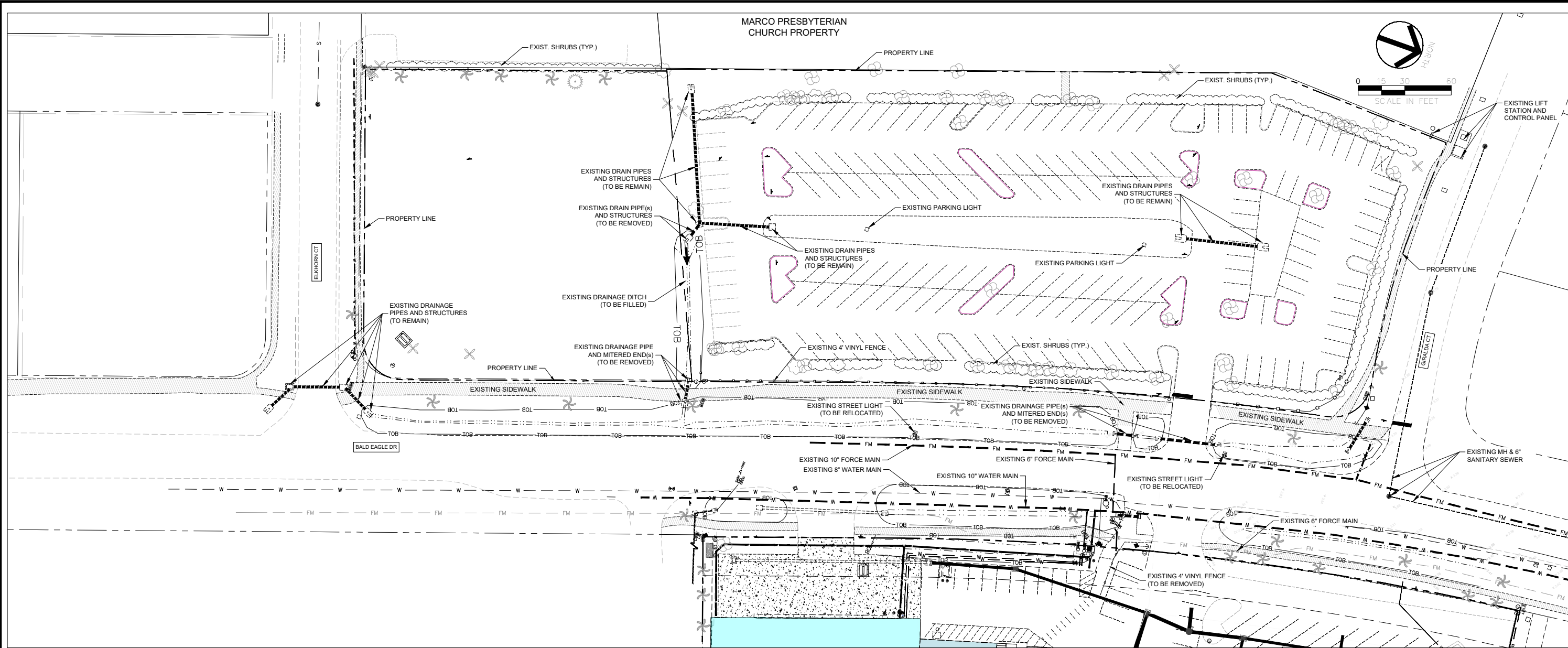
DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	As Shown	C-7



REVISIONS			ROSE MARINA REDEVELOPMENT PLANS	CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA	HAGAN ENGINEERING 1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239 SITE DEVELOPMENT PLANS	C. D. HAGAN, P.E. FL REG.# 38649 EB #29474 DATE:	MASTER UTILITY PLAN - EAST				
	REVISED PER COMMENTS DATED 8/14/2024	05/18/2025									



2023-098.MST RevC.dwg, CBB-FIRE, Jul 16, 2025, 2:33pm									
REVISIONS		ROSE MARINA REDEVELOPMENT PLANS		CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA		 HAGAN ENGINEERING		SITE DEVELOPMENT PLANS	
						1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239			
								C. D. HAGAN, P.E. FL REG. #38649 EB #29474	
								DATE:	
								FIRE ACCESS PLAN - RESTAURANT	
								DATE	PROJECT NO.
								DEC 2023	2023-298
								SCALE	SHEET
								As Shown	C-8B



2023-098.MST RevC.dwg, CR ECP-W, Jul 16, 2026, 2:33pm

REVISIONS		

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

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ENGINEERING

1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

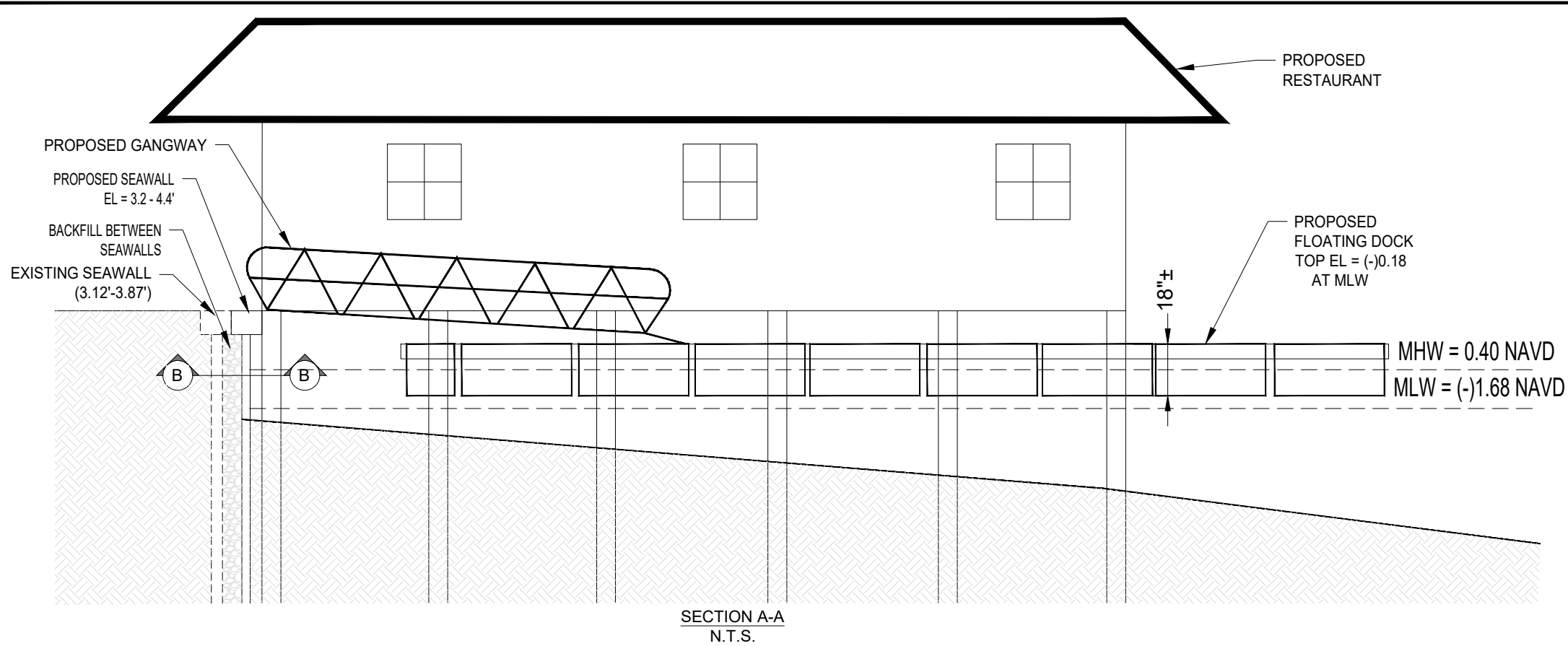
SITE DEVELOPMENT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

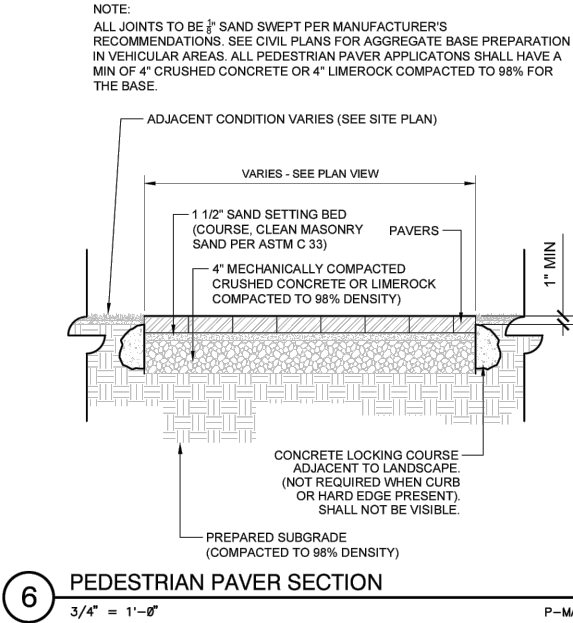
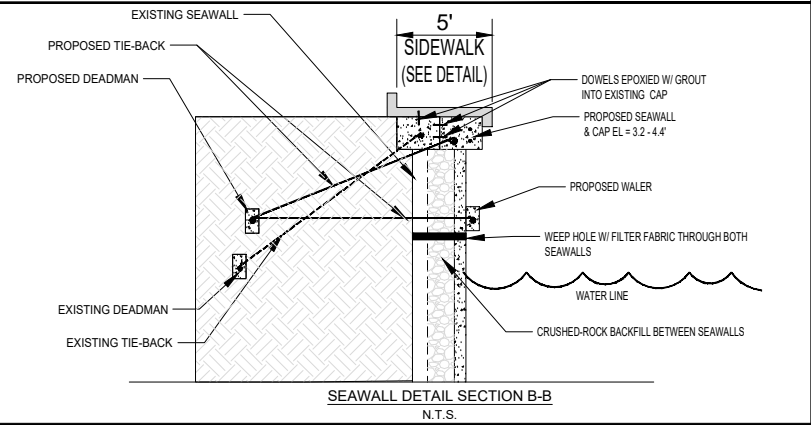
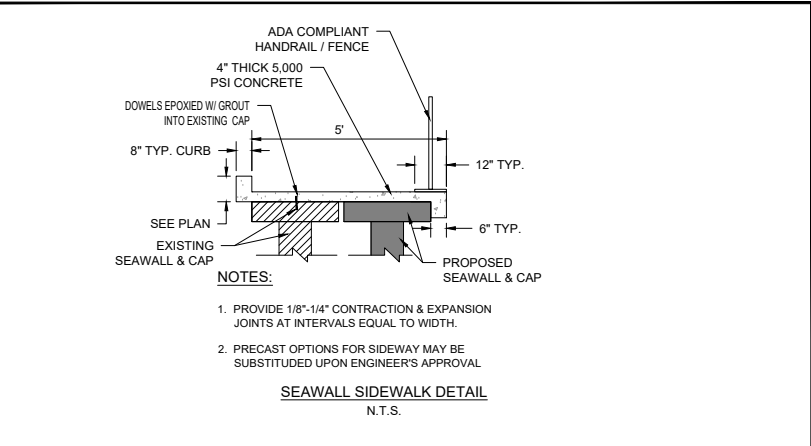
EXISTING CONDITIONS PLAN - WEST

DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	As Shown	C-9

REVISIONS			ROSE MARINA REDEVELOPMENT PLANS	CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA	 HAGAN ENGINEERING 1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239	SITE DEVELOPMENT PLANS	C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	SITE DETAILS			
								DATE	PROJECT NO.	SCALE	SHEET
								DEC 2023	2023-298	As Shown	C-13



DISTANCE TOP OF FLOATING DOCK TO GANGWAY (INCHES)					GANGWAY REQ'D (FEET)		DISTANCE TOP OF FLOATING DOCK TO GANGWAY (INCHES)					GANGWAY REQ'D (FEET)	
					(1/12 SLOPE[8%])							(1/20 SLOPE[5%])	
0	-	8	0.00	-	0.67	8	0	-	6	0.00	-	0.50	10
8	-	12	0.67	-	1.00	12	9	-	6	0.00	-	0.50	15
8	-	12	0.67	-	1.00	12	9	-	12	0.75	-	1.00	20
12	-	16	1.00	-	1.33	16	12	-	15	1.00	-	1.25	25
16	-	20	1.33	-	1.67	20	15	-	18	1.25	-	1.50	30
20	-	24	1.67	-	2.00	24	18	-	21	1.50	-	1.75	35
24	-	28	2.00	-	2.33	28	21	-	24	1.75	-	2.00	40
28	-	32	2.33	-	2.67	32	24	-	27	2.00	-	2.25	45
32	-	36	2.67	-	3.00	36	27	-	30	2.25	-	2.50	50
36	-	40	3.00	-	3.33	40	30	-	33	2.50	-	2.75	55
40	-	44	3.33	-	3.67	44	33	-	36	2.75	-	3.00	60
44	-	48	3.67	-	4.00	48	36	-	39	3.00	-	3.25	65
48	-	52	4.00	-	4.33	52	39	-	42	3.25	-	3.50	70
52	-	56	4.33	-	4.67	56	42	-	45	3.50	-	3.75	75
56	-	60	4.67	-	5.00	56	45	-	48	3.75	-	4.00	80



REVISIONS		
		2/15/13

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN
ENGINEERING
1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

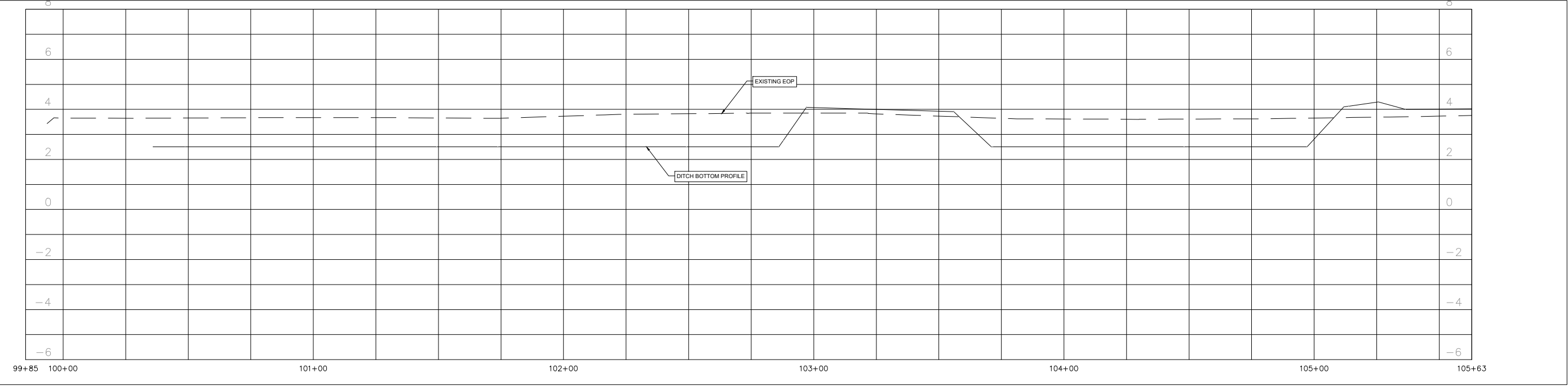
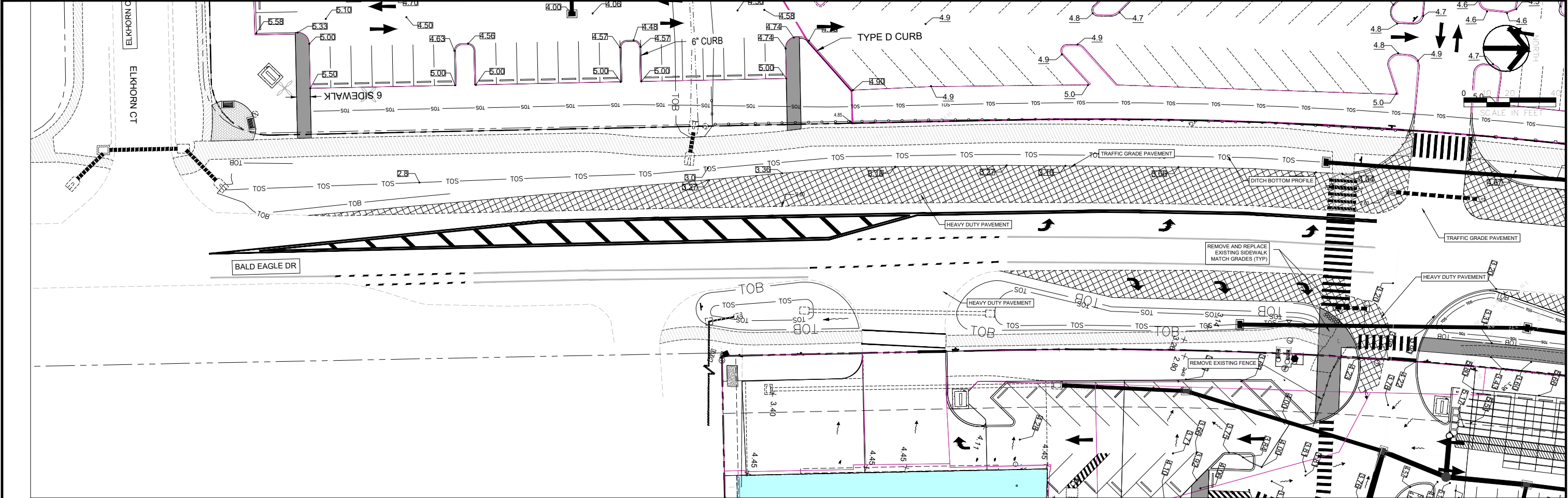
DATE: 09-20-14

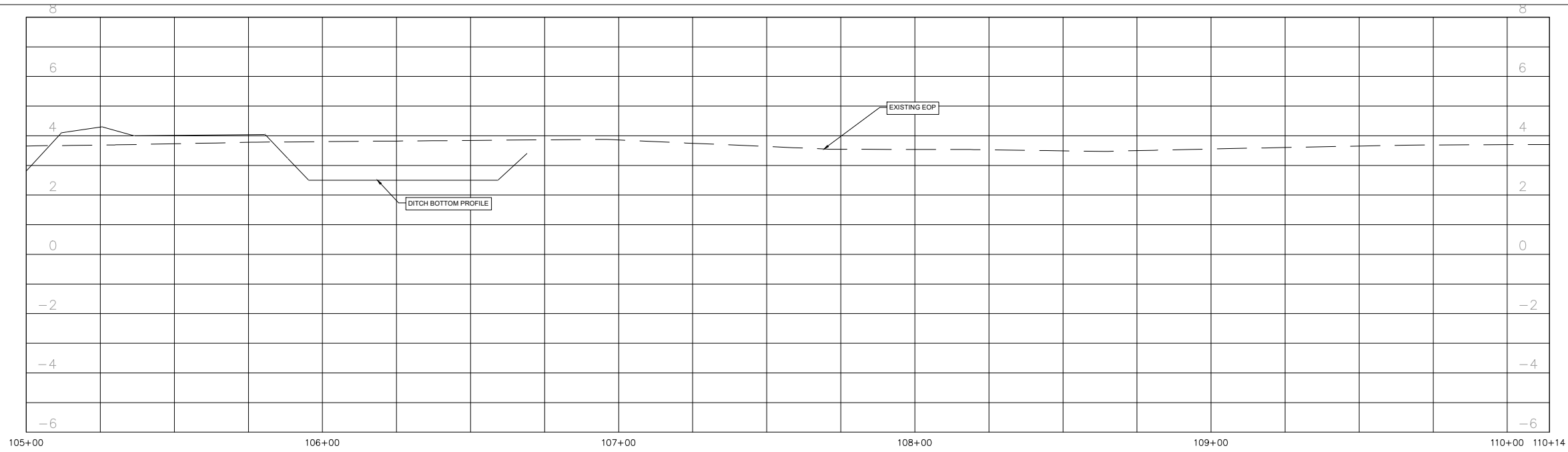
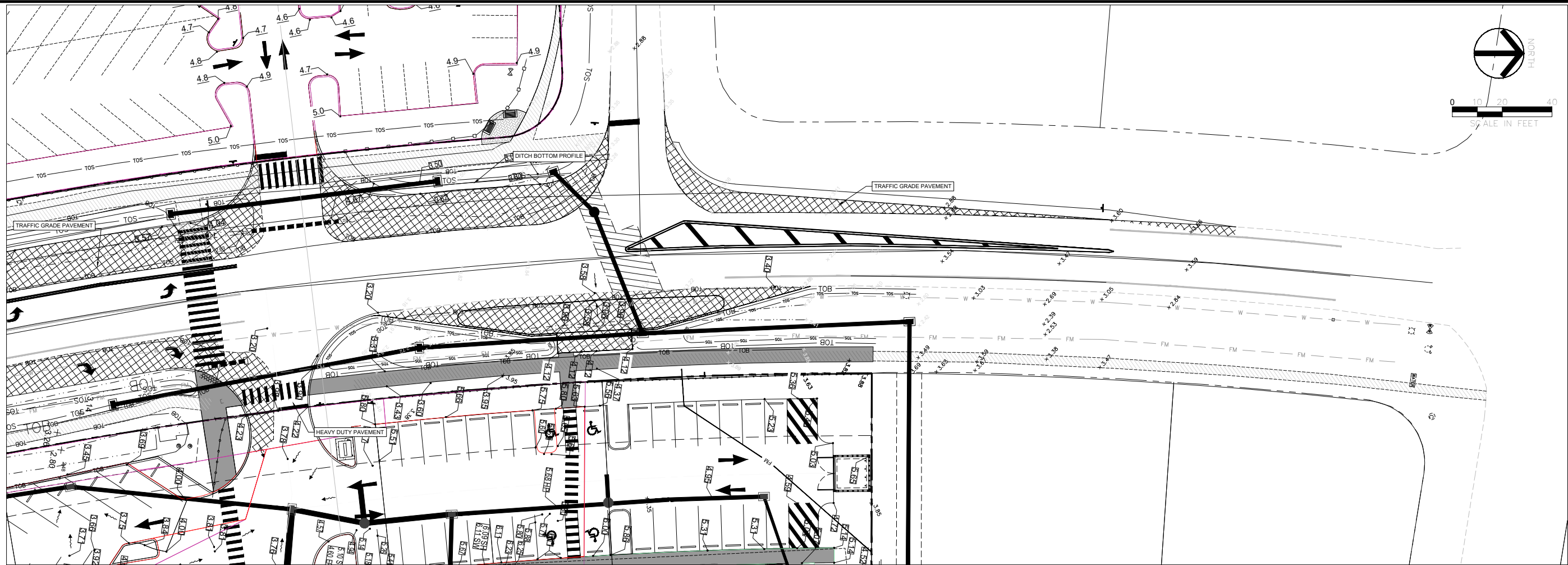
PROJECT NO: 2014-077

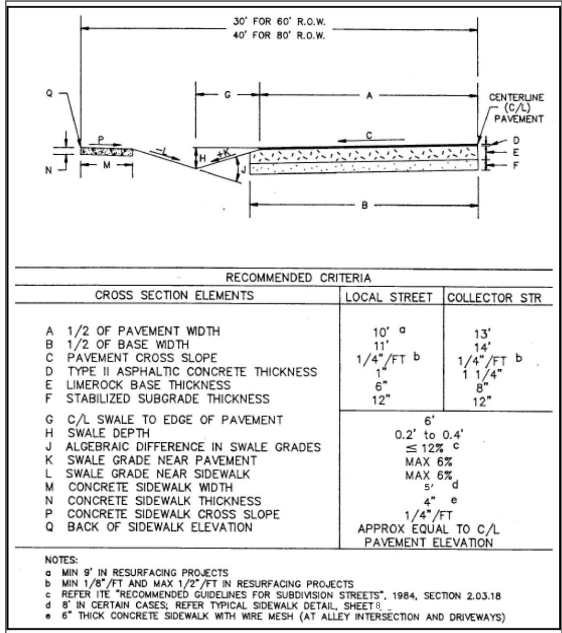
SCALE: As Shown

SHEET: C-14

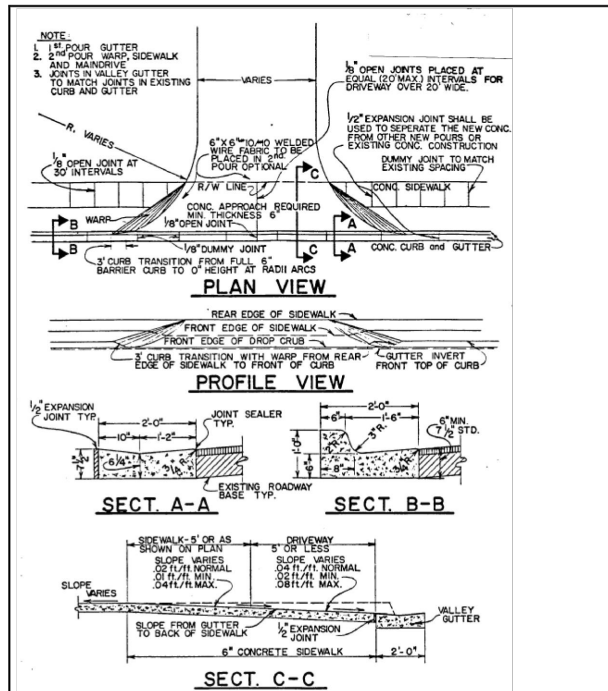
ROSE MARINA REDEVELOPMENT PLANS	CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA	 HAGAN ENGINEERING 1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239	SITE DEVELOPMENT PLANS	C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	EROSION CONTROL PLAN			
					DATE DEC 2023	PROJECT NO. 2023-298	SCALE As Shown	SHEET C-15



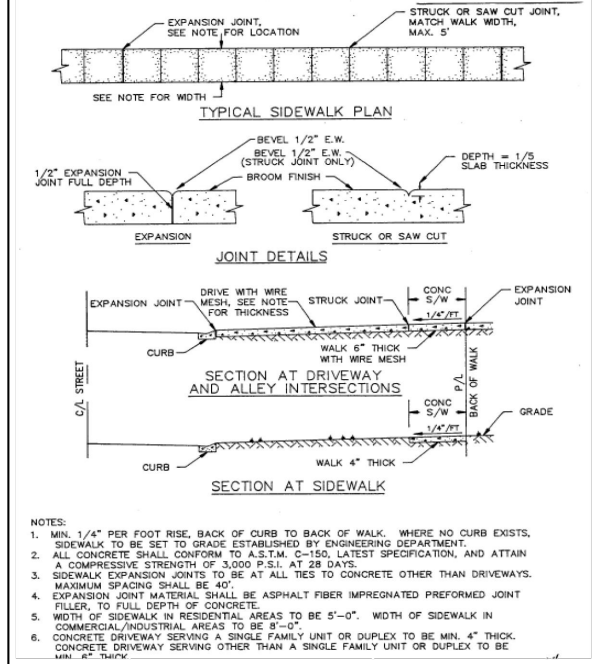




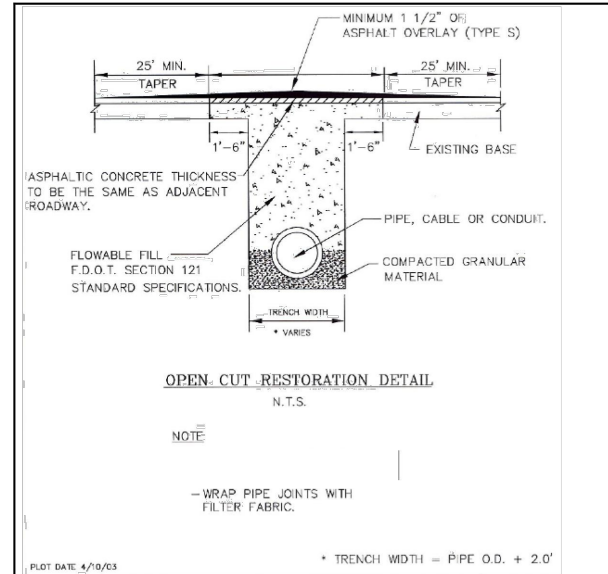
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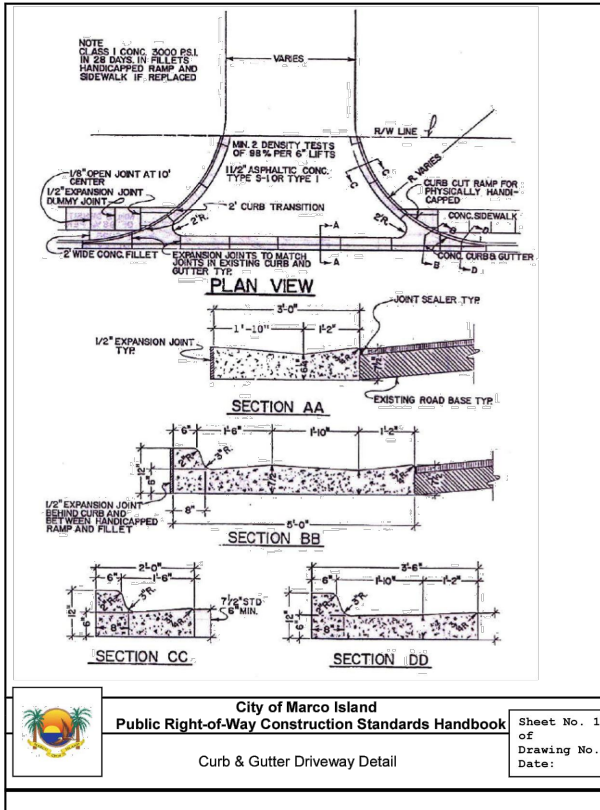
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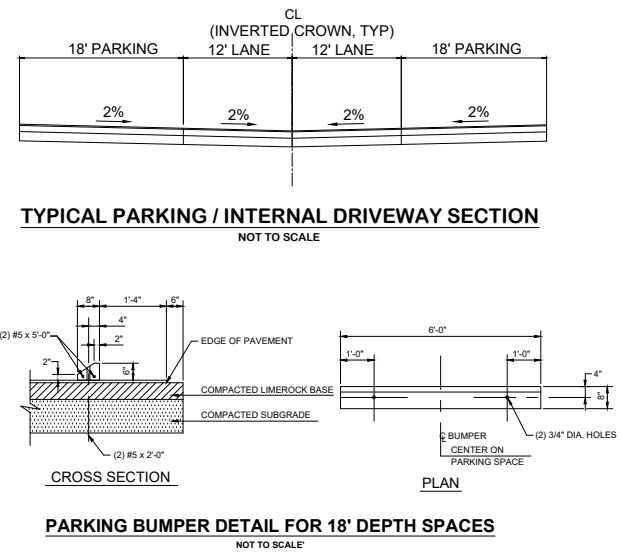
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86



2023-098 MST RevC.dwg, C20_PGD, Jul 16, 2025, 2:34pm

REVISIONS	

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

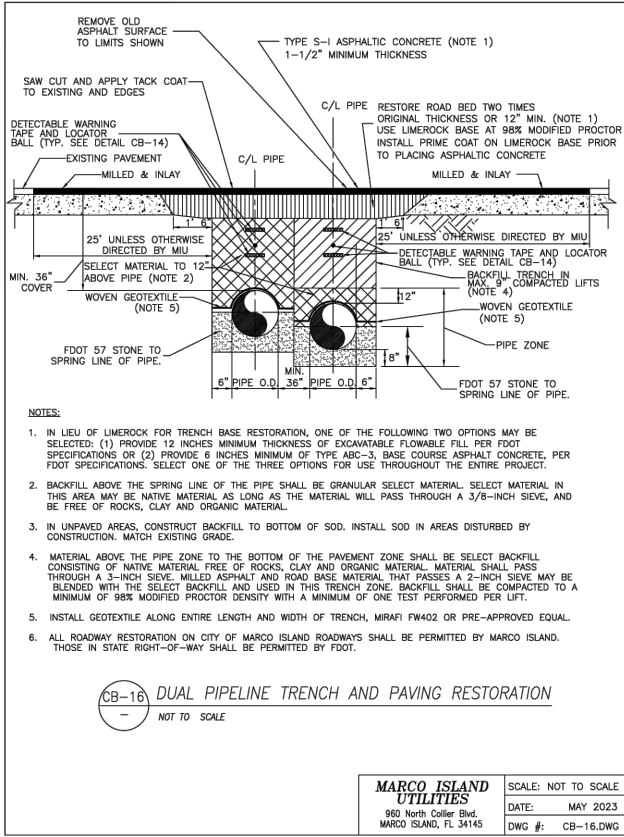
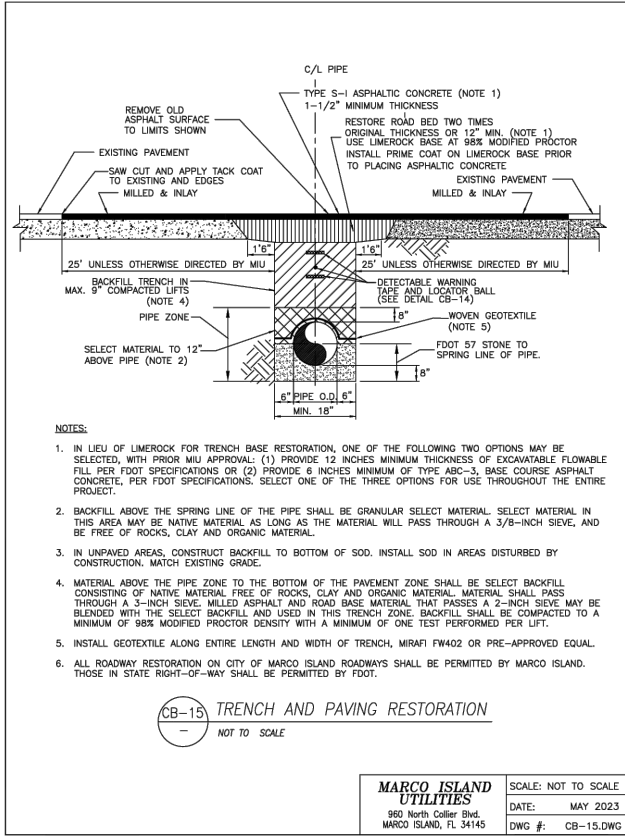
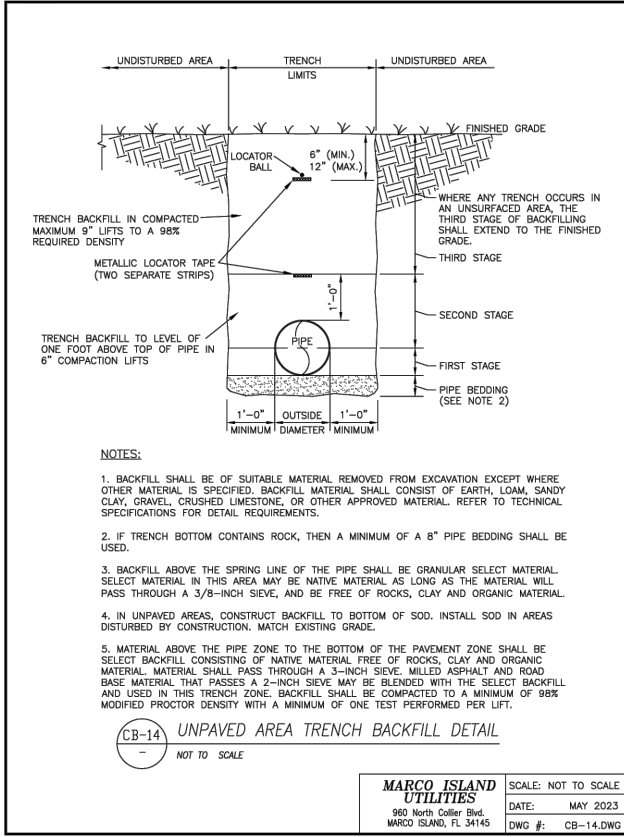
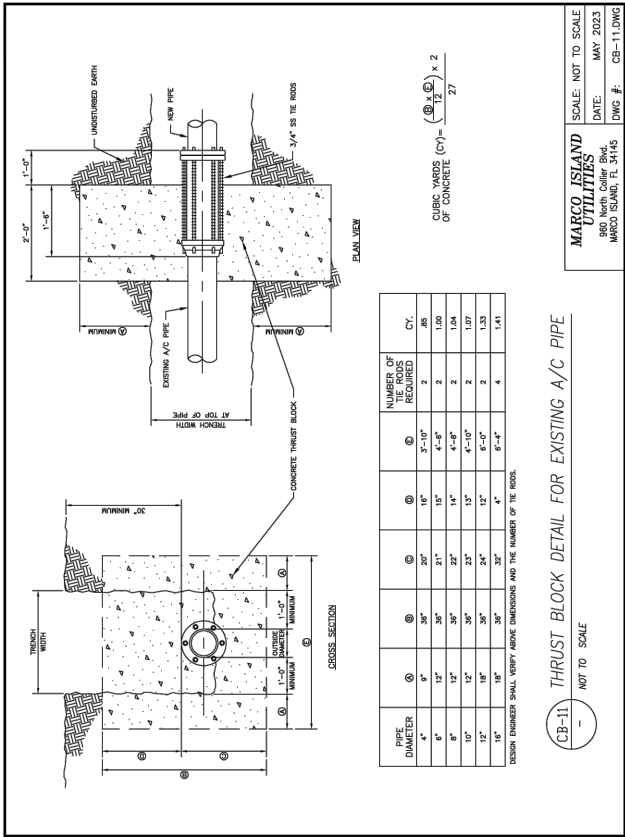
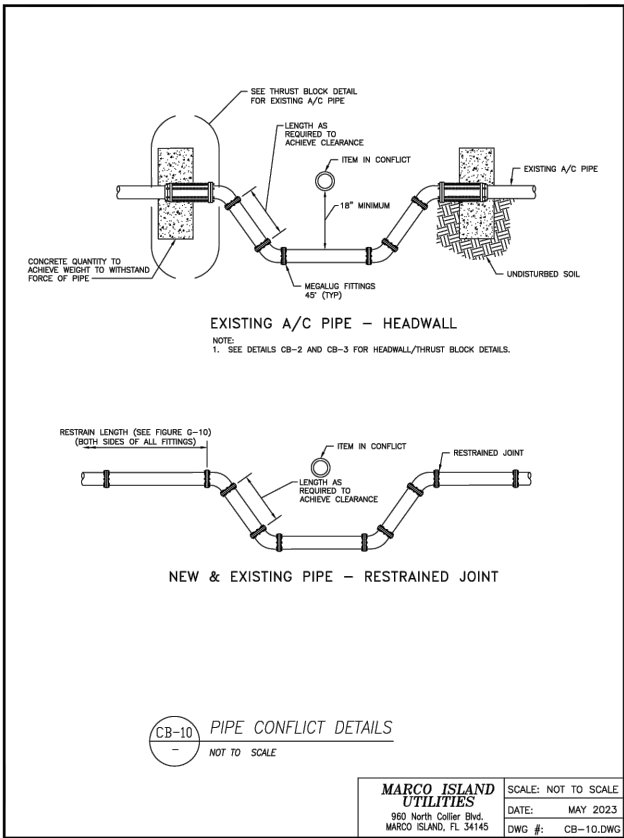
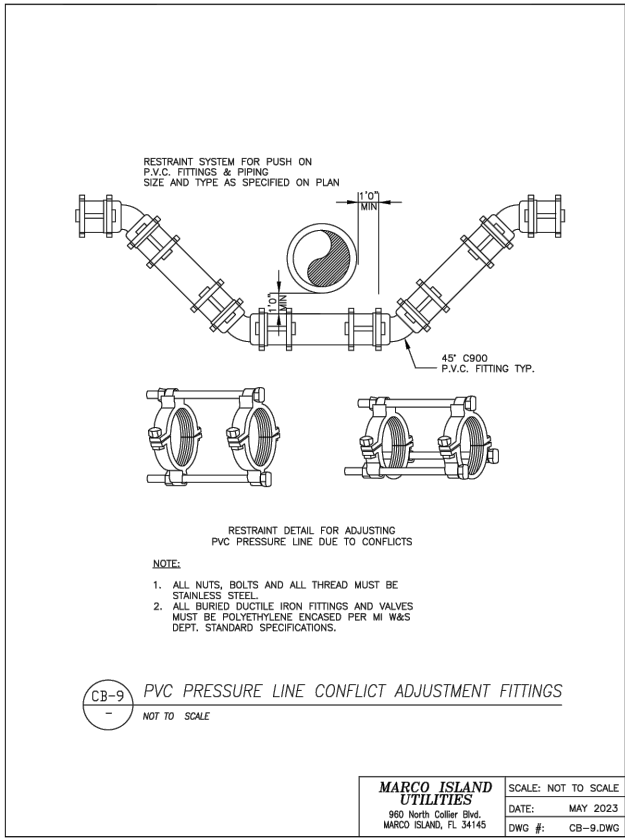
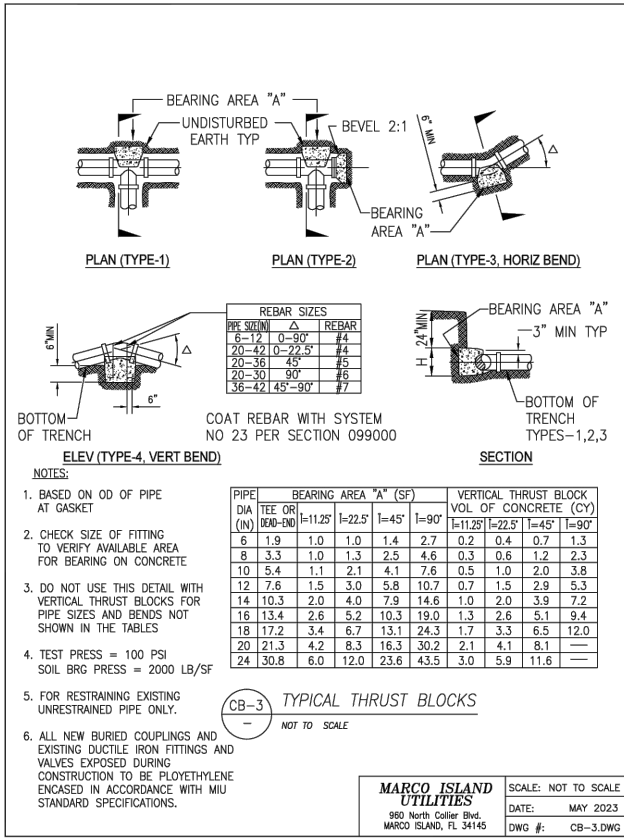
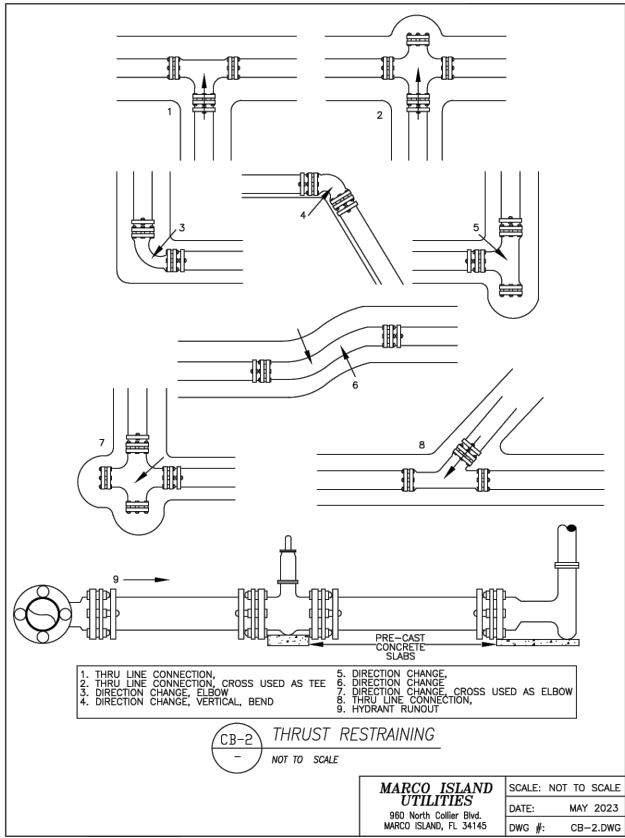
HAGAN
ENGINEERING
1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

SITE DEVELOPMENT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

PAVING, GRADING &
DRAINAGE DETAILS

DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	As Shown	C-20



2023-098 MST RevC.dwg, C21, UD1, Jul 16, 2026, 2:34pm

REVISIONS	

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

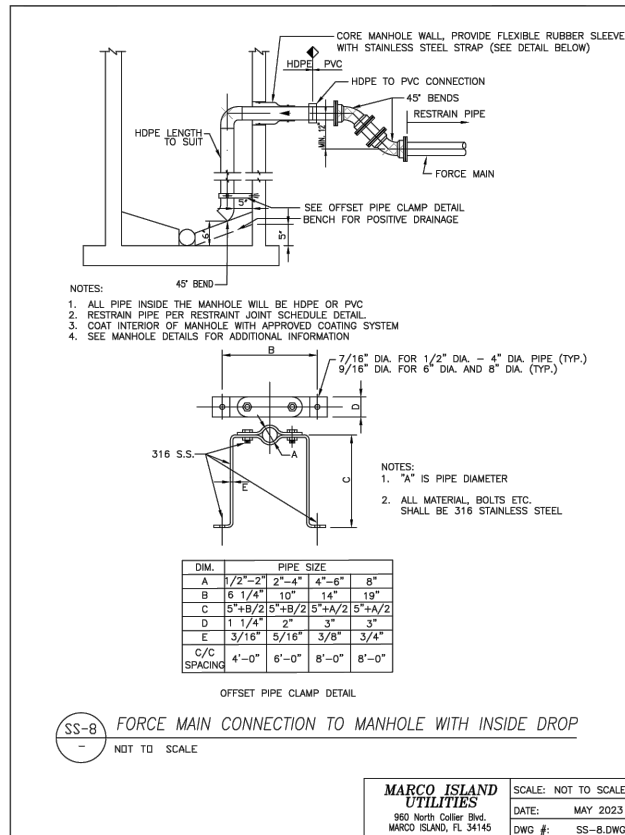
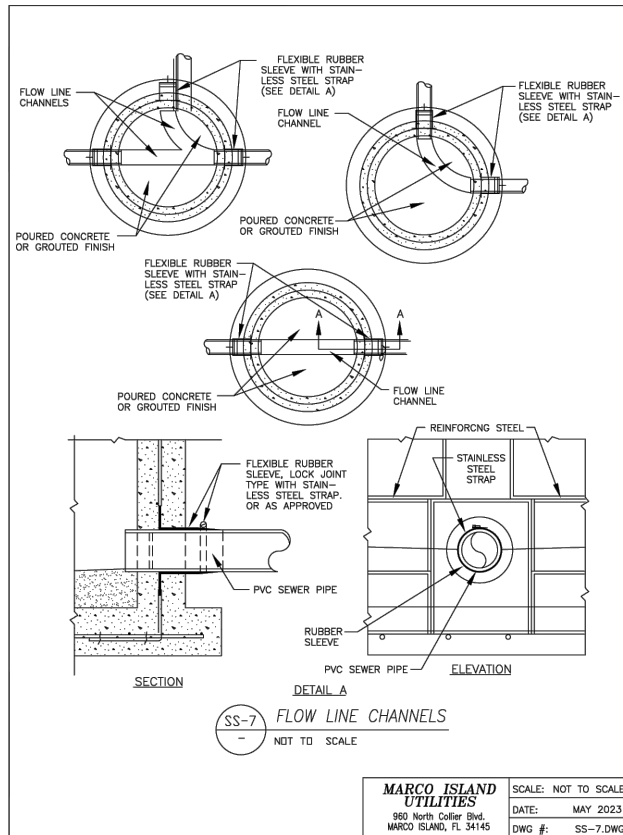
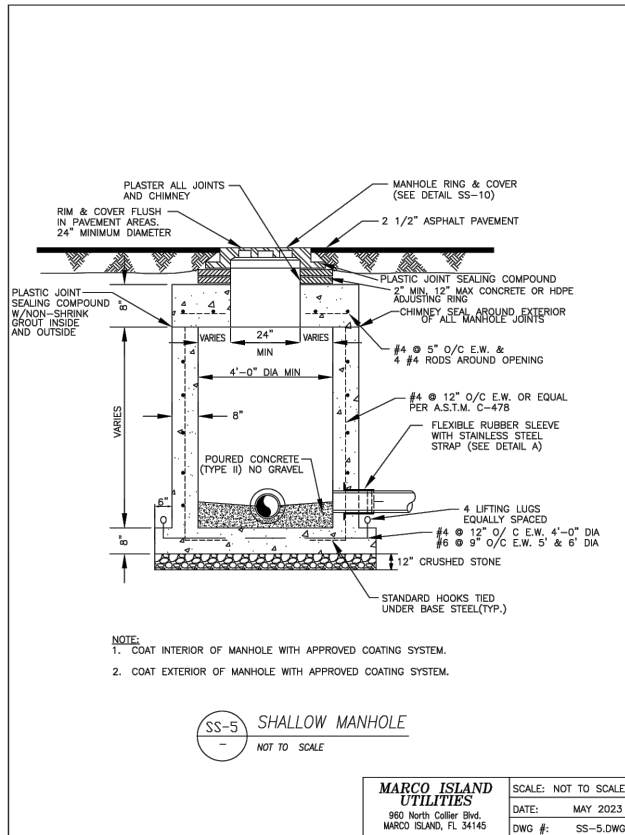
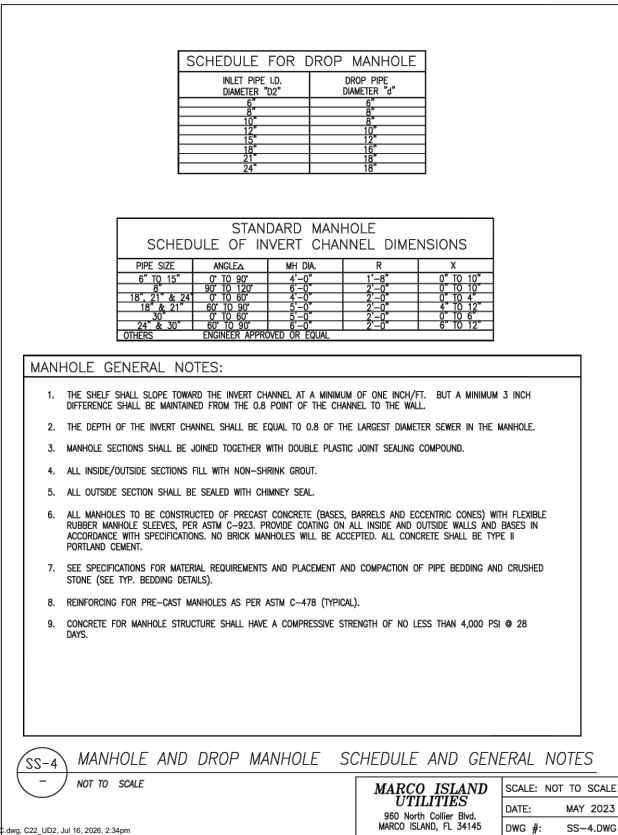
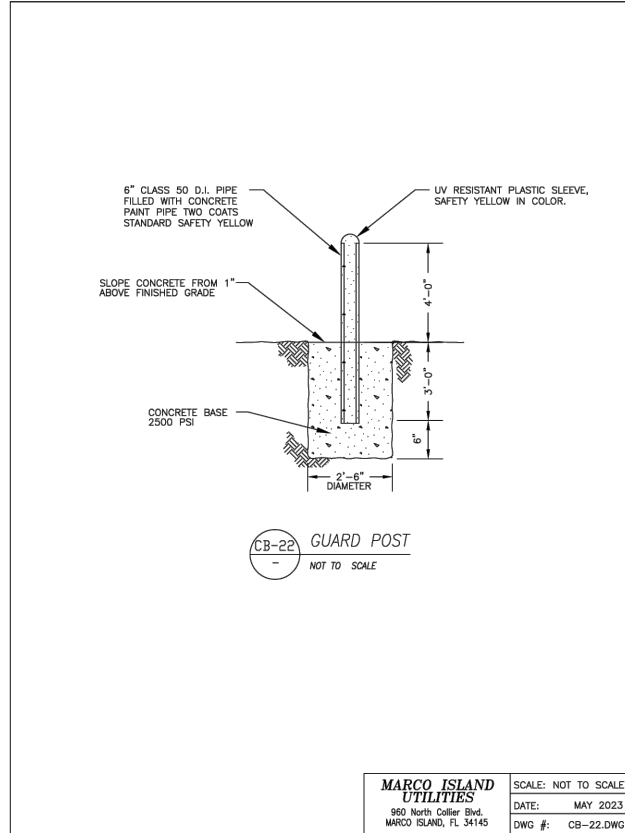
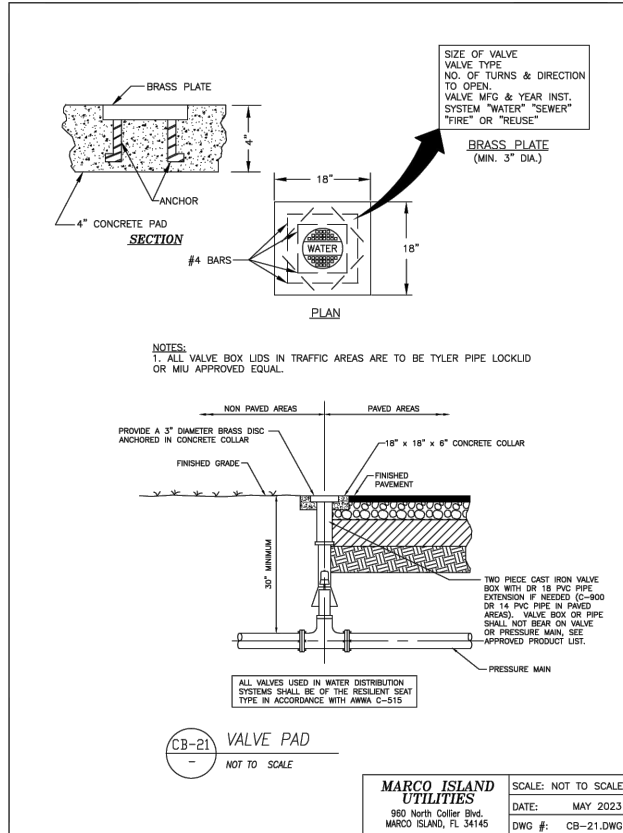
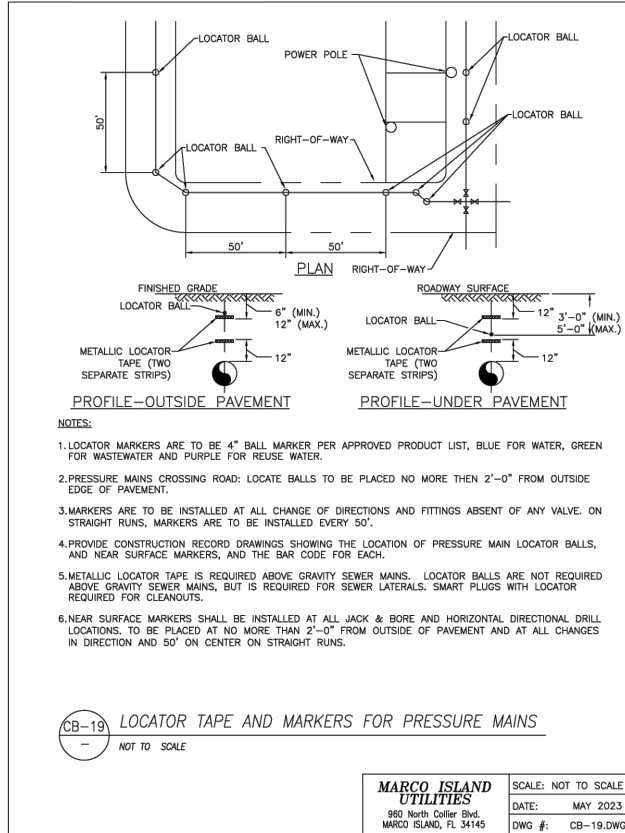
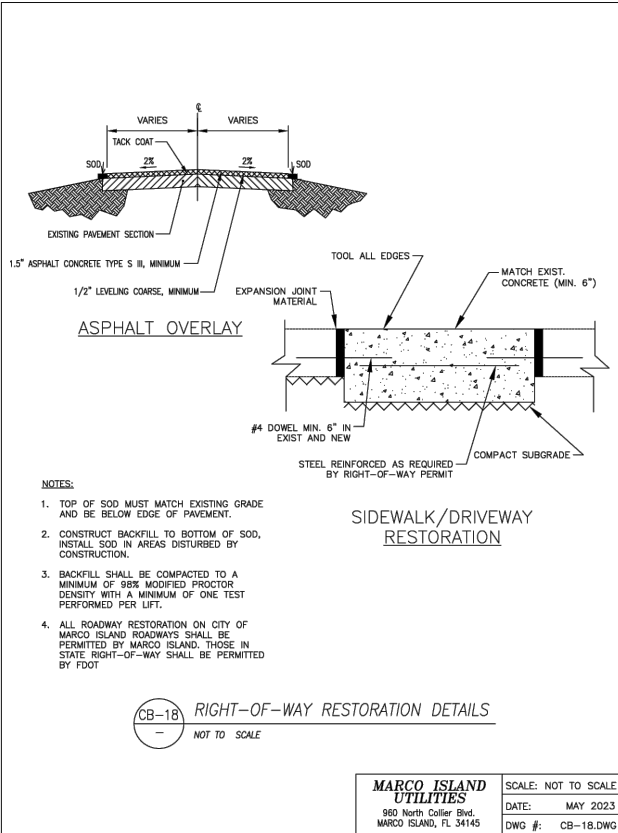
HAGAN
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Naples, Florida 34102
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SITE DEVELOPMENT PLANS

MARCO ISLAND UTILITY DETAILS

DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	As Shown	C-22

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:



REVISIONS			

ROSE MARINA
REDEVELOPMENT PLANS

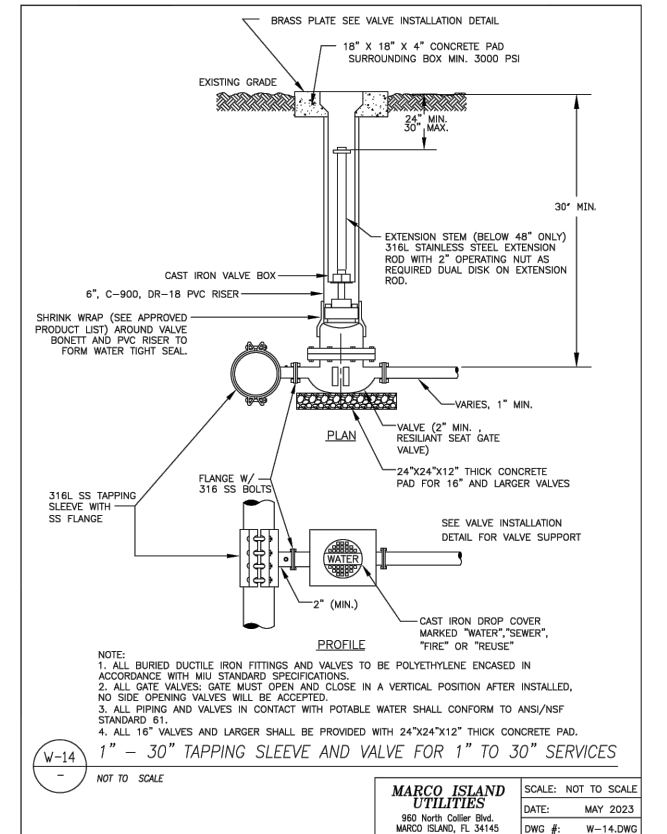
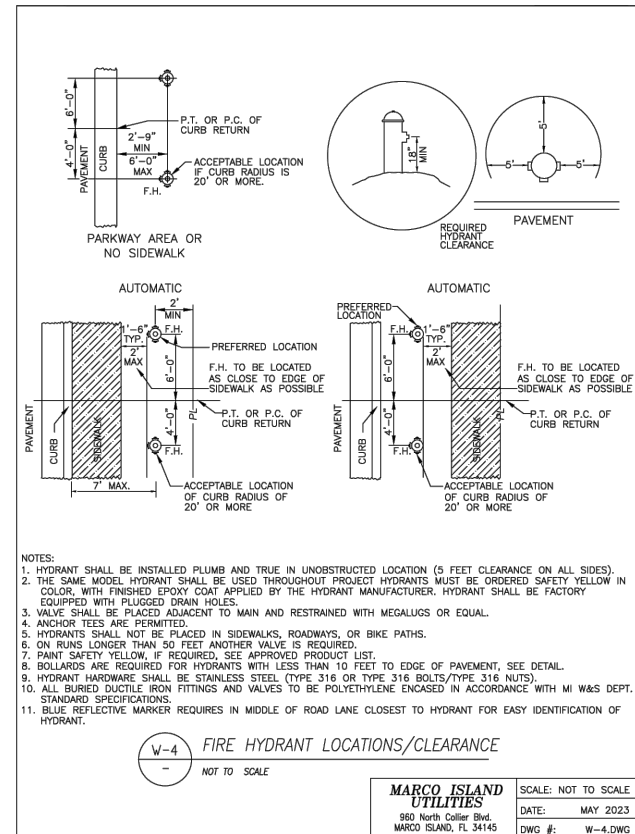
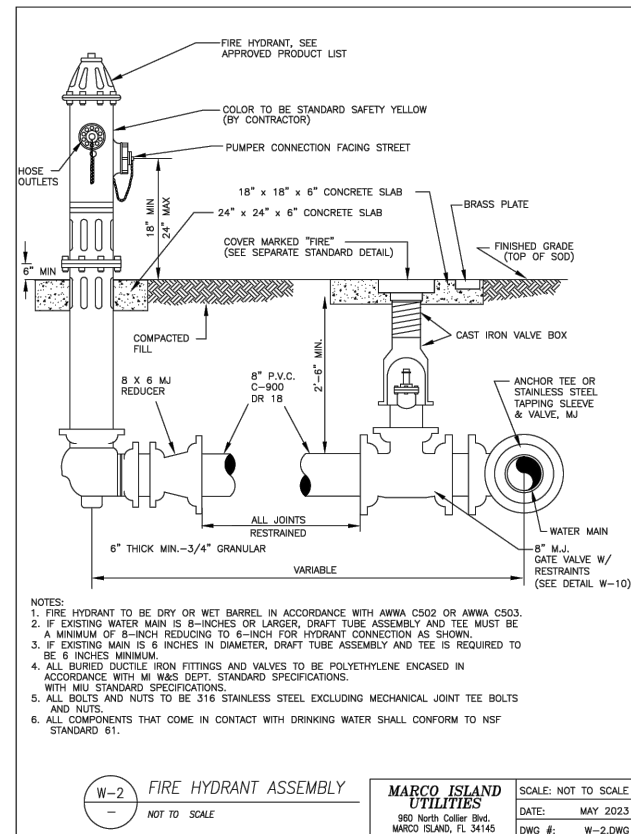
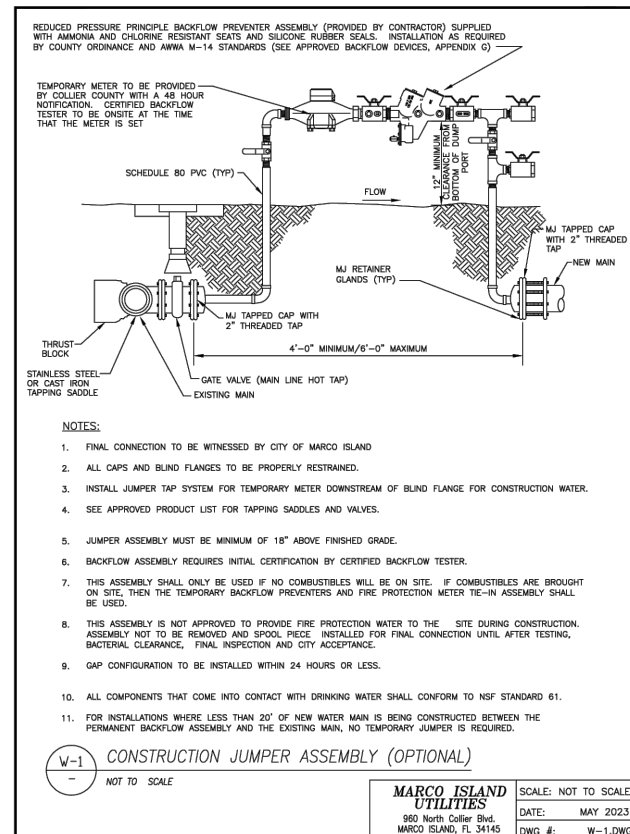
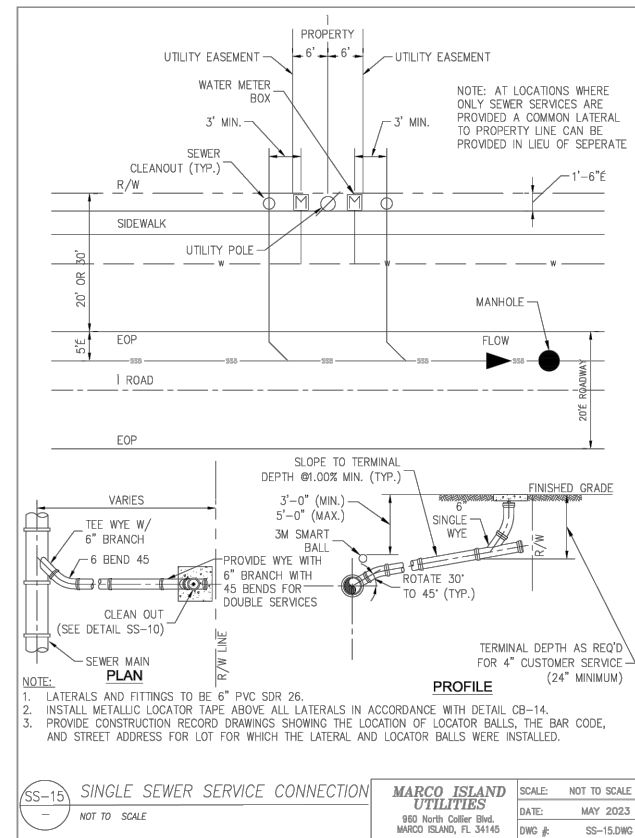
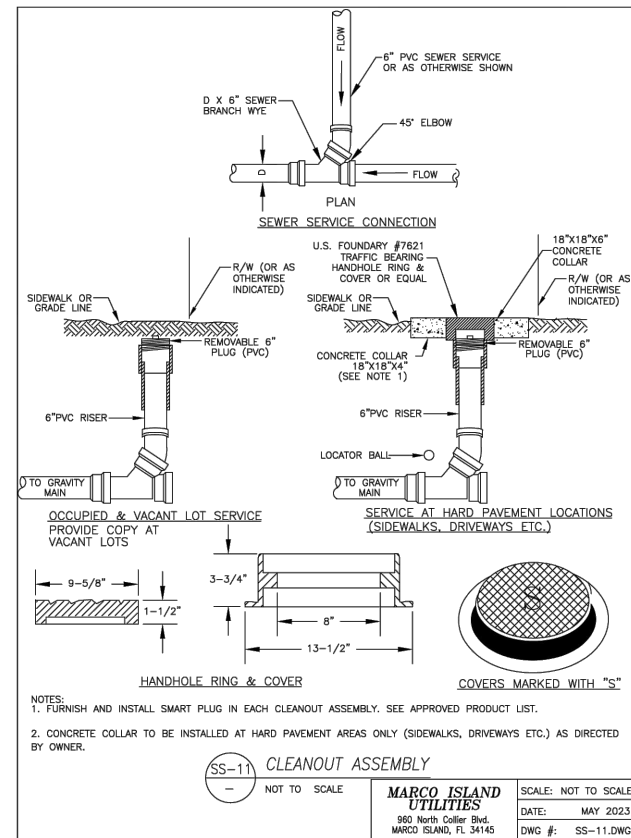
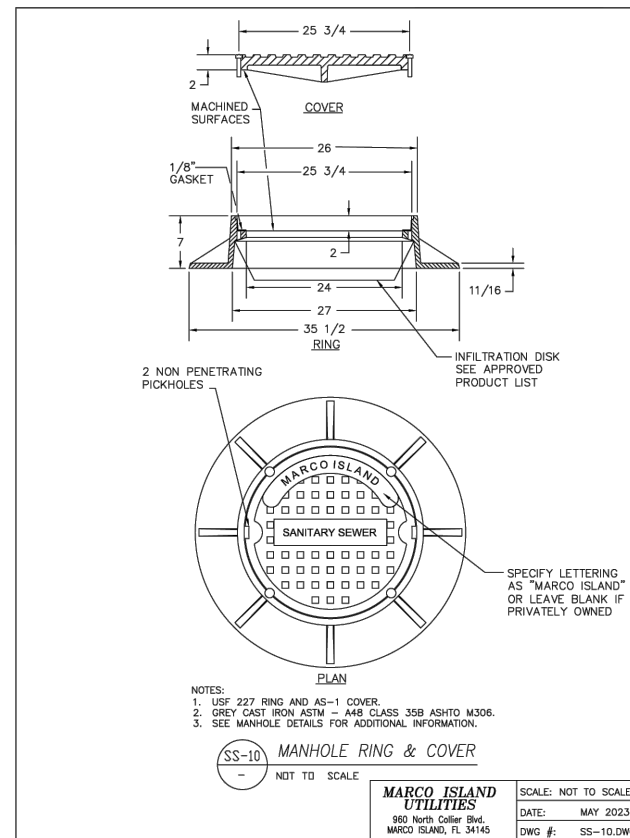
CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

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ENGINEERING
1250 TAMiami TRAIL NORTH, STE. 203B
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SITE DEVELOPMENT PLANS

MARCO ISLAND UTILITY DETAILS

DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	As Shown	C-22

2023-298 MST_RevC.dwg, C23_UD3, Jul 16, 2026, 2:34pm[illegible]

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

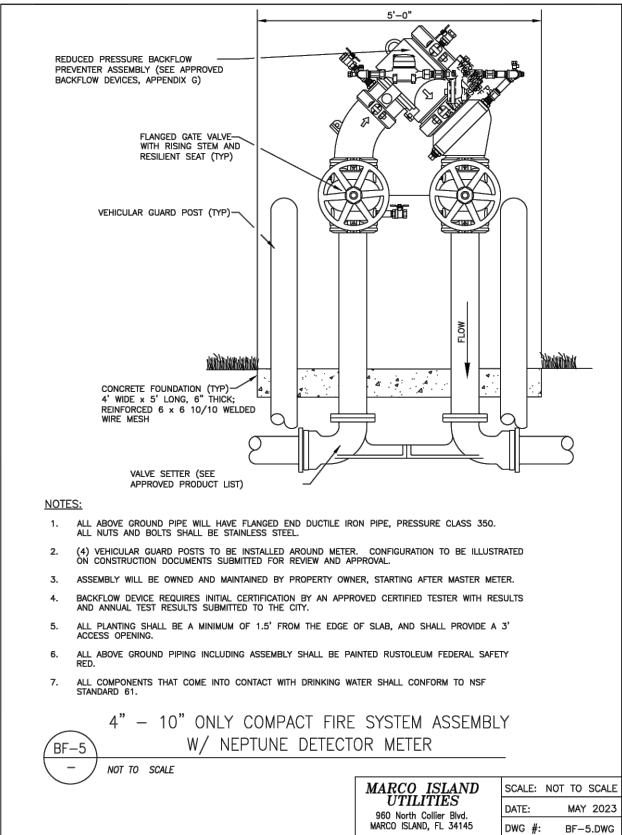
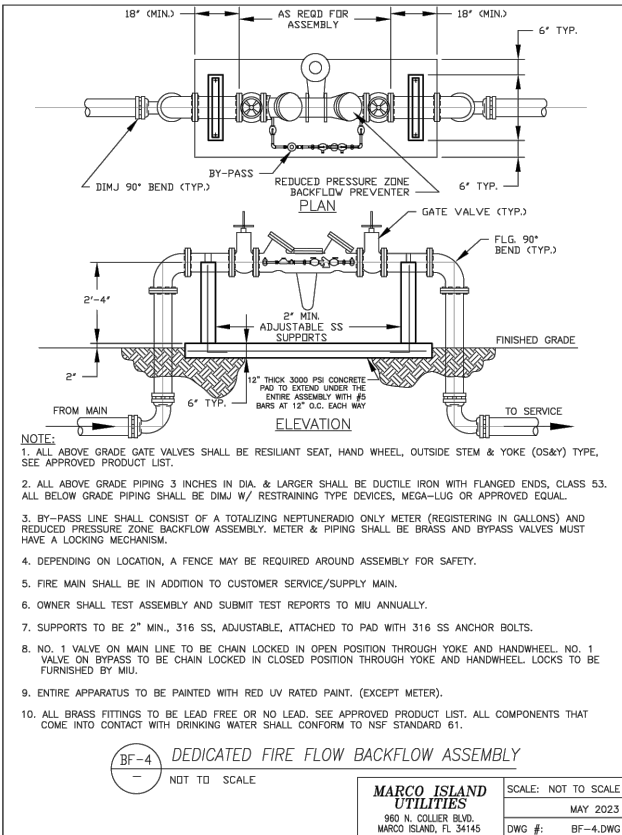
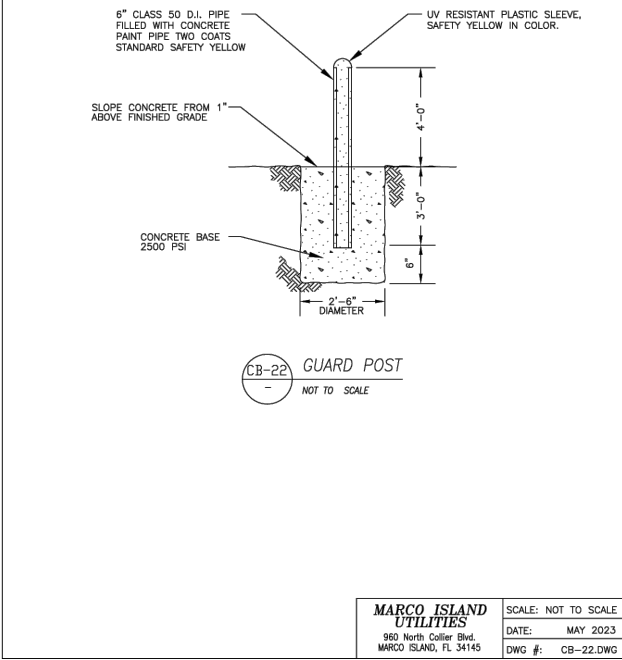
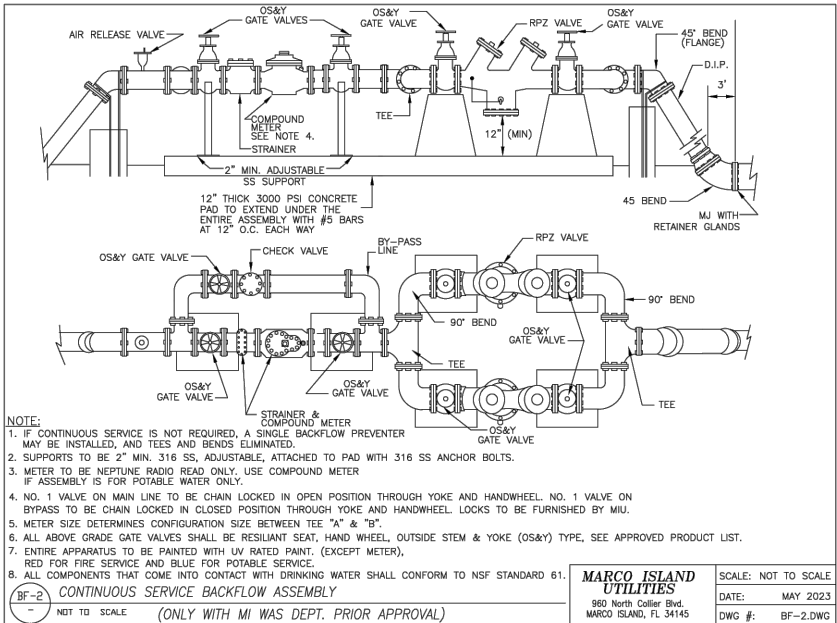
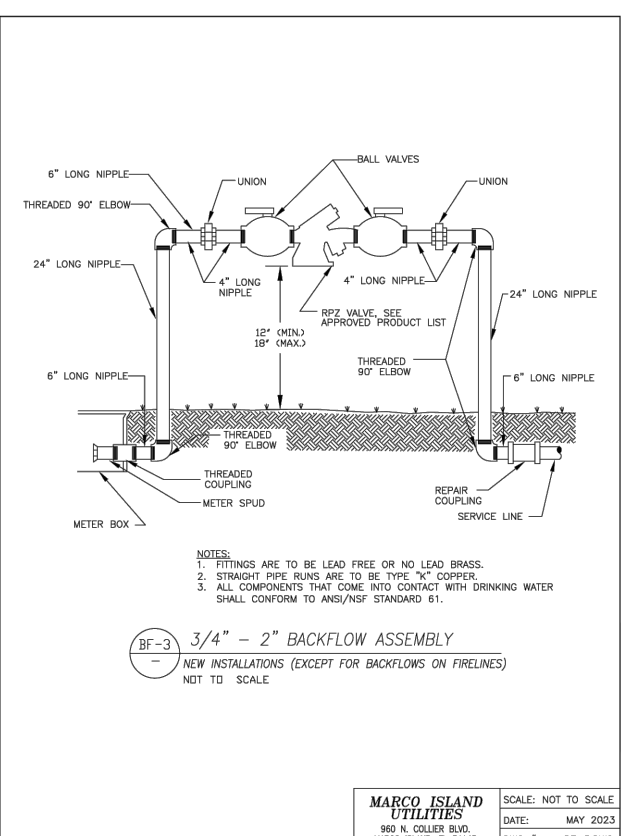
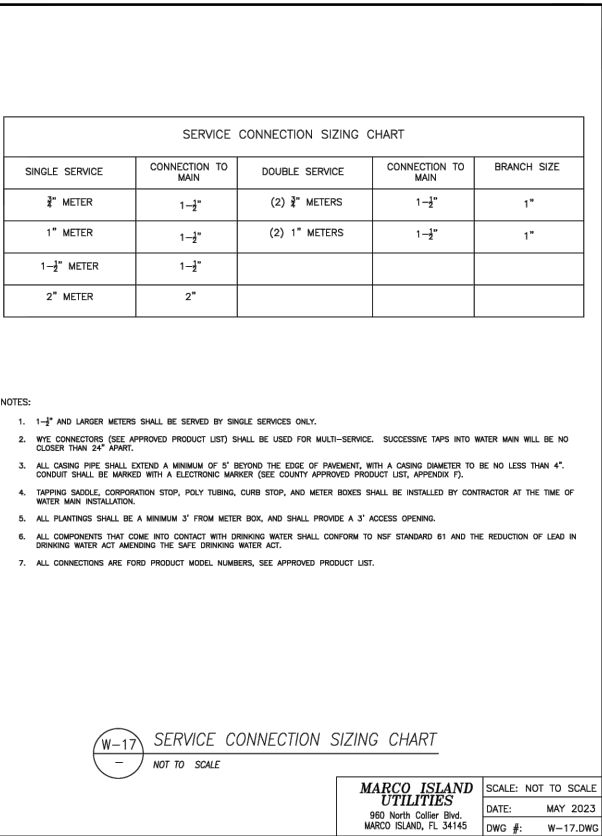
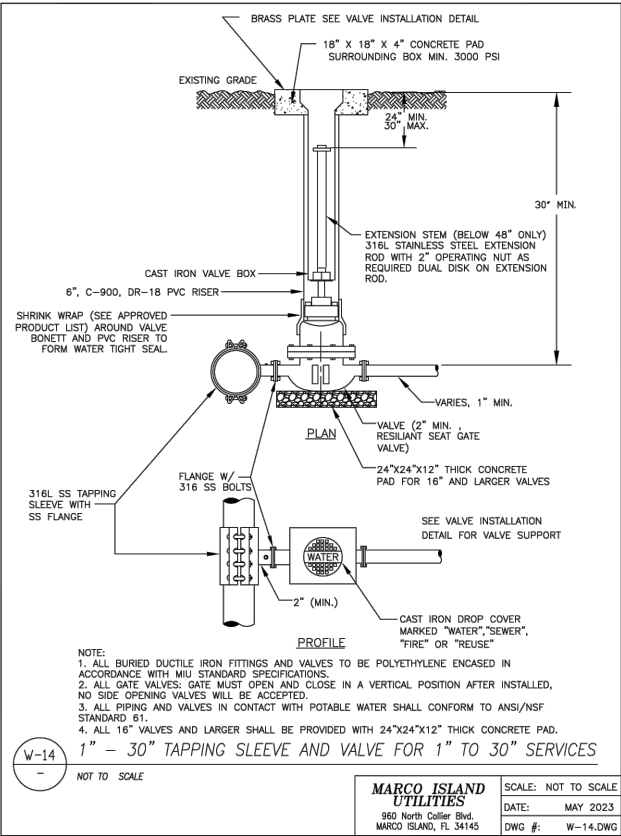
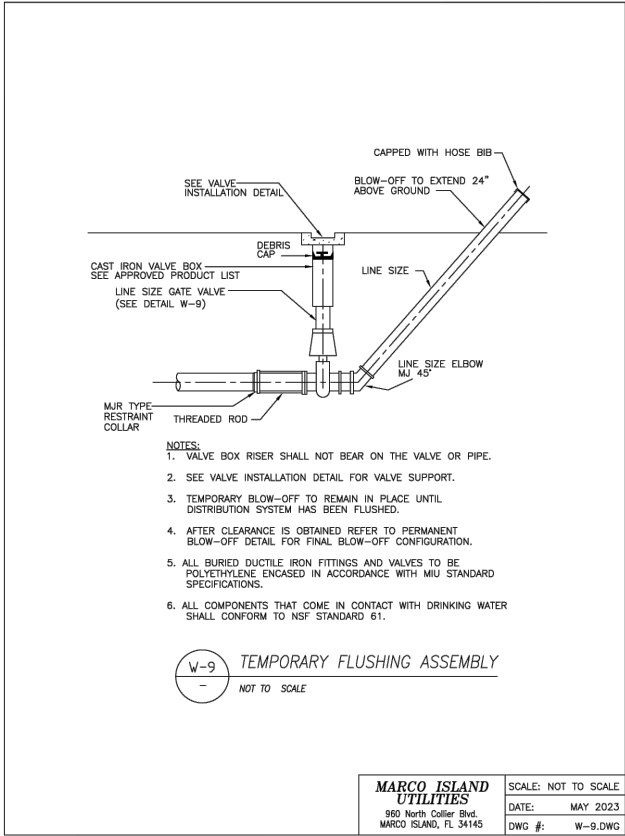
HE **HAGAN**
ENGINEERING

1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

SITE DEVELOPMENT PLANS

MARCO ISLAND UTILITY DETAILS

C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	DATE DEC 2023	PROJECT NO. 2023-298	SCALE As Shown	SHEET C-23
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2023-098.MST RevC.dwg, C24, U04, Jul 16, 2026, 2:34pm

REVISIONS	

ROSE MARINA REDEVELOPMENT PLANS

CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA

HAGAN ENGINEERING 1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239

SITE DEVELOPMENT PLANS

C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE: DEC 2023
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MARCO ISLAND UTILITY DETAILS			
DATE DEC 2023	PROJECT NO. 2023-298	SCALE As Shown	SHEET C-24

SPECIFICATIONS

Notes:

1. 6" plain end inlet/outlet.
2. Dual 4" pumpout ports
3. Unit weight - w/ composite covers: 266 lbs. (For wet weight add 2,310 lbs.)
4. Maximum operating temperature: 150° F continuous
5. Capacities - Liquid: 277 gal.;
Grease: 1,895 lbs. (260 gal.) @100GPM
Grease: 1,196 lbs. (164 gal.) @200GPM
Solids: 69 gal.
6. This unit does not require flow control for 100 GPM applications. Built-in flow control is provided for 200 GPM applications. For series installations, only install flow control on the first unit in the series if necessary.
7. For gravity drainage applications only.
8. Do not use for pressure applications.
9. Cover placement allows full access to tank for proper maintenance.
10. Vent not required unless per local code.
11. Engineered inlet and outlet diffusers with inspection ports are removable to inspect / clean piping.
12. Integral air relief / Anti-siphon / Sampling access.
13. Adjustable cover adapters provide up to 4" of additional height.
14. Designed for below-grade, above-grade, indoor or outdoor installations.
15. Safety Star®, access restrictor built into each cover adapter, prevents accidental entry to tanks (450 lb rating).

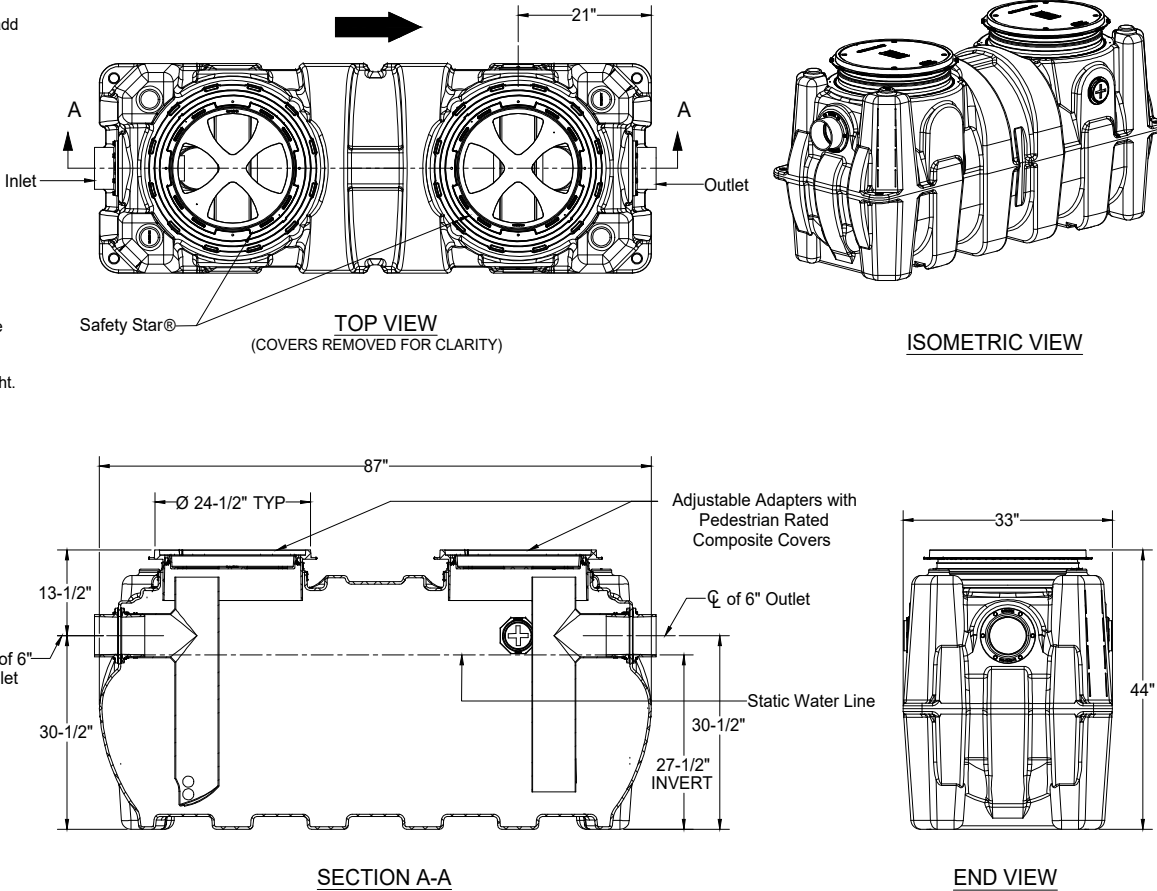
ENGINEER SPECIFICATION GUIDE

Schier Great Basin™ grease interceptor model # GB-250 shall be lifetime guaranteed and made in USA of seamless, rotationally-molded polyethylene with minimum 3/8" uniform wall thickness. Interceptor shall be furnished for above or below-grade installation with adjustable cover adapters, Safety Star® access restrictor built into each cover adapter, and built-in flow control (for 200 GPM only). Interceptor shall be certified to ASME A112.14.3 (Type D for 100 GPM, type C for 200 GPM) and CSA B481.1. Interceptor flow rate shall be 100 GPM or 200 GPM. Interceptor grease capacity shall be 1,895 lbs. @ 100 GPM or 1,196 lbs. @ 200 GPM. Cover shall provide water/gas-tight seal and have minimum 2,000 lbs. load capacity.

CERTIFIED PERFORMANCE

Great Basin™ hydromechanical grease interceptors are third party performance-tested and listed by IAPMO to ASME #A112.14.3 and CSA B481.1 grease interceptor standards and greatly exceed requirements for grease separation and storage. They are compliant to the Uniform Plumbing Code and the International Plumbing Code.

Type D certification does not require a flow control



MODEL NUMBER:
GB-250

PART NUMBER: 4055-003-02

DESCRIPTION:

GB-250 GREASE INTERCEPTOR 100 GPM / 200 GPM, 6" INLET/OUTLET WITH DUAL 4" PUMPOUT PORT CONNECTIONS, PEDESTRIAN RATED COMPOSITE COVERS



6455 Woodland Dr
Shawnee, KS 66218
Tel: 913-951-3300
Fax: 913-951-3399
schierproducts.com

PROPRIETARY AND CONFIDENTIAL

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DWG BY: C.SINCLAIR

DATE: 5/4/2022

REV: A

ECO: BB - 12/5/22

2023-098.MST RevC.dwg, C25, UD5, Jul 16, 2026, 2:34pm

REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

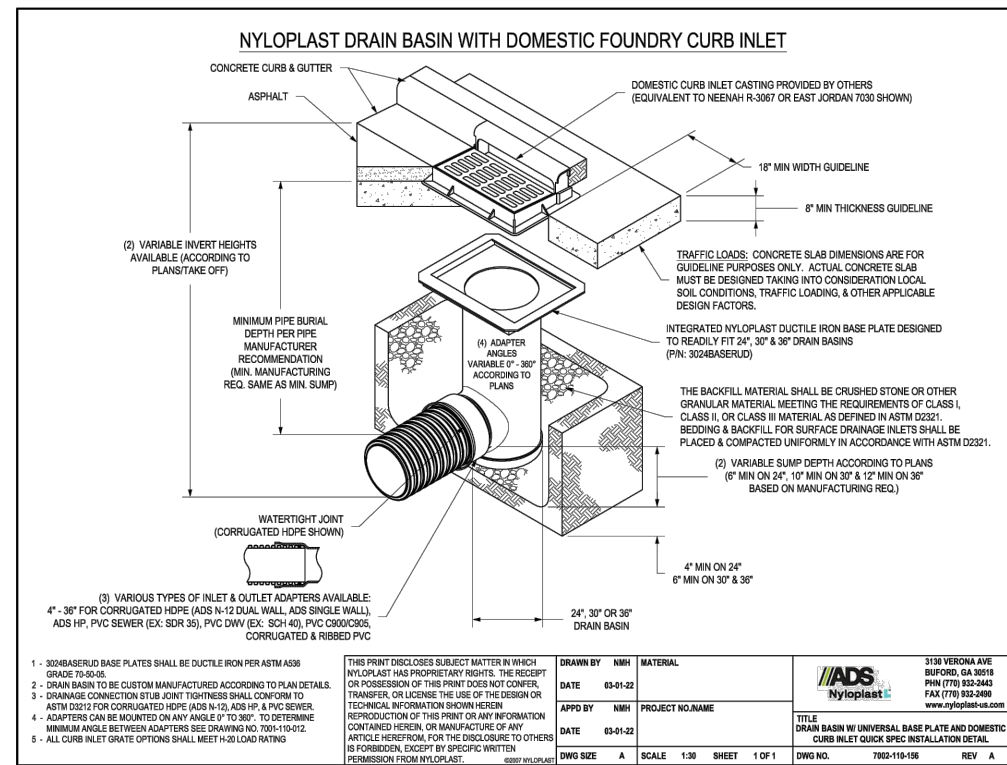
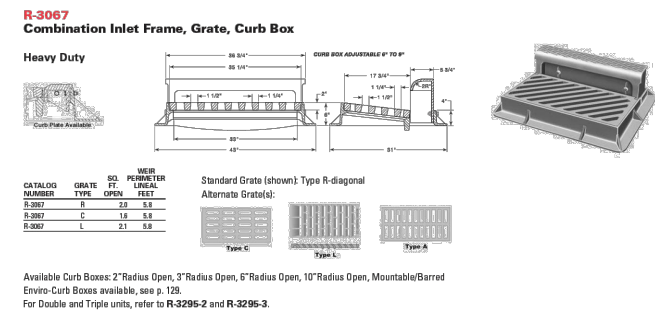
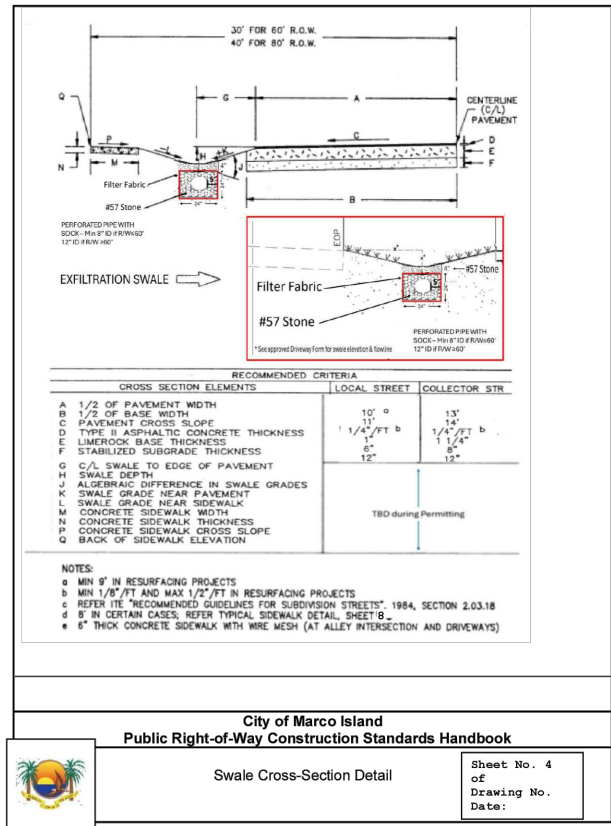
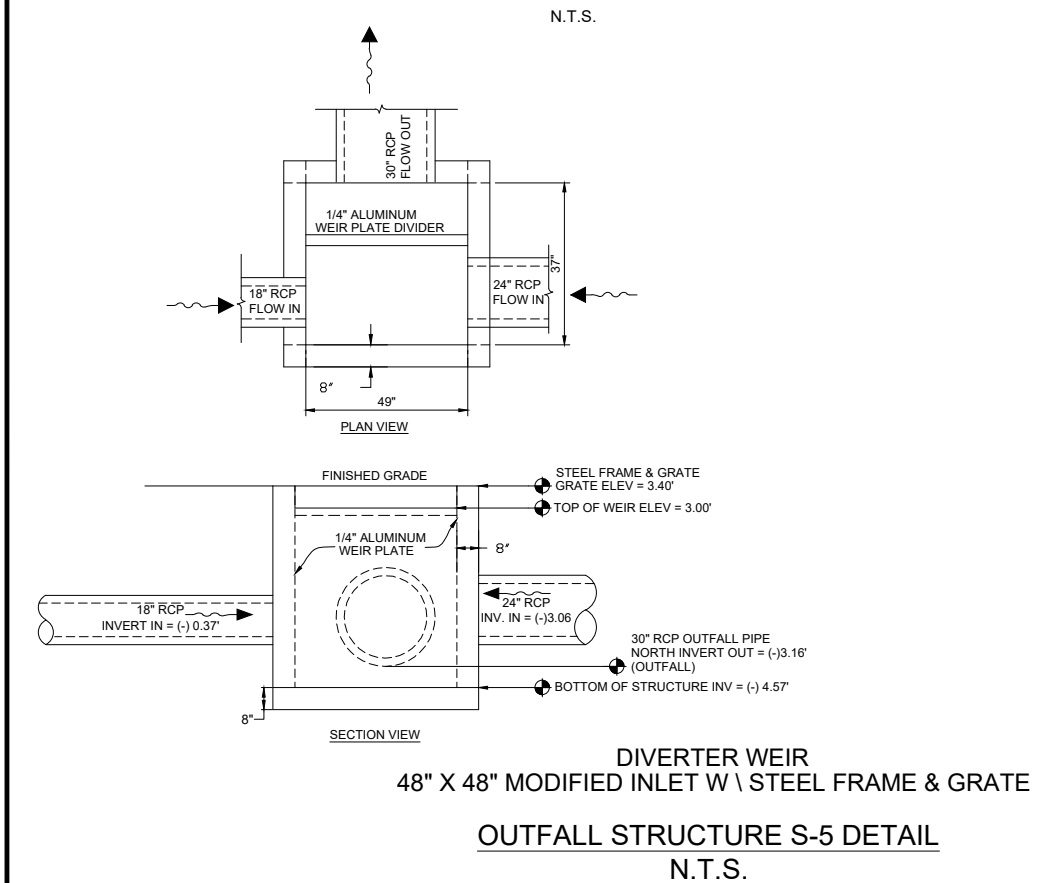
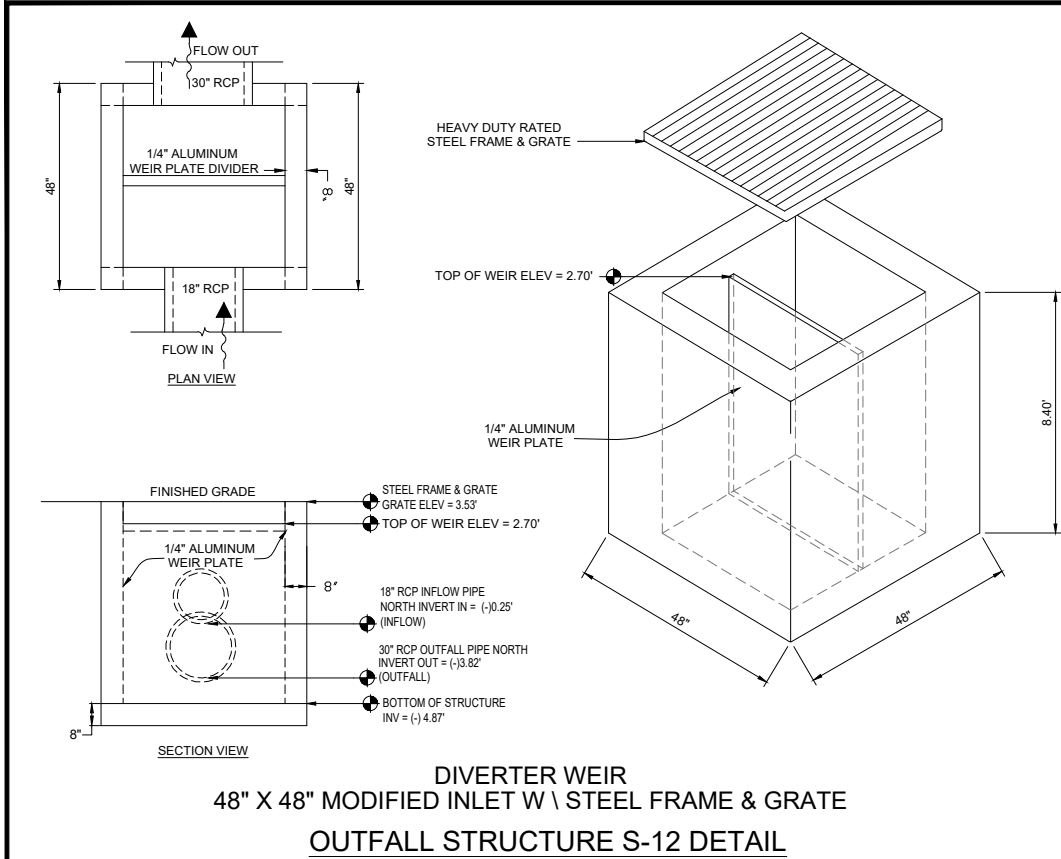
HE HAGAN
ENGINEERING
1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

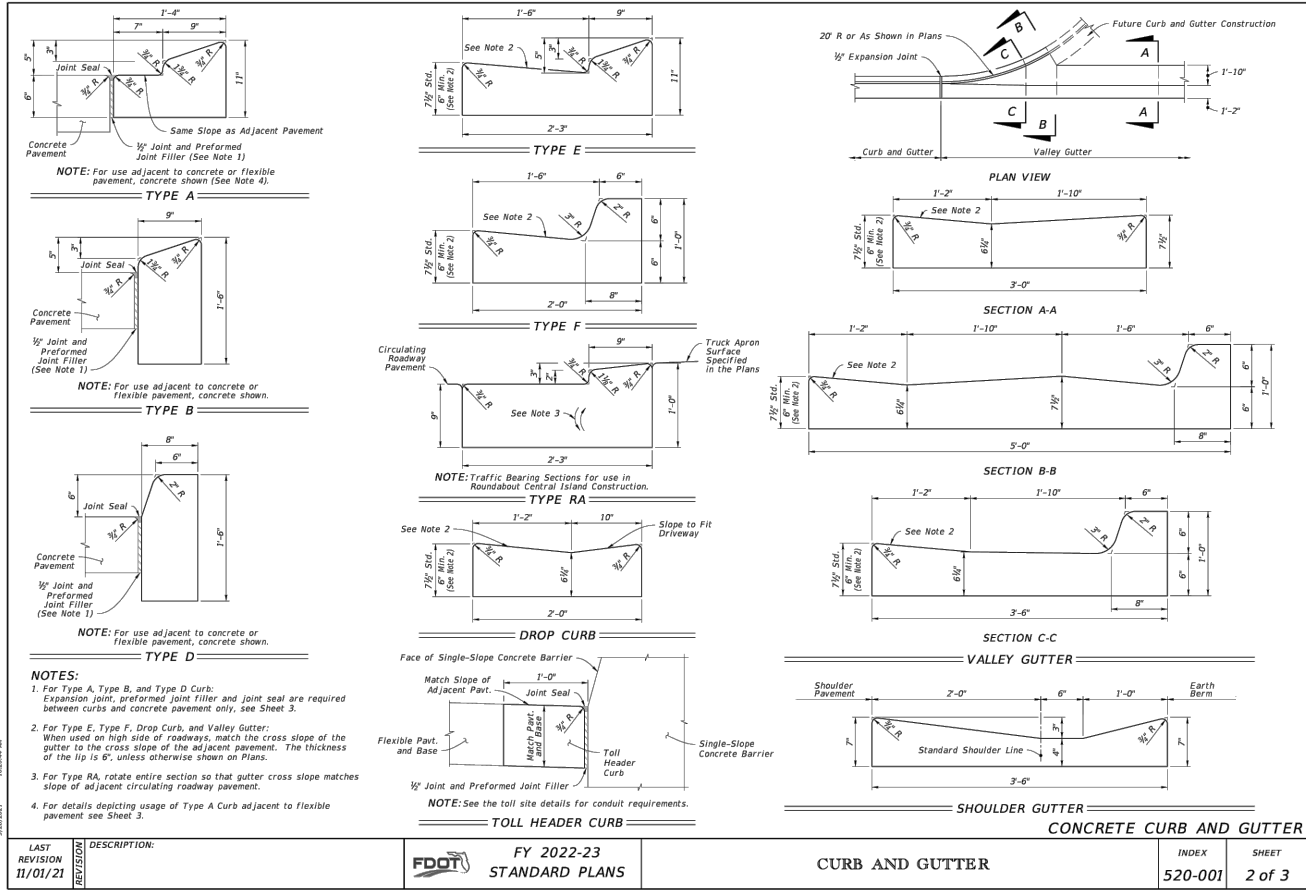
SITE DEVELOPMENT PLANS

MARCO ISLAND UTILITY DETAILS

DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	As Shown	C-25

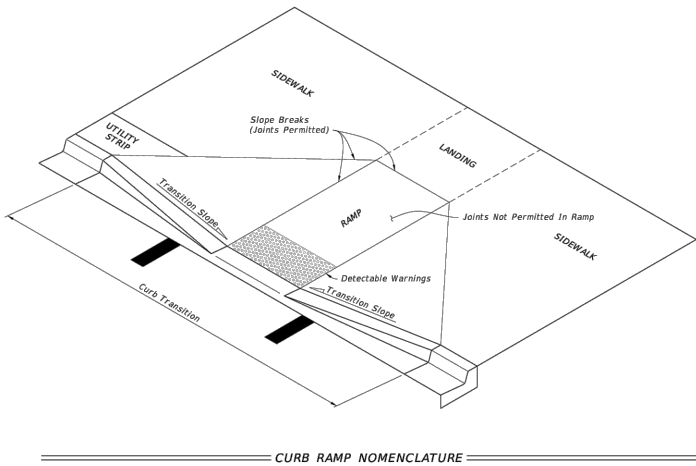
C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:



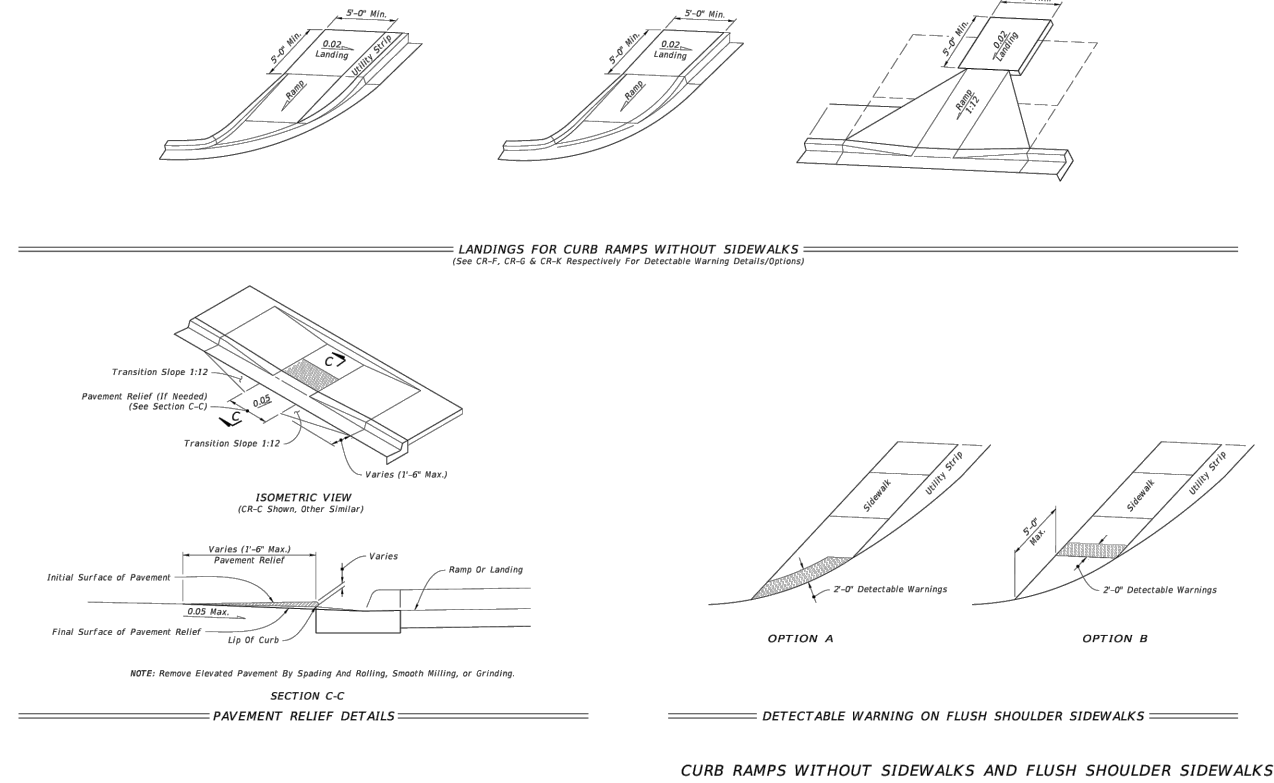


GENERAL NOTES:

- Cross Slopes and Grades:
 - A. Sidewalk, ramp, and landing slopes (i.e. 0.02, 0.05, and 1:12) shown in this Index are maximums. With approval of the Engineer, provide the minimum feasible slope where the requirements cannot be met.
 - B. Landings must have cross-slopes less than or equal to 0.02 in any direction.
 - C. Maintain a single longitudinal slope along each side of the curb ramp. Ramp slopes are not required to exceed 15 feet in length.
 - D. Joints permitted at the location of Slope Breaks. Otherwise locate joints in accordance with Index 522-001. No joints are permitted within the ramp portion of the Curb Ramp.
- Curb, Curb and Gutter and/or Sidewalk:
 - A. Refer to Index 522-001 for concrete thickness and sidewalk details.
 - B. Remove any existing curb, gutter, or sidewalk to the nearest joint beyond the curb transition or to the extent that no remaining section is less than 5 feet long.
 - C. Width of Curb Ramp is 4'-0" minimum. Match sidewalk or Shared Use Path width as shown in the Plans.
- Curb Ramp Alpha-Identification:
 - A. Sidewalk curb ramp alpha-identifications (e.g. CR-A) are provided for reference purposes in the Plans.
 - B. Alpha-identifications CR-I and CR-J are intentionally omitted.
- Detectable Warnings:
 - A. Install detectable warnings in accordance with Specification 527.
 - B. Place detectable warnings across the full width of the ramp or landing, to a minimum depth of 2 feet measured perpendicular to the curb line and no greater than 5 feet from the back of the curb or edge of pavement.
 - C. If detectable warnings are shown in the Plans on slopes greater than 5%, align the truncated domes with the centerline of the ramp; otherwise, the truncated domes are not required to be aligned.



LAST REVISION		DESCRIPTION:		FY 2022-23		DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS		INDEX	SHEET
11/01/21	1							522-002	1 of 7



LAST REVISION		DESCRIPTION:		FY 2022-23		DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS		INDEX	SHEET
11/01/20	1							522-002	6 of 7

REVISIONS		

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN
ENGINEERING

1250 TAMiami TRAIL NORTH, STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

SITE DEVELOPMENT PLANS

FDOT DETAILS

DATE

DEC 2023

PROJECT NO.

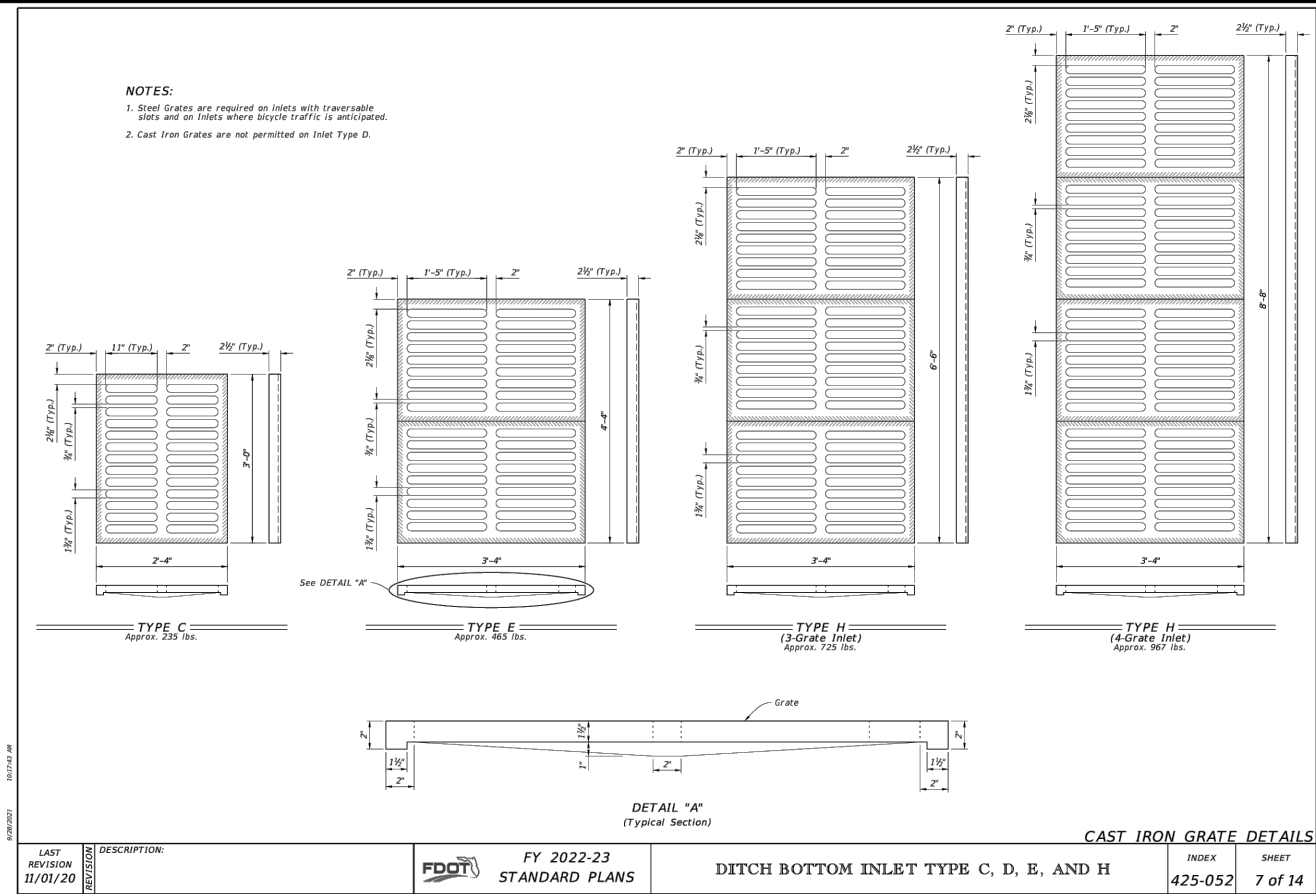
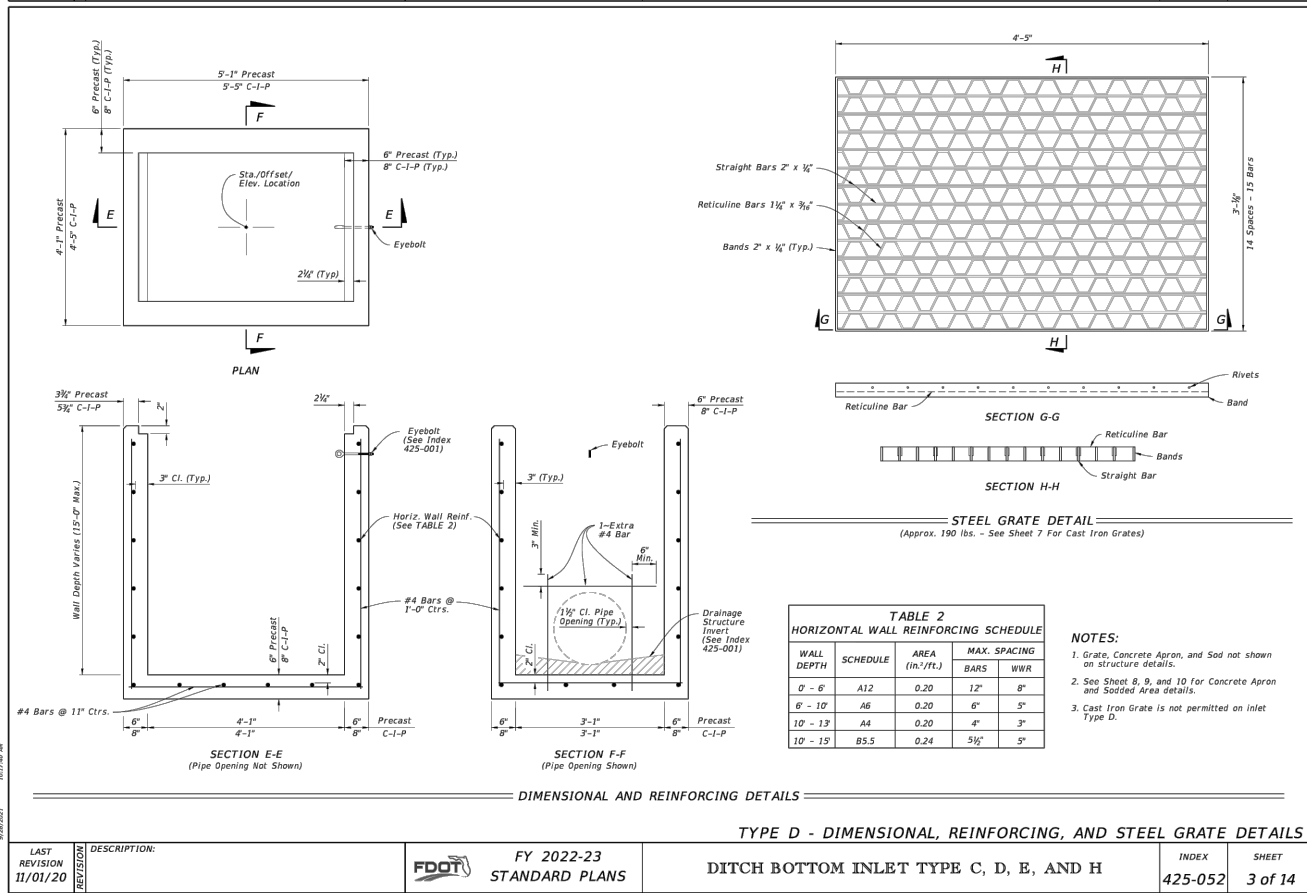
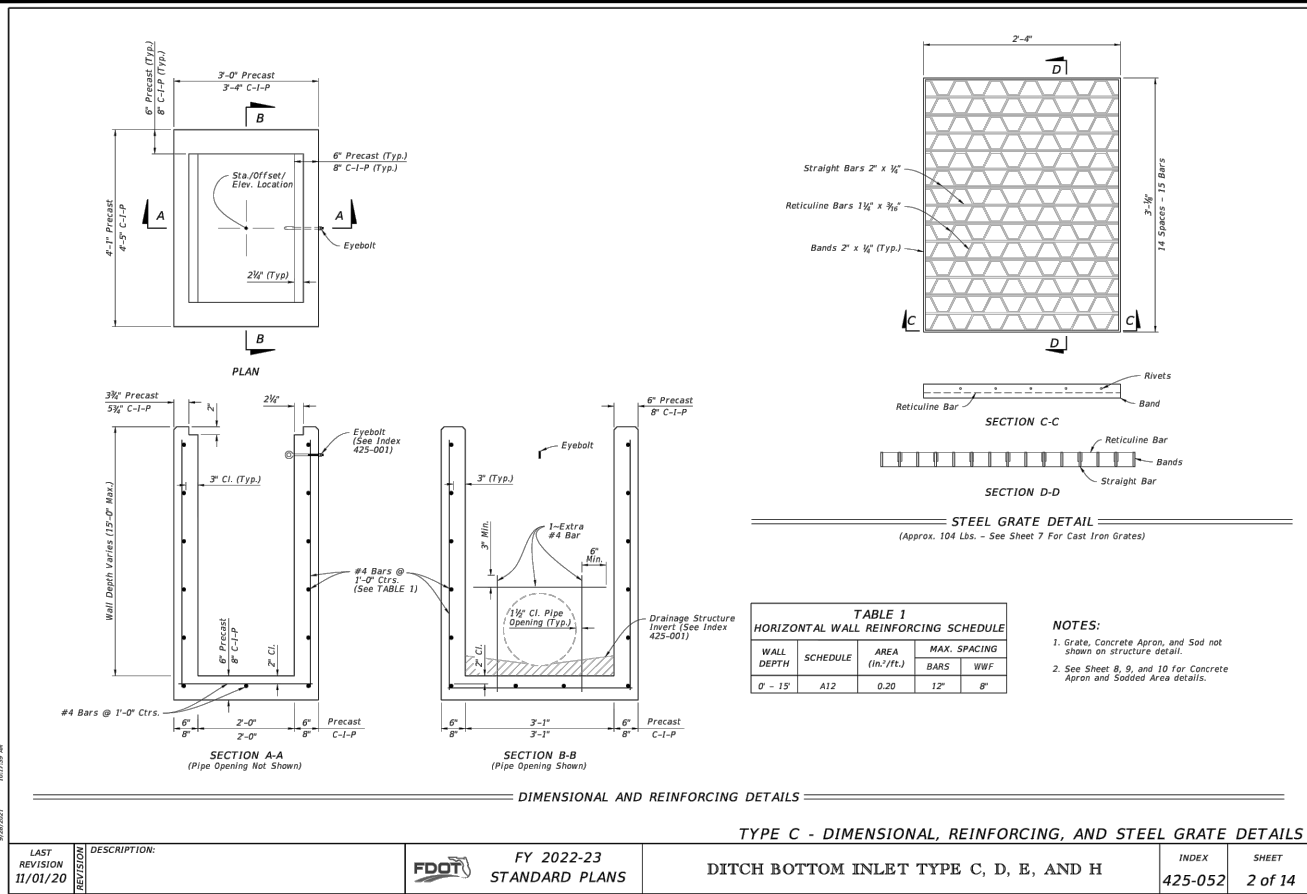
2023-298

SCALE

As Shown

SHEET

C-27



REVISIONS	

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

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1250 TAMiami TRAIL NORTH, STE. 203B
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SITE DEVELOPMENT PLANS

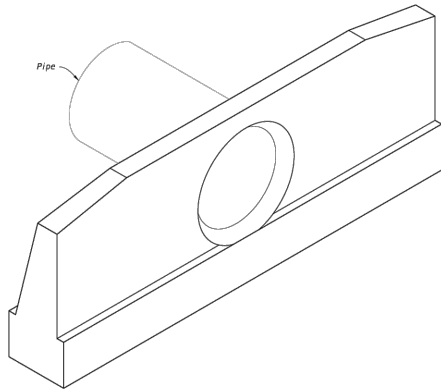
C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

FDOT DETAILS			
DATE	PROJECT NO.	SCALE	SHEET
DEC 2023	2023-298	As Shown	C-28

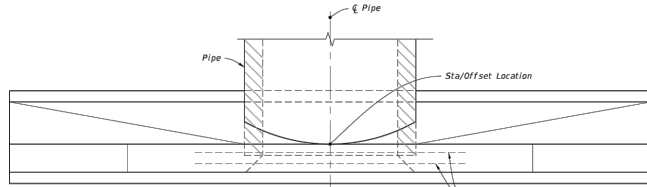
GENERAL NOTES:

1. Use Class II concrete.
2. Reinforcing steel is either Grade 40 or 60.
3. Endwalls may be cast in place or precast concrete. (Additional reinforcement necessary for handling precast units will be determined by the Contractor or the supplier).
4. Chamfer all exposed edges and corners to $\frac{1}{4}$ ".
5. Endwall dimensions, locations and positions are for round and elliptical concrete pipe and for round and pipe-arch corrugated metal pipe. Round concrete pipe shown.
6. On outfall ditches with side slopes flatter than 1:1.5 provide 20' transitions from the endwall to the flatter side slopes, right of way permitting.
7. Construct front slope and ditch transitions in accordance with Index 430-001.
8. Quantities shown are for estimating purposes only.

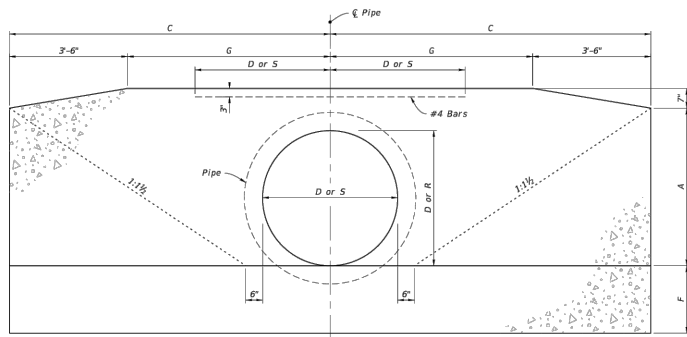
TABLE OF CONTENTS:	
Sheet	Description
1	General Notes and Contents
2	Concrete Endwall Details
3	Concrete and Metal Pipe Tables
4	Spacing For Multiple Pipes



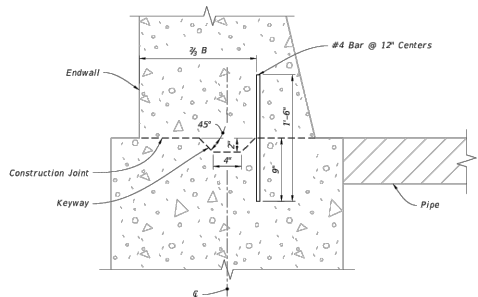
STRAIGHT CONCRETE ENDWALL



PLAN

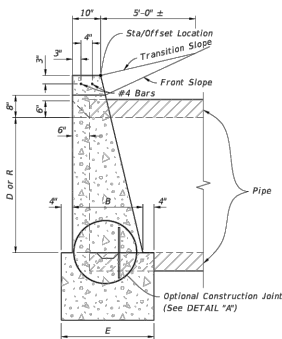


FRONT ELEVATION



NOTE: Keyway and Dowels are required for optional construction joint.

DETAIL "A"



SIDE ELEVATION

CONCRETE ENDWALL DETAILS

LAST REVISION	DESCRIPTION:	FDOT	FY 2022-23 STANDARD PLANS	STRAIGHT CONCRETE ENDWALLS SINGLE AND MULTIPLE PIPE	INDEX	SHEET
11/01/19					430-030	1 of 4

ROUND CONCRETE AND CORRUGATED METAL PIPE																																					
Pipe	Dia. D	Dimensions										Class II Concrete (CY)																	Dia. D								
		Opening Area (SF)										Number Of Pipe And Skew Angle Of Pipe (s)																									
		Number Of Pipes				A	B	C	E	F	G	Y	X				Single	Double				Triple				Quadruple											
1	2	3	4	0°	15°								30°	45°	0°	15°		30°	45°	0°	15°	30°	45°	0°	15°		30°	45°									
Concrete	1.23	2.46	3.69	4.92	1'-11"	1'-2"	4'-0"	1'-10"	1'-2"	0'-0"	2'-2"	2'-2"	2'-8"	3'-0"	3'-8"	1.23	1.59	1.60	1.65	1.74	1.84	1.96	2.05	2.23	2.30	2.34	2.47	2.74	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"		
	1.67	3.34	5.01	6.68	2'-2"	1'-3"	4'-0"	1'-11"	1'-3"	1'-0"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.58	1.99	2.01	2.06	2.17	2.43	2.46	2.56	2.79	2.86	2.91	3.08	3.40	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"		
	2.11	4.22	6.33	8.44	2'-5"	1'-4"	5'-0"	2'-0"	1'-4"	1'-6"	3'-2"	3'-2"	3'-3"	3'-8"	4'-6"	1.97	2.42	2.44	2.49	2.61	2.87	2.90	3.00	3.23	3.30	3.35	3.52	3.84	2.1"	2.1"	2.1"	2.1"	2.1"	2.1"	2.1"		
	2.55	5.10	7.65	10.20	2'-8"	1'-4"	5'-0"	2'-0"	1'-4"	1'-6"	3'-2"	3'-2"	3'-3"	3'-8"	4'-6"	2.24	2.82	2.84	2.91	3.06	3.39	3.43	3.57	3.87	3.97	4.03	4.24	4.69	2.4"	2.4"	2.4"	2.4"	2.4"	2.4"	2.4"		
	2.99	5.98	8.97	11.96	3'-0"	1'-5"	6'-0"	2'-1"	1'-5"	2'-6"	3'-10"	3'-10"	4'-0"	4'-5"	5'-5"	2.73	3.42	3.44	3.51	3.66	4.04	4.08	4.22	4.52	4.62	4.68	4.89	5.44	2.7"	2.7"	2.7"	2.7"	2.7"	2.7"	2.7"		
	3.43	6.86	10.29	13.72	3'-2"	1'-6"	6'-6"	2'-2"	1'-6"	3'-0"	4'-3"	4'-3"	4'-5"	4'-11"	6'-0"	3.26	4.13	4.16	4.26	4.49	4.98	5.04	5.25	5.69	5.84	5.93	6.24	6.91	3.0"	3.0"	3.0"	3.0"	3.0"	3.0"	3.0"		
	3.87	7.74	11.61	15.48	3'-4"	1'-8"	7'-0"	2'-4"	1'-8"	3'-0"	4'-5"	4'-5"	5'-1"	5'-10"	7'-2"	4.53	5.73	5.77	5.92	6.32	6.92	7.00	7.29	7.81	8.13	8.26	8.69	9.62	3.3"	3.3"	3.3"	3.3"	3.3"	3.3"	3.3"		
	4.31	8.62	12.93	17.24	3'-6"	1'-10"	8'-0"	2'-6"	2'-0"	3'-0"	5'-0"	5'-0"	5'-6"	6'-11"	8'-6"	6.33	8.11	8.17	8.39	8.85	9.90	10.02	10.45	11.38	11.68	11.87	12.51	13.89	4.0"	4.0"	4.0"	4.0"	4.0"	4.0"	4.0"		
	4.75	9.50	14.25	18.99	4'-0"	2'-0"	9'-0"	3'-0"	2'-0"	3'-0"	5'-0"	5'-0"	6'-0"	7'-11"	10'-0"	8.15	10.40	10.45	10.75	11.33	12.64	12.80	13.34	14.50	14.89	15.13	15.93	17.69	4.6"	4.6"	4.6"	4.6"	4.6"	4.6"	4.6"		
	5.19	10.38	15.57	20.76	4'-2"	2'-2"	10'-0"	3'-2"	2'-2"	3'-2"	5'-2"	5'-2"	6'-2"	8'-0"	10'-10"	11.71	15.23	15.35	15.78	16.69	18.77	19.02	19.86	21.69	22.29	22.66	23.93	26.67	5.4"	5.4"	5.4"	5.4"	5.4"	5.4"	5.4"		
Corrugated Metal	1.23	2.46	3.69	4.92	1'-11"	1'-2"	4'-0"	1'-10"	1'-2"	0'-0"	2'-2"	2'-2"	2'-8"	3'-0"	3'-8"	1.24	1.62	1.63	1.68	1.78	1.99	2.02	2.11	2.30	2.37	2.41	2.75	2.84	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"		
	1.67	3.34	5.01	6.68	2'-2"	1'-3"	4'-0"	1'-11"	1'-3"	1'-0"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.59	2.04	2.06	2.11	2.23	2.51	2.54	2.65	2.89	2.96	3.01	3.17	3.53	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"	1.6"		
	2.11	4.22	6.33	8.44	2'-5"	1'-4"	5'-0"	2'-0"	1'-4"	1'-6"	3'-2"	3'-2"	3'-3"	3'-8"	4'-6"	1.97	2.42	2.44	2.49	2.61	2.87	2.90	3.00	3.23	3.30	3.35	3.52	3.84	2.1"	2.1"	2.1"	2.1"	2.1"	2.1"	2.1"		
	2.55	5.10	7.65	10.20	2'-8"	1'-4"	5'-0"	2'-0"	1'-4"	1'-6"	3'-2"	3'-2"	3'-3"	3'-8"	4'-6"	2.24	2.82	2.84	2.91	3.06	3.39	3.43	3.57	3.87	3.97	4.03	4.24	4.69	2.4"	2.4"	2.4"	2.4"	2.4"	2.4"	2.4"		
	2.99	5.98	8.97	11.96	3'-0"	1'-5"	6'-0"	2'-1"	1'-5"	2'-6"	3'-10"	3'-10"	4'-0"	4'-5"	5'-5"	2.73	3.42	3.44	3.51	3.66	4.04	4.08	4.22	4.52	4.62	4.68	4.89	5.44	2.7"	2.7"	2.7"	2.7"	2.7"	2.7"	2.7"		
	3.43	6.86	10.29	13.72	3'-2"	1'-6"	6'-6"	2'-2"	1'-6"	3'-0"	4'-3"	4'-3"	4'-5"	4'-11"	6'-0"	3.26	4.13	4.16	4.26	4.49	4.98	5.04	5.25	5.69	5.84	5.93	6.24	6.91	3.0"	3.0"	3.0"	3.0"	3.0"	3.0"	3.0"		
	3.87	7.74	11.61	15.48	3'-4"	1'-8"	7'-0"	2'-4"	1'-8"	3'-0"	4'-5"	4'-5"	5'-1"	5'-10"	7'-2"	4.53	5.73	5.77	5.92	6.32	6.92	7.00	7.29	7.81	8.13	8.26	8.69	9.62	3.3"	3.3"	3.3"	3.3"	3.3"	3.3"	3.3"		
	4.31	8.62	12.93	17.24	3'-6"	1'-10"	8'-0"	2'-6"	2'-0"	3'-0"	5'-0"	5'-0"	5'-6"	6'-11"	8'-6"	6.49	8.43	8.50	8.73	9.23	10.38	10.52	10.98	11.99	12.32	12.55	13.22	14.73	4.0"	4.0"	4.0"	4.0"	4.0"	4.0"	4.0"		
	4.75	9.50	14.25	18.99	4'-0"	2'-0"	9'-0"	3'-0"	2'-0"	3'-0"	5'-0"	5'-0"	6'-0"	7'-11"	10'-0"	8.38	10.85	10.94	11.23	11.83	13.34	13.51	14.11	15.39	15.82	16.08	16.99	18.90	4.6"	4.6"	4.6"	4.6"	4.6"	4.6"	4.6"		
	5.19	10.38	15.57	20.76	4'-2"	2'-2"	10'-0"	3'-2"	2'-2"	3'-2"	5'-2"	5'-2"	6'-2"	8'-0"	10'-10"	11.77	15.47	15.60	15.99	16.99	19.33	19.60	20.54	22.59	23.29	23.70	25.19	28.47	5.4"	5.4"	5.4"	5.4"	5.4"	5.4"	5.4"		

NOTES:

1. Dimension X is calculated as: $X = 5^{\circ} \text{SEC } \alpha$.

2. Select tabular quantities using skew values as follows:

End Skew to Pipe Use Tabulated Value

0° to 9° 15°

9° to 15° 30°

15° to 30° 45°

CONCRETE AND METAL PIPE TABLES

LAST REVISION	DESCRIPTION:	FDOT	FY 2022-23 STANDARD PLANS	STRAIGHT CONCRETE ENDWALLS SINGLE AND MULTIPLE PIPE	INDEX	SHEET
11/01/21					430-030	1 of 4

ELLIPTICAL CONCRETE AND CORRUGATED METAL PIPE ARCH																																							
Pipe R		Span S		Dimensions																		Class II Concrete (CY)												Rise R		Span S		Approx. Elev.	
				Opening Area (SF)																		Number Of Pipe And Skew Angle Of Pipe (s)																	
				Number Of Pipes																		Single Double Triple Quadruple																	
		1	2	3	4	A	B	C	E	F	G	Y	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°	0°	15°	30°	45°											
12"	18"	1.3	2.6	3.9	5.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.09	1.45	1.46	1.51	1.60	1.80	1.82	1.91	2.09	2.16	2.20	2.33	2.60	1.2"	18"	18"							
14"	21"	1.5	3.0	4.5	6.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.19	1.55	1.56	1.61	1.70	1.90	1.92	2.01	2.19	2.26	2.30	2.43	2.70	1.4"	21"	21"							
16"	24"	1.7	3.4	5.1	6.8	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.29	1.65	1.66	1.71	1.80	2.00	2.02	2.11	2.29	2.36	2.40	2.53	2.80	1.6"	24"	24"							
18"	30"	2.0	4.0	6.0	8.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.39	1.75	1.76	1.81	1.90	2.10	2.12	2.21	2.39	2.46	2.50	2.63	2.90	1.8"	30"	30"							
20"	36"	2.3	4.6	6.9	9.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.49	1.85	1.86	1.91	2.00	2.20	2.22	2.31	2.49	2.56	2.60	2.73	3.00	2.0"	36"	36"							
24"	48"	2.8	5.6	8.4	11.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.69	2.05	2.06	2.11	2.20	2.40	2.42	2.51	2.69	2.76	2.80	2.93	3.20	2.4"	48"	48"							
30"	60"	3.4	6.8	10.2	13.6	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	1.89	2.25	2.26	2.31	2.40	2.60	2.62	2.71	2.89	2.96	3.00	3.13	3.40	2.8"	60"	60"							
36"	72"	4.0	8.0	12.0	16.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	2.09	2.45	2.46	2.51	2.60	2.80	2.82	2.91	3.09	3.16	3.20	3.33	3.60	3.2"	72"	72"							
42"	84"	4.6	9.2	13.8	18.4	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	2.29	2.65	2.66	2.71	2.80	3.00	3.02	3.11	3.29	3.36	3.40	3.53	3.80	3.6"	84"	84"							
48"	96"	5.2	10.4	15.6	20.8	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	2.49	2.85	2.86	2.91	3.00	3.20	3.22	3.31	3.49	3.56	3.60	3.73	4.00	4.0"	96"	96"							
54"	108"	5.8	11.6	17.4	23.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	2.69	3.05	3.06	3.11	3.20	3.40	3.42	3.51	3.69	3.76	3.80	3.93	4.20	4.4"	108"	108"							
60"	120"	6.4	12.8	19.2	25.6	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	2.89	3.25	3.26	3.31	3.40	3.60	3.62	3.71	3.89	3.96	4.00	4.13	4.40	4.8"	120"	120"							
66"	132"	7.0	14.0	21.0	28.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	3.09	3.45	3.46	3.51	3.60	3.80	3.82	3.91	4.09	4.16	4.20	4.33	4.60	5.2"	132"	132"							
72"	144"	7.6	15.2	22.8	30.4	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	3.29	3.65	3.66	3.71	3.80	4.00	4.02	4.11	4.29	4.36	4.40	4.53	4.80	5.6"	144"	144"							
78"	156"	8.2	16.4	24.6	32.8	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	3.49	3.85	3.86	3.91	4.00	4.20	4.22	4.31	4.49	4.56	4.60	4.73	5.00	6.0"	156"	156"							
84"	168"	8.8	17.6	26.4	35.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	3.69	4.05	4.06	4.11	4.20	4.40	4.42	4.51	4.69	4.76	4.80	4.93	5.20	6.4"	168"	168"							
90"	180"	9.4	18.8	28.2	37.6	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	3.89	4.25	4.26	4.31	4.40	4.60	4.62	4.71	4.89	4.96	5.00	5.13	5.40	6.8"	180"	180"							
96"	192"	10.0	20.0	30.0	40.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	4.09	4.45	4.46	4.51	4.60	4.80	4.82	4.91	5.09	5.16	5.20	5.33	5.60	7.2"	192"	192"							
102"	204"	10.6	21.2	31.8	42.4	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	4.29	4.65	4.66	4.71	4.80	5.00	5.02	5.11	5.29	5.36	5.40	5.53	5.80	7.6"	204"	204"							
108"	216"	11.2	22.4	33.6	44.8	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	4.49	4.85	4.86	4.91	5.00	5.20	5.22	5.31	5.49	5.56	5.60	5.73	6.00	8.0"	216"	216"							
114"	228"	11.8	23.6	35.4	47.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	4.69	5.05	5.06	5.11	5.20	5.40	5.42	5.51	5.69	5.76	5.80	5.93	6.20	8.4"	228"	228"							
120"	240"	12.4	24.8	37.2	49.6	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	4.89	5.25	5.26	5.31	5.40	5.60	5.62	5.71	5.89	5.96	6.00	6.13	6.40	8.8"	240"	240"							
126"	252"	13.0	26.0	39.0	52.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	5.09	5.45	5.46	5.51	5.60	5.80	5.82	5.91	6.09	6.16	6.20	6.33	6.60	9.2"	252"	252"							
132"	264"	13.6	27.2	40.8	54.4	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	5.29	5.65	5.66	5.71	5.80	6.00	6.02	6.11	6.29	6.36	6.40	6.53	6.80	9.6"	264"	264"							
138"	276"	14.2	28.4	42.6	56.8	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	5.49	5.85	5.86	5.91	6.00	6.20	6.22	6.31	6.49	6.56	6.60	6.73	7.00	10.0"	276"	276"							
144"	288"	14.8	29.6	44.4	59.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	5.69	6.05	6.06	6.11	6.20	6.40	6.42	6.51	6.69	6.76	6.80	6.93	7.20	10.4"	288"	288"							
150"	300"	15.4	30.8	46.2	61.6	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	5.89	6.25	6.26	6.31	6.40	6.60	6.62	6.71	6.89	6.96	7.00	7.13	7.40	10.8"	300"	300"							
156"	312"	16.0	32.0	48.0	64.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	6.09	6.45	6.46	6.51	6.60	6.80	6.82	6.91	7.09	7.16	7.20	7.33	7.60	11.2"	312"	312"							
162"	324"	16.6	33.2	49.8	66.4	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	6.29	6.65	6.66	6.71	6.80	7.00	7.02	7.11	7.29	7.36	7.40	7.53	7.80	11.6"	324"	324"							
168"	336"	17.2	34.4	51.6	68.8	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	6.49	6.85	6.86	6.91	7.00	7.20	7.22	7.31	7.49	7.56	7.60	7.73	8.00	12.0"	336"	336"							
174"	348"	17.8	35.6	53.4	71.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	6.69	7.05	7.06	7.11	7.20	7.40	7.42	7.51	7.69	7.76	7.80	7.93	8.20	12.4"	348"	348"							
180"	360"	18.4	36.8	55.2	73.6	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	6.89	7.25	7.26	7.31	7.40	7.60	7.62	7.71	7.89	7.96	8.00	8.13	8.40	12.8"	360"	360"							
186"	372"	19.0	38.0	57.0	76.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	7.09	7.45	7.46	7.51	7.60	7.80	7.82	7.91	8.09	8.16	8.20	8.33	8.60	13.2"	372"	372"							
192"	384"	19.6	39.2	58.8	78.4	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	7.29	7.65	7.66	7.71	7.80	8.00	8.02	8.11	8.29	8.36	8.40	8.53	8.80	13.6"	384"	384"							
198"	396"	20.2	40.4	60.6	80.8	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	7.49	7.85	7.86	7.91	8.00	8.20	8.22	8.31	8.49	8.56	8.60	8.73	9.00	14.0"	396"	396"							
204"	408"	20.8	41.6	62.4	83.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	7.69	8.05	8.06	8.11	8.20	8.40	8.42	8.51	8.69	8.76	8.80	8.93	9.20	14.4"	408"	408"							
210"	420"	21.4	42.8	64.2	85.6	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	7.89	8.25	8.26	8.31	8.40	8.60	8.62	8.71	8.89	8.96	9.00	9.13	9.40	14.8"	420"	420"							
216"	432"	22.0	44.0	66.0	88.0	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	8.09	8.45	8.46	8.51	8.60	8.80	8.82	8.91	9.09	9.16	9.20	9.33	9.60	15.2"	432"	432"							
222"	444"	22.6	45.2	67.8	90.4	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	8.29	8.65	8.66	8.71	8.80	9.00	9.02	9.11	9.29	9.36	9.40	9.53	9.80	15.6"	444"	444"							
228"	456"	23.2	46.4	69.6	92.8	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	8.49	8.85	8.86	8.91	9.00	9.20	9.22	9.31	9.49	9.56	9.60	9.73	10.00	16.0"	456"	456"							
234"	468"	23.8	47.6	71.4	95.2	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	8.69	9.05	9.06	9.11	9.20	9.40	9.42	9.51	9.69	9.76	9.80	9.93	10.20	16.4"	468"	468"							
240"	480"	24.4	48.8	73.2	97.6	1'-8"	1'-2"	3'-8"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	3'-3"	4'-0"	8.89	9.25	9.26	9.31	9.40																		



STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-740 OR SC-310.
- CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418-16 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
 - A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
 - A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
 - STRUCTURAL CROSS SECTION DETAIL, ON WHICH THE STRUCTURAL EVALUATION IS BASED.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310/SC-740 SYSTEM

- STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOTTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER TIED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

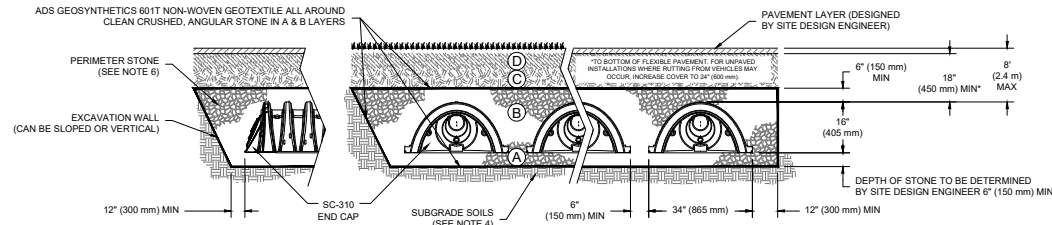
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

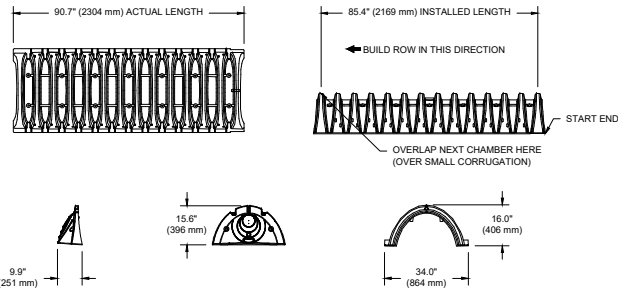
MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2.4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 90% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ¹

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

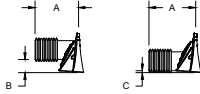
- SC-310 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"; OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0\" X 16.0\" X 85.4\" (8.42 m)	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET (0.42 m ³)	---
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET (0.88 m ³)	---
WEIGHT	35.0 lbs. (16.8 kg)	---

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE08B / SC310EPE08BPC	---	---	3.5" (89 mm)	0.5" (13 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	---
SC310EPE10B / SC310EPE10BPC	12" (300 mm)	13.5" (343 mm)	---	0.7" (18 mm)

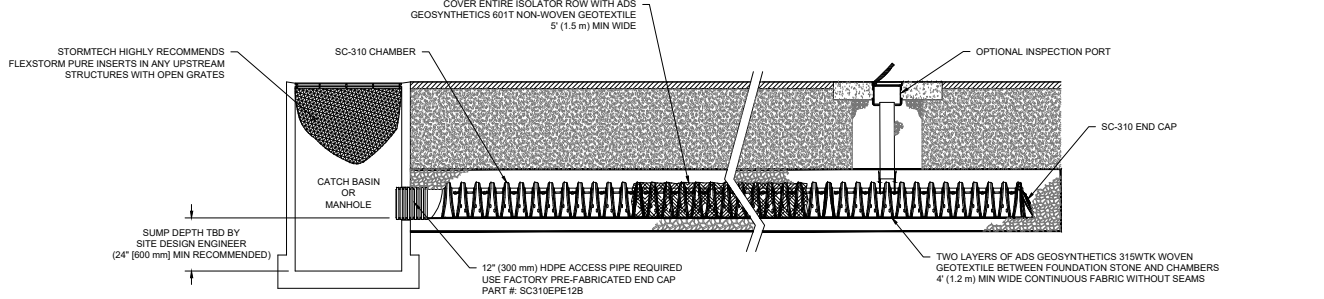
ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

SC-310 TECHNICAL SPECIFICATION

NTS



SC-310 ISOLATOR ROW DETAIL

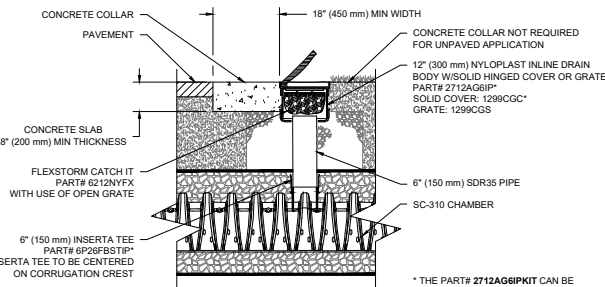
NTS

INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
- i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
- ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



* THE PART# 2712AG6IPKIT CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION

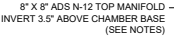
SC-310 6" INSPECTION PORT DETAIL

NTS

REVISIONS			ROSE MARINA REDEVELOPMENT PLANS	CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA	HE HAGAN ENGINEERING 1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239	SITE DEVELOPMENT PLANS	C. D. HAGAN, P.E. FL REG.T. #38649 EB #29474 DATE:	STORMTECH DETAILS			
								DATE DEC 2023	PROJECT NO. 2023-298	SCALE As Shown	SHEET C-30



CONCEPTUAL LAYOUT SYSTEM	
12.4	STORMTECH SC-310 CHAMBERS
34	STORMTECH SC-310 END CAPS
6	STONE ABOVE (in)
6	STONE BELOW (in)
40	% STONE VOID
3,825	INSTALLED SYSTEM VOLUME (CF) ABOVE ELEVATION 1.38
3,524	PERISTER STONE INCLUDED
	SYSTEM AREA (ft ²)
202	SYSTEM PERIMETER (ft)
CONCEPTUAL ELEVATIONS SYSTEM	
10.71	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
4.71	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
4.21	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
4.21	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
4.21	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
3.21	TOP OF STONE
2.71	TOP OF SC-310 CHAMBER
1.67	6" TOP MANHOLE INVERT
1.46	12" ISOLATOR ROW PLUS CONNECTION INVERT
1.38	BOTTOM OF SC-310 CHAMBER
0.88	BOTTOM OF STONE



CONCEPTUAL LAYOUT SYSTEM 1

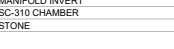
102	STORMTECH SC-310 CHAMBERS
12	STORMTECH SC-310 END CAPS
1	STONE ABOVE (n)
6	STONE BELOW (n)
40	1% STONE VOID
2757	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)
2757	SYSTEM AREA (ft²)
300	SYSTEM PERIMETER (ft)

CONCEPTUAL ELEVATIONS

9.33	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
3.33	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
2.83	MINIMUM ALLOWABLE GRADE (SC-310 CHAMBER)
2.83	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
2.83	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
1.83	TOP OF STONE
1.33	TOP OF SC-310 CHAMBER
0.08	12" ISOLATOR ROW CONNECTION INVERT
0.08	12" BOTTOM MANIFOLD INVERT
0.00	BOTTOM OF SC-310 CHAMBER
-0.50	BOTTOM OF STONE

NOTES

- [illegible]



STORMTECH SYSTEM - W1
N.T.S.

REVISIONS			ROSE MARINA REDEVELOPMENT PLANS	CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA	HAGAN ENGINEERING 1250 TAMiami TRAIL NORTH, STE. 203B Naples, Florida 34102 Phone (239) 851-8239 SITE DEVELOPMENT PLANS	C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	STORMTECH DETAILS						
	REVISED PER COMMENTS DATED 8/14/2024	05/16/2025											
	DATE	DEC 2023						PROJECT NO.	2023-298	SCALE	As Shown	SHEET	C-31