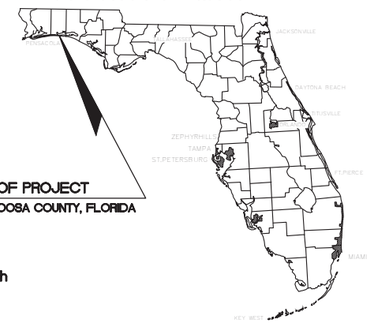
HY-TECH LANDSCAPING, 1ST AMENDMENT

515 MOUNTAIN DRIVE
DESTIN, FLORIDA

VICINITY MAP



LOCATION OF PROJECT
DESTIN, OKALOOSA COUNTY, FLORIDA

Township: 2 South
Range: 22 West

LEGAL DESCRIPTION

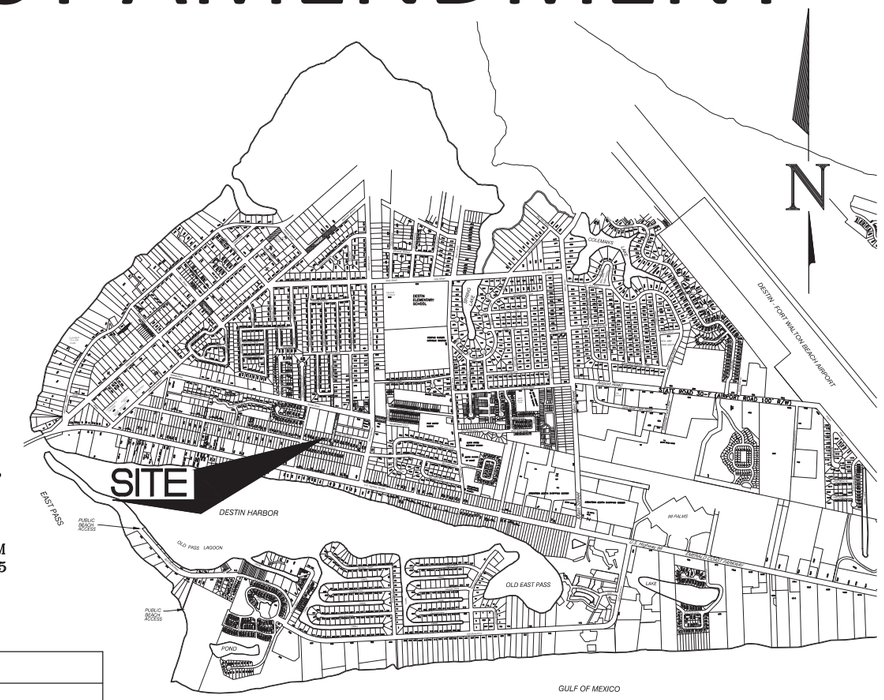
LOTS 355 AND 356, BLOCK E, SECOND REVISION OF CALHOUNS SUBDIVISION OF ADDITION TO TOWN OF DESTIN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 2, PAGE 43A OF THE PUBLIC RECORDS OF OKALOOSA COUNTY, FLORIDA.

PREPARED FOR:

SANDIA BLANCO, LLC
CRISTIN KEANE
4221 W. BOY SCOUT BLVD. STE. 1000
TAMPA, FLORIDA 33607
(813) 229-4211

PREPARED BY:

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.CORECONSULTING.COM
CERTIFICATE OF AUTHORIZATION NO. 28155



REVISION LOG

DATE	REV	DESCRIPTION
12/05/14	0	ISSUE FOR DEVELOPMENT ORDER
01/08/14	1	RE-SUBMITTAL DEVELOPMENT ORDER
02/02/15	2	FINAL SUBMITTAL DEVELOPMENT ORDER

INDEX OF DRAWINGS

SHEET	TITLE	DESCRIPTION
1	G-1	COVER SHEET & INDEX OF DRAWINGS
2	C-1	EXISTING CONDITIONS AND DEMOLITION PLAN
3	C-2	SITE PLAN
4	C-3	GRADING & DRAINAGE PLAN
5	C-4	PRE & POST DEVELOPMENT BASIN MAPS
6	C-5	UTILITY PLAN
7	C-6	SITE LIGHTING PLAN
8	C-7	EROSION CONTROL PLAN
9	C-8	CONSTRUCTION DETAILS
10	C-9	SPECIFICATIONS 1 OF 2
11	C-10	SPECIFICATIONS 2 OF 2
12	I-1	IRRIGATION PLAN
13	L-1	LANDSCAPE PLAN
14	A-1	STORAGE BUILDING PLAN & ELEVATIONS
15	A-2	GREENHOUSE ELEVATIONS

DUTY TO INDEMNIFY:

THE CONTRACTOR SHALL DEFEND, INDEMNIFY, KEEP AND SAVE HARMLESS THE OWNER AND ENGINEER AND THEIR RESPECTIVE MEMBERS, REPRESENTATIVES, AGENTS AND EMPLOYEES, IN BOTH INDIVIDUAL AND OFFICIAL CAPACITIES, AGAINST ALL SUITS, CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING ATTORNEY'S FEES, CAUSED BY, GROWING OUT OF, OR INCIDENTAL TO THE PERFORMANCE OF THE WORK UNDER THE CONTRACT BY THE CONTRACTOR OR ITS SUBCONTRACTORS TO THE FULL EXTENT AS ALLOWED BY THE LAWS OF THE STATE OF FLORIDA AND NOT BEYOND ANY EXTENT WHICH WOULD RENDER THESE PROVISIONS VOID OR UNENFORCEABLE. IN THE EVENT OF ANY SUCH INJURY (INCLUDING DEATH) OR LOSS OR DAMAGE, OR CLAIMS THEREFORE, THE CONTRACTOR SHALL GIVE PROMPT NOTICE TO THE OWNER.

UTILITY CONTACT INFORMATION:

CONTRACTOR SHALL HAVE ALL EXISTING BURIED UTILITIES "LINE SPOTTED" BY CALLING 1-800-432-4770 "CALL SUNSHINE" OR BY CONTACTING LOCAL UTILITY COMPANIES.

WATER + SEWER:
DESTIN WATER USERS
14 INDUSTRIAL PARK LANE
DESTIN, FL 32541
PHONE: (850) 837-6146

ELECTRICAL:
GULF POWER
ONE ENERGY PLACE
PENSACOLOA, FL 32520
(800) 225-5797

GAS:
OKALOOSA GAS DISTRICT
367 VALPARAISO BLVD.
VALPARAISO, FL 32580
PHONE: (850) 729-4700

APPROVED
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of building permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.CORECONSULTING.COM
CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:

EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D,
DESTIN, FLORIDA

COVER SHEET & INDEX OF DRAWINGS
Not valid unless bearing Engineer's embossed seal

Job No.: 2014.08.005
Date: 02/02/2015
Scale: N/A
Designed: CLO
Drawn By: CLO
Checked: ELS
Sheet: 1 of 15

G-1

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

SITE DATA TABLE	
PARCEL ID(S)	00-2S-22-0310-000E-3550, 00-2S-22-0310-000E-3560
SITE AREA	0.46 ACRES/ 20,000 SF
FLOOD ZONE	FLOOD ZONE X
ZONING	COMMERCIAL TRADES & SERVICES (CTS)
EXISTING LAND USE	VACANT NURSERY

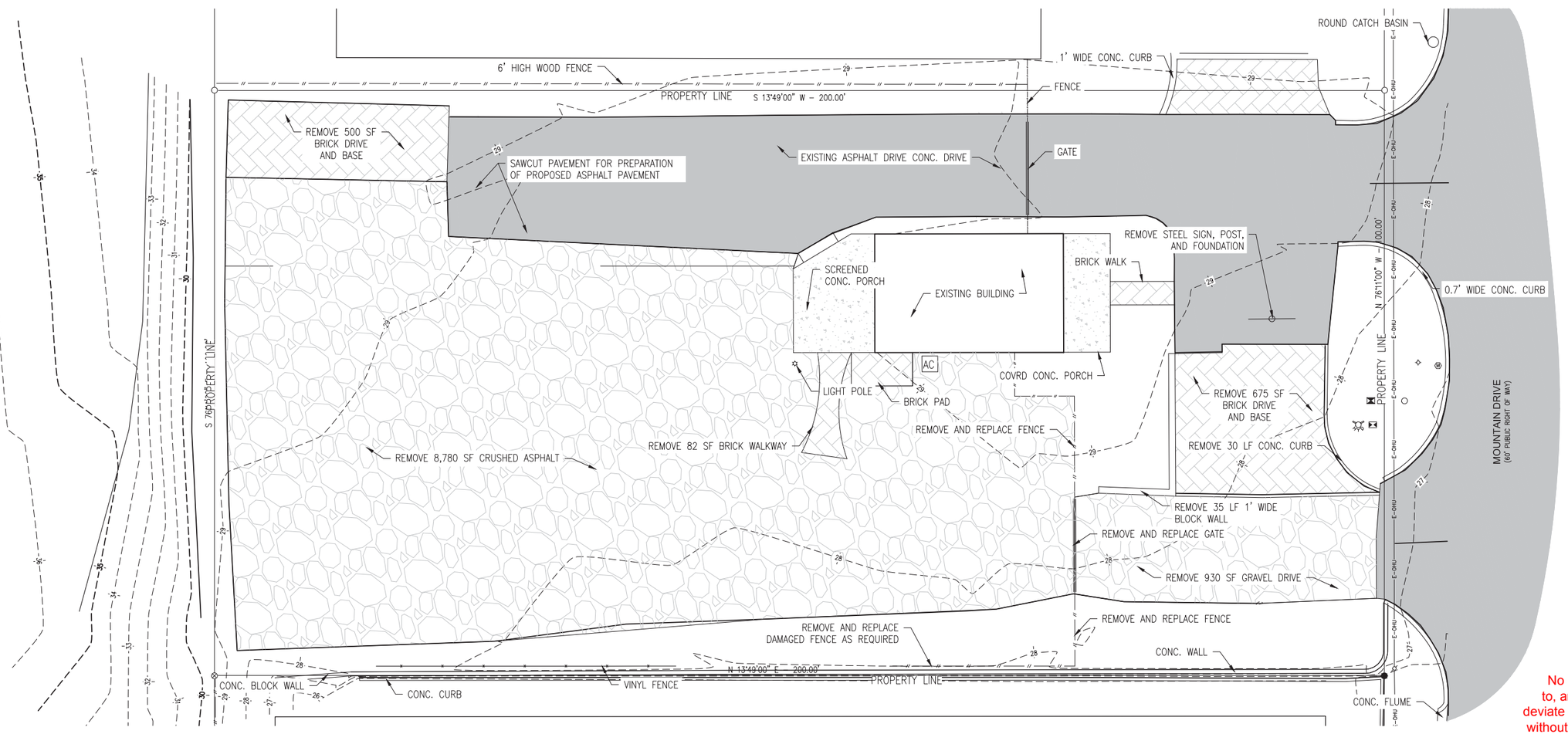
NOTES:

1. ALL EXISTING SITE STRUCTURES AND INFRASTRUCTURE IS EXISTING TO REMAIN UNLESS OTHERWISE NOTED ON THIS SHEET AS "TO BE REMOVED" OR "TO BE REPLACED."
2. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL DEMOLITION DEBRIS.
3. COORDINATE WITH OWNER FOR SPECIFIC SITE INFRASTRUCTURE TO BE REMOVED AND STORED ON-SITE.
4. PRIOR TO COMMENCING CONSTRUCTION, TEMPORARY SITE SCREENING SHALL BE PLACED IN COMPLIANCE WITH DESTIN CODE OF ORDINANCES SECTION 6-51.

CALL BEFORE YOU DIG
SUNSHINE 1-800-432-4770

N

0 10 20
FULL SCALE: 1"=10'



1 **EXISTING CONDITIONS & DEMOLITION PLAN**
SCALE: 1" = 10'

A P P R O V E D
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.COM
CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D,
DESTIN, FLORIDA

EXISTING CONDITIONS & DEMOLITION PLAN
Not valid unless bearing Engineer's embossed seal

Job No.:	2014.08.005
Date:	02/02/2015
Scale:	1" = 10'
Designed:	CLO
Drawn By:	CLO
Checked:	ELS
Sheet:	2 of 15

C-1

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CADVC-NC-GRNHS.dwg

SITE DATA TABLE		
PARCEL ID(S)	00-2S-22-0310-000E-3550, 00-2S-22-0310-000E-3560	
SITE AREA	0.46 ACRES/ 20,000 SF	
FLOOD ZONE	FLOOD ZONE X	
ZONING	COMMERCIAL TRADES & SERVICES (CTS)	
EXISTING LAND USE	VACANT NURSERY	
FUTURE LAND USE	COMMERCIAL TRADES & SERVICES (CTS)	
PROPOSED USE	NURSERY (WHOLESALE)	
	REQUIRED	PROPOSED
FLOOR AREA RATIO (MAX)	1.30	0.1430
OPEN SPACE (MIN)	25%	40.1%
BUILDING HEIGHT (MAX)	35 FT	22 FT
BUILDING SETBACKS (MIN)		
FRONT	10 FT	≈47 FT
BACK	10 FT	10.1 FT
SIDE	0 FT	10.1 FT/ 1.0 FT (STORAGE)
PARKING SPACES (MAX)	5 STD/ 1 ADA/ 1 BIKE	4 STD/ 1 ADA/ 2 BIKE

NOTES:

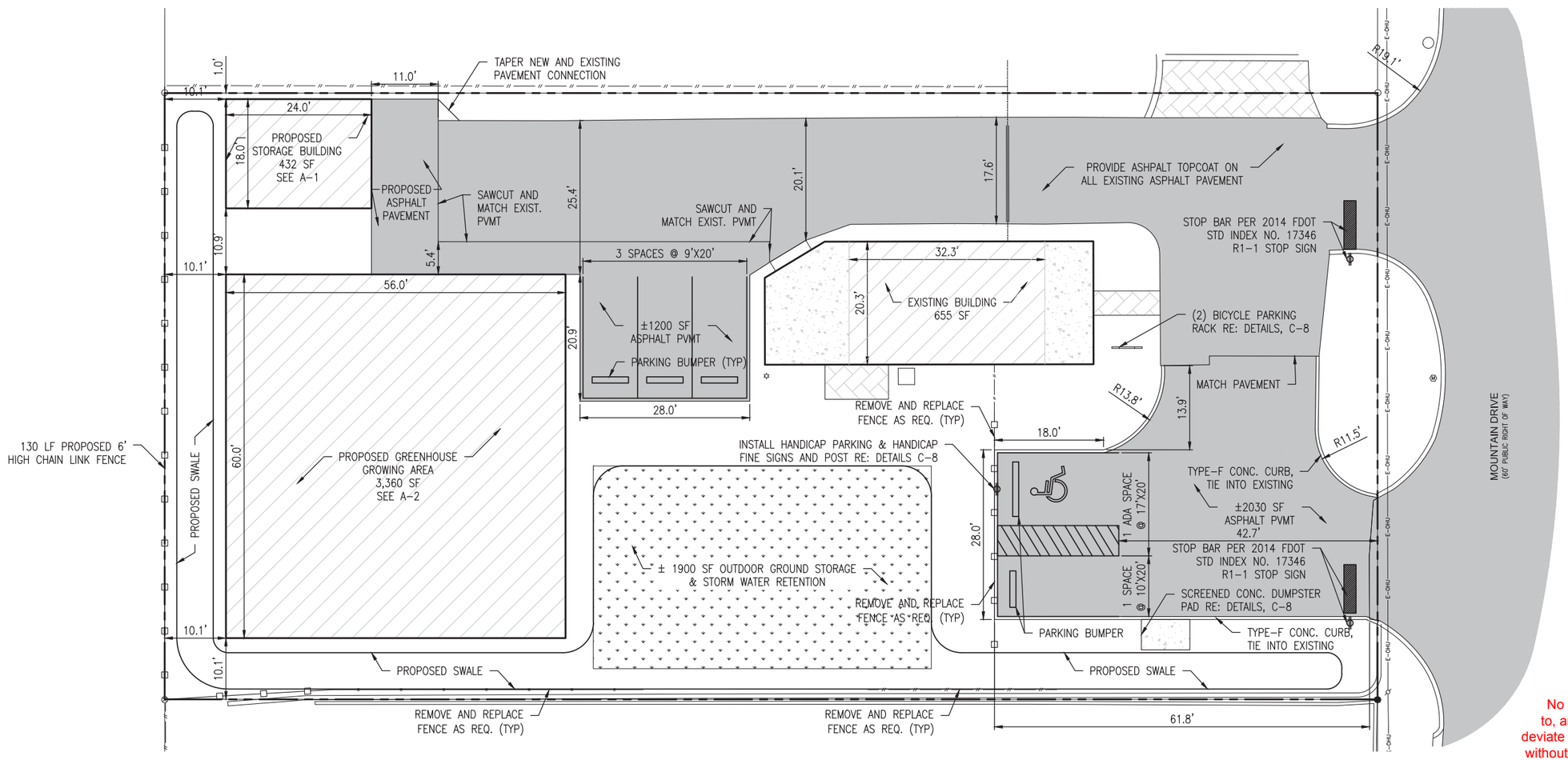
1. ALL EXISTING SITE STRUCTURES AND INFRASTRUCTURE IS EXISTING TO REMAIN UNLESS OTHERWISE NOTED ON C-1, EXISTING CONDITIONS AND DEMOLITION PLAN.
2. ALL UNPAVED SURFACES GRADED AND COVERED WITH SOD OR PLANT COVERINGS, SEE LANDSCAPING PLANS.
3. REFER TO C-8 FOR CONSTRUCTION DETAILS, REFER TO C-9 & C-10 FOR CONSTRUCTION SPECIFICATIONS.
4. REFER TO LANDSCAPE AND IRRIGATION PLANS FOR GROUND COVERINGS, PLANTS, AND IRRIGATION.
5. NO OUTDOOR SIGNS ARE PROPOSED FOR THIS PROJECT, IF A SIGN IS TO BE INSTALLED; THE LOCATION OF THE SIGN MUST BE INDICATED ON A SITE PLAN AND SUBMITTED TO THE CITY OF DESTIN FOR APPROVAL.
6. PROJECT TO COMPLETED IN A CONTINUOUS, NON-PHASED CONSTRUCTION PERIOD.

PARKING CALCULATIONS (MAXIMUM)		
PARKING REFERENCE	CITY OF DESTIN LDC 8.06.10 TABLE 8-6	
USE DESIGNATION	SECTOR 44, NURSERIES	
	AREA PROPOSED	PARKING SPACES REQUIRED
1 SPACE PER 500 SF GROSS FLOOR AREA	1,087 SF	3
1 SPACE PER 2,000 SF OUTDOOR STORAGE/ DISPLAY	1,850 SF	1
1 SPACE PER 1 ACRE GROWING AREA	0.077 ACRES	1
1 ADA SPACE PER 25	5 SPACES	1 ADA
BICYCLE REQUIRED	5% TOTAL SPACES	1 BICYCLE
TOTAL SPACES	(5) 9'X20' SPACES/ (1) 12'X20 ADA SPACES	

CALL BEFORE YOU DIG
SUNSHINE 1-800-432-4770

N

0 10 20
FULL SCALE: 1"=10'



1 **SITE PLAN**
SCALE: 1" = 10'

APPROVED
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.com
CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D, DESTIN, FLORIDA

SITE PLAN

Not valid unless bearing Engineer's embossed seal

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

Job No.: 2014.08.005
Date: 02/02/2015
Scale: 1" = 10'
Designed: CLO
Drawn By: CLO
Checked: ELS
Sheet: 3 of 15

C-2

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

SITE DATA TABLE		
PARCEL ID(S)	00-2S-22-0310-000E-3550, 00-2S-22-0310-000E-3560	
SITE AREA	0.46 ACRES/ 20,000 SF	
FLOOD ZONE	FLOOD ZONE X	
ZONING	COMMERCIAL TRADES & SERVICES (CTS)	
EXISTING LAND USE	VACANT NURSERY	
FUTURE LAND USE	COMMERCIAL TRADES & SERVICES (CTS)	
PROPOSED USE	NURSERY (WHOLESALE)	
	REQUIRED	PROPOSED
FLOOR AREA RATIO (MAX)	1.30	0.1430
OPEN SPACE (MIN)	25%	40.1%
BUILDING HEIGHT (MAX)	35 FT	22 FT
BUILDING SETBACKS (MIN)		
FRONT	10 FT	≈47 FT
BACK	10 FT	10.1 FT
SIDE	0 FT	10.1 FT/ 1.0 FT (STORAGE)
PARKING SPACES (MAX)	5 STD/ 1 ADA/ 1 BIKE	4 STD/ 1 ADA/ 2 BIKE

NOTES:

1. DRY RETENTION PONDS TO HAVE MIN. 6" FREEBOARD ABOVE 100 YEAR STAGE ELEVATION OF 29.5 FT.
2. MAINTAIN SITE GRADE TO SHEET FLOW STORMWATER TO EXISTING AND PROPOSED RETENTION PONDS.
3. ALL SITE FILL TO BE SANDS TO SLIGHTLY SILTY SANDS CONTAINING NO MORE THAN 12% FINER THAN U.S. NO. 200 MESH SIEVE AND BE FREE OF ORGANICS, RUBBLE, CLAY BALLS, AND OTHER DELETERIOUS MATERIAL.
4. FILL SOILS TO BE PLACED IN THIS LEVEL LIFTS AND COMPACTED TO A DENSITY OF 95% MODIFIED PROCTOR DRY DENSITY.
5. CONTRACTOR SHALL, TO THE GREATEST EXTEND POSSIBLE, GRADE ALL IMPROVEMENTS TO RETENTION AREAS.
6. CONTRACTOR SHALL CONFIRM ALL GRADES AND DIRECTION OF RUNOFF. CONTRACTOR SHALL REMOVE AND REGRADE EXISTING ASPHALT OR CONCRETE, WHERE REQUIRED, TO ENSURE SHEET FLOW OF RUNOFF WILL OCCUR.
7. MILL & REPLACE PAVEMENT AS REQUIRED AT PAVEMENT CONNECTIONS AS TO MEET SPOT ELEVATIONS.

AREA INFORMATION	
SURFACE	AREA (SF/ACRE)
TOTAL SITE	20,000/ 0.46
ASPHALT PAVEMENT	7,017/ 0.16
BUILDINGS	4,862/ 0.11
GRAVEL/ PAVERS	104/ 0.01
GRASS	4,374/ 0.10
PONDS	3,644/ 0.08

STORMWATER POND OPERATION AND MAINTENANCE:

EACH RAINFALL EVENT:
1. PAVEMENT AREAS – CLEAN/SWEEP DEBRIS AND DIRT FROM PAVEMENT AREAS.
2. SEDIMENTS IN RETENTION/DETENTION AREAS – REMOVED IMMEDIATELY
3. DEBRIS IN RETENTION/DETENTION AREAS – ALL DEBRIS AND FOREIGN MATERIAL SHALL BE REMOVED IMMEDIATELY
4. YARD INLETS, CATCH BASINS, ETC. – ALL DEBRIS AND FOREIGN MATERIALS SHALL BE REMOVED IMMEDIATELY

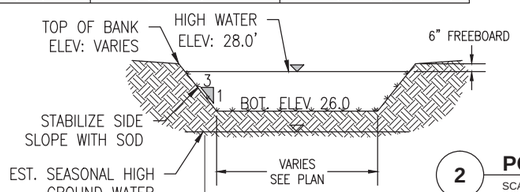
PERIODIC MAINTENANCE:
1. CLEANING/SWEEPING OF PAVEMENT AREAS SHALL BE ACCOMPLISHED WEEKLY OR AS REQUIRED.
2. MOWING AND LANDSCAPING MAINTENANCE SHOULD BE DONE ON A MONTHLY BASIS DURING THE ACTIVE GROWING SEASON FOR THIS AREA. INSPECT AND MAINTAIN AS REQUIRED DURING THE GROWING SEASON.
3. WEEDS OR UNDESIRABLE GROWTH SHALL BE REMOVED UPON DISCOVERY.
4. CATCH BASINS SHALL BE FLUSHED AS NECESSARY (IF ANY).
5. THE OWNER SHALL REGRADE SWALE/RETENTION/DETENTION AREAS AS REQUIRED TO MAINTAIN THE APPROVED DESIGN, CROSS-SECTION, LINE, AND GRADE.

INSPECTIONS:
1. INSPECT EXFILTRATION SYSTEM EVERY SIX MONTHS. IF SEDIMENT IS FOUND AT A DEPTH OF 3-INCHES OR GREATER, REMOVE IMMEDIATELY.
2. CITY PERSONNEL SHALL INSPECT THE STORMWATER MANAGEMENT FACILITIES ON AN ANNUAL BASIS OR AFTER A SIGNIFICANT STORM EVENT.
3. DEFICIENCIES FOUND DURING THESE INSPECTIONS SHALL BE CORRECTED WITHIN 30 DAYS OF NOTIFICATION BY THE CITY.

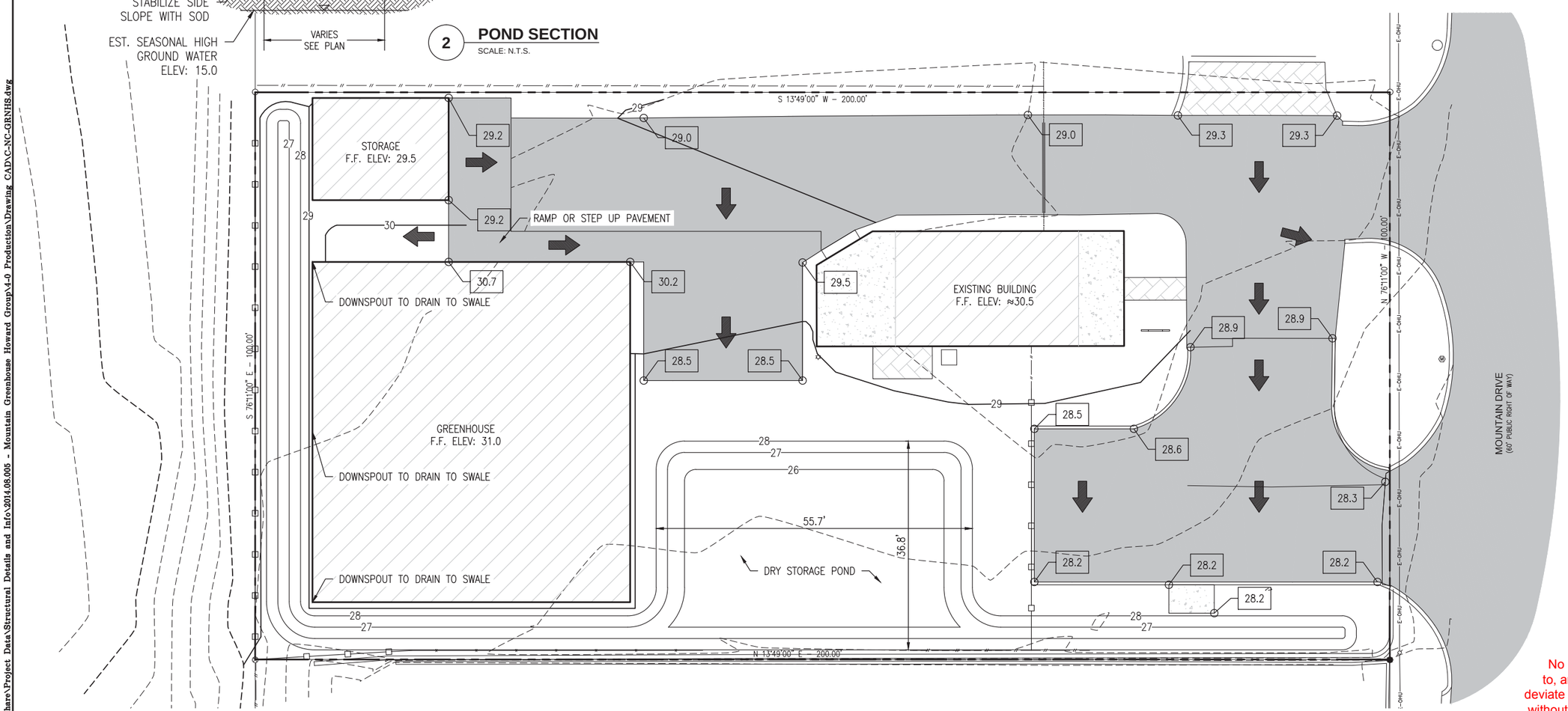
CALL BEFORE YOU DIG
SUNSHINE 1-800-432-4770

N

0 10 20
FULL SCALE: 1"=10'



2 **POND SECTION**
SCALE: N.T.S.



1 **GRADING AND DRAINAGE PLAN**
SCALE: 1" = 10'

A P P R O V E D
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.com

CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D,
DESTIN, FLORIDA

GRADING & DRAINAGE PLAN
Not valid unless bearing Engineer's embossed seal

Job No.:	2014.08.005
Date:	02/02/2015
Scale:	1" = 10'
Designed:	CLO
Drawn By:	CLO
Checked:	ELS
Sheet:	4 of 15

C-3

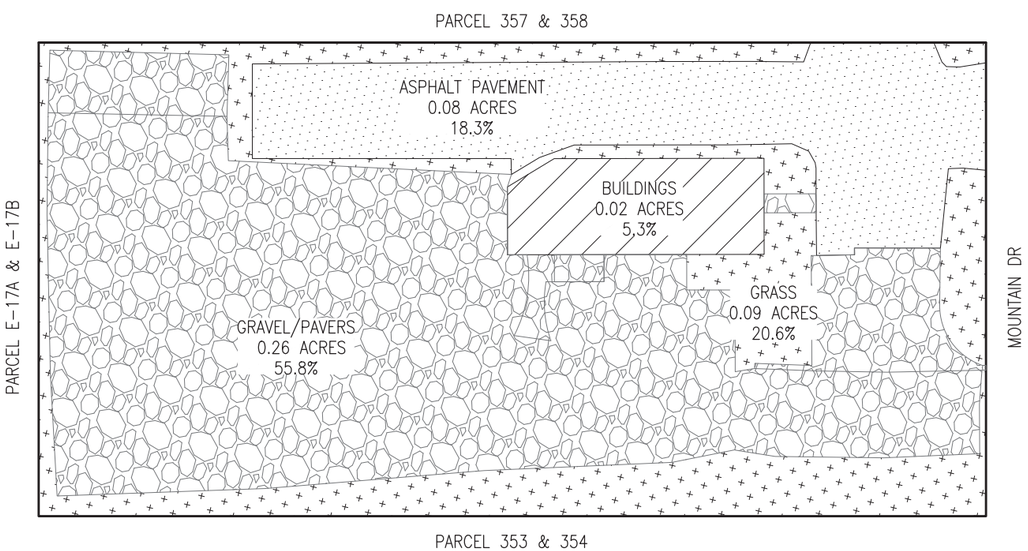
THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

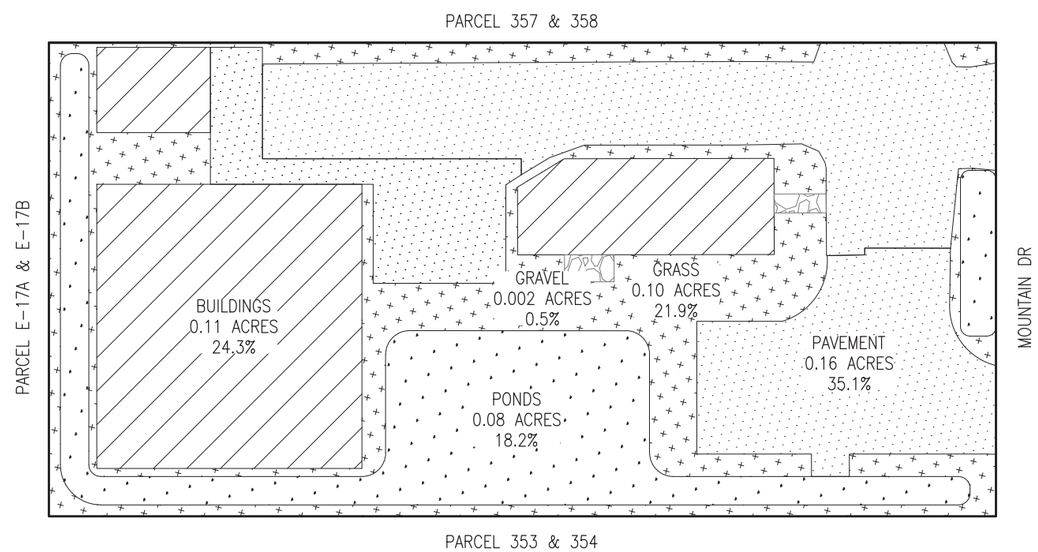
SITE DATA TABLE		
PARCEL ID(S)	00-2S-22-0310-000E-3550, 00-2S-22-0310-000E-3560	
SITE AREA	0.46 ACRES/ 20,000 SF	
FLOOD ZONE	FLOOD ZONE X	
ZONING	COMMERCIAL TRADES & SERVICES (CTS)	
EXISTING LAND USE	VACANT NURSERY	
FUTURE LAND USE	COMMERCIAL TRADES & SERVICES (CTS)	
PROPOSED USE	NURSERY (WHOLESALE)	
	REQUIRED	PROPOSED
FLOOR AREA RATIO (MAX)	1.30	0.1430
OPEN SPACE (MIN)	25%	40.1%
BUILDING HEIGHT (MAX)	35 FT	22 FT
BUILDING SETBACKS (MIN)		
FRONT	10 FT	≈47 FT
BACK	10 FT	10.1 FT
SIDE	0 FT	10.1 FT/ 1.0 FT (STORAGE)
PARKING SPACES (MAX)	5 STD/ 1 ADA/ 1 BIKE	4 STD/ 1 ADA/ 2 BIKE

PRE-DEVLOPMENT CONDITIONS BASIN			
SURFACE TYPE	AREA (ACRES)	PERCENT	RUNOFF COEFFICIENT
BUILDING	0.02	5.3%	0.95
PAVEMENT	0.08	18.3%	0.95
GRAVEL	0.26	55.8%	0.75
GRASS/ SAND	0.09	20.6%	0.30
PONDS	0.00	0.0%	1.00
PRE-DEVELOPMENT RUNOFF COEFFICIENT: 0.70			
IMPERVIOUS	0.36	79.0%	
PERVIOUS	0.09	21.0%	
PONDS	0.00	0.0%	

POST-DEVLOPMENT CONDITIONS BASIN			
SURFACE TYPE	AREA (ACRES)	PERCENT	RUNOFF COEFFICIENT
BUILDING	0.11	24.3%	0.95
PAVEMENT	0.16	35.1%	0.95
GRAVEL	0.002	0.5%	0.75
GRASS/ SAND	0.10	21.9%	0.30
PONDS	0.08	18.2%	1.00
POST-DEVELOPMENT RUNOFF COEFFICIENT: 0.82			
IMPERVIOUS	0.28	59.9%	
PERVIOUS	0.10	21.9%	
PONDS	0.08	18.2%	



1 **PRE-DEVELOPMENT BASIN MAP**
SCALE: N.T.S.



2 **POST-DEVELOPMENT BASIN MAP**
SCALE: N.T.S.

A P P R O V E D
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.com

CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D,
DESTIN, FLORIDA

PRE & POST DEVEL. BASIN MAPS

Not valid unless bearing Engineer's embossed seal

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

Job No.: 2014.08.005
Date: 02/02/2015
Scale: N.T.S.
Designed: CLO
Drawn By: CLO
Checked: ELS
Sheet: 5 of 15

C-4

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

SITE DATA TABLE		
PARCEL ID(S)	00-2S-22-0310-000E-3550, 00-2S-22-0310-000E-3560	
SITE AREA	0.46 ACRES/ 20,000 SF	
FLOOD ZONE	FLOOD ZONE X	
ZONING	COMMERCIAL TRADES & SERVICES (CTS)	
EXISTING LAND USE	VACANT NURSERY	
FUTURE LAND USE	COMMERCIAL TRADES & SERVICES (CTS)	
PROPOSED USE	NURSERY (WHOLESALE)	
	REQUIRED	PROPOSED
FLOOR AREA RATIO (MAX)	1.30	0.1430
OPEN SPACE (MIN)	25%	40.1%
BUILDING HEIGHT (MAX)	35 FT	22 FT
BUILDING SETBACKS (MIN)		
FRONT	10 FT	≈47 FT
BACK	10 FT	10.1 FT
SIDE	0 FT	10.1 FT/ 1.0 FT (STORAGE)
PARKING SPACES (MAX)	5 STD/ 1 ADA/ 1 BIKE	4 STD/ 1 ADA/ 2 BIKE

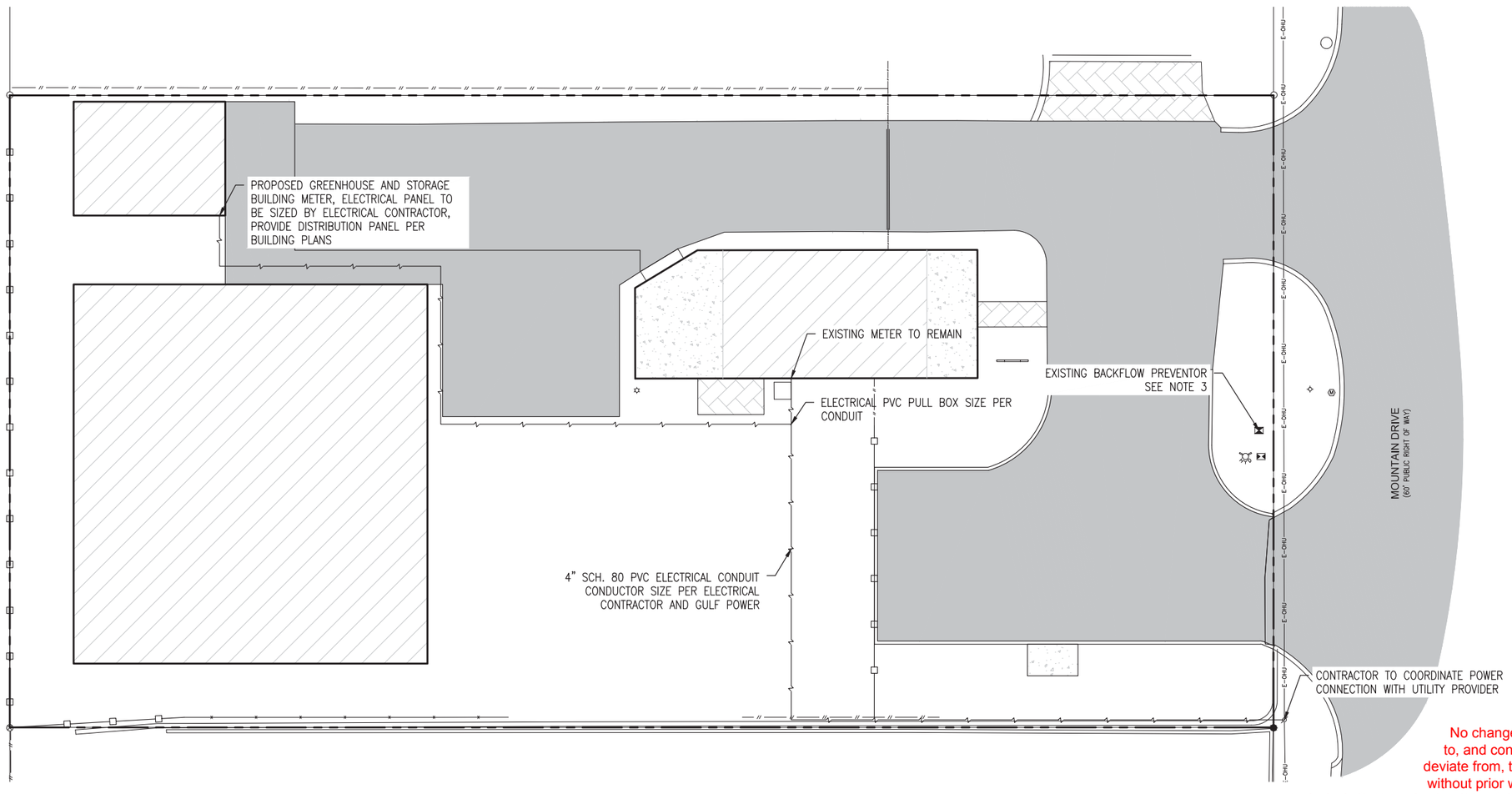
NOTES:

1. ELECTRICAL CONDUIT TO BE DIRECT BURIAL AND SHALL HAVE MIN. 3.0' COVER.
2. REFER TO LANDSCAPE AND IRRIGATION PLANS FOR LOCATION OF IRRIGATION PUMP, SPRINKLERS, AND GROUND COVERINGS.
3. EXISTING BACKFLOW PREVENTOR SHALL BE TESTED AS PER ASSE STANDARD #1015. REPLACE BACKFLOW PREVENTOR AS REQUIRED IF NOT IN COMPLIANCE.
4. EXISTING SANITARY SEWER CONNECTION SHALL BE CONNECTED TO THE EXISTING BUILDING ONLY. NO CONNECTION TO THE DISCHARGE OF IRRIGATION WATER WILL BE ALLOWED.

CALL BEFORE YOU DIG
SUNSHINE 1-800-432-4770

N

0 10 20
FULL SCALE: 1"=10'



1 **UTILITY PLAN**
SCALE: 1" = 10'

A P P R O V E D
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.com
CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D, DESTIN, FLORIDA

UTILITY PLAN

Not valid unless bearing Engineer's embossed seal

Job No.: 2014.08.005
Date: 02/02/2015
Scale: 1" = 10'
Designed: CLO
Drawn By: CLO
Checked: ELS
Sheet: 6 of 15

C-5

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

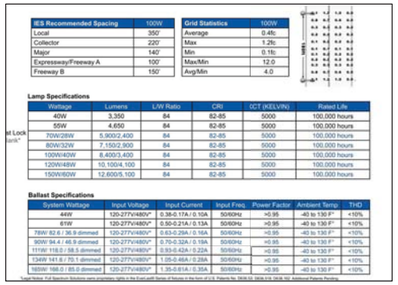
SITE DATA TABLE		
PARCEL ID(S)	00-2S-22-0310-000E-3550, 00-2S-22-0310-000E-3560	
SITE AREA	0.46 ACRES/ 20,000 SF	
FLOOD ZONE	FLOOD ZONE X	
ZONING	COMMERCIAL TRADES & SERVICES (CTS)	
EXISTING LAND USE	VACANT NURSERY	
FUTURE LAND USE	COMMERCIAL TRADES & SERVICES (CTS)	
PROPOSED USE	NURSERY (WHOLESALE)	
	REQUIRED	PROPOSED
FLOOR AREA RATIO (MAX)	1.30	0.1430
OPEN SPACE (MIN)	25%	40.1%
BUILDING HEIGHT (MAX)	35 FT	22 FT
BUILDING SETBACKS (MIN)		
FRONT	10 FT	≈47 FT
BACK	10 FT	10.1 FT
SIDE	0 FT	10.1 FT/ 1.0 FT (STORAGE)
PARKING SPACES (MAX)	5 STD/ 1 ADA/ 1 BIKE	4 STD/ 1 ADA/ 2 BIKE

GENERAL PHOTOMETRIC SCHEDULE

AVERAGE FOOTCANDLES	1.44
MAXIMUM FOOTCANDLES	20.1
MINIMUM FOOTCANDLES	0.0
MINIMUM TO MAXIMUM FC RATIO	0.00
FOR EVALULATION USE ONLY	20.15 / 0.00
AVERAGE TO MINIMUM FC RATIO	1.44 / 0.00

IES Recommended Spacing	100W
Local	350'
Collector	220'
Major	140'
Expressway/Freeway A	100'
Freeway B	150'

Grid Statistics	100W
Average	0.4ft.
Max	1.2ft.
Min	0.1ft.
Max/Min	12.0
Avg/Min	4.0



Lamp Specifications

Wattage	Lumens	L/W Ratio	CRI	CCT (KELVIN)	Rated Life
40W	3,350	84	82-85	5000	100,000 hours
55W	4,650	84	82-85	5000	100,000 hours
70W/26W	5,900/2,400	84	82-85	5000	100,000 hours
80W/32W	7,150/2,900	84	82-85	5000	100,000 hours
100W/40W	8,400/3,400	84	82-85	5000	100,000 hours
120W/48W	10,100/4,100	84	82-85	5000	100,000 hours
150W/60W	12,600/5,100	84	82-85	5000	100,000 hours

Ballast Specifications

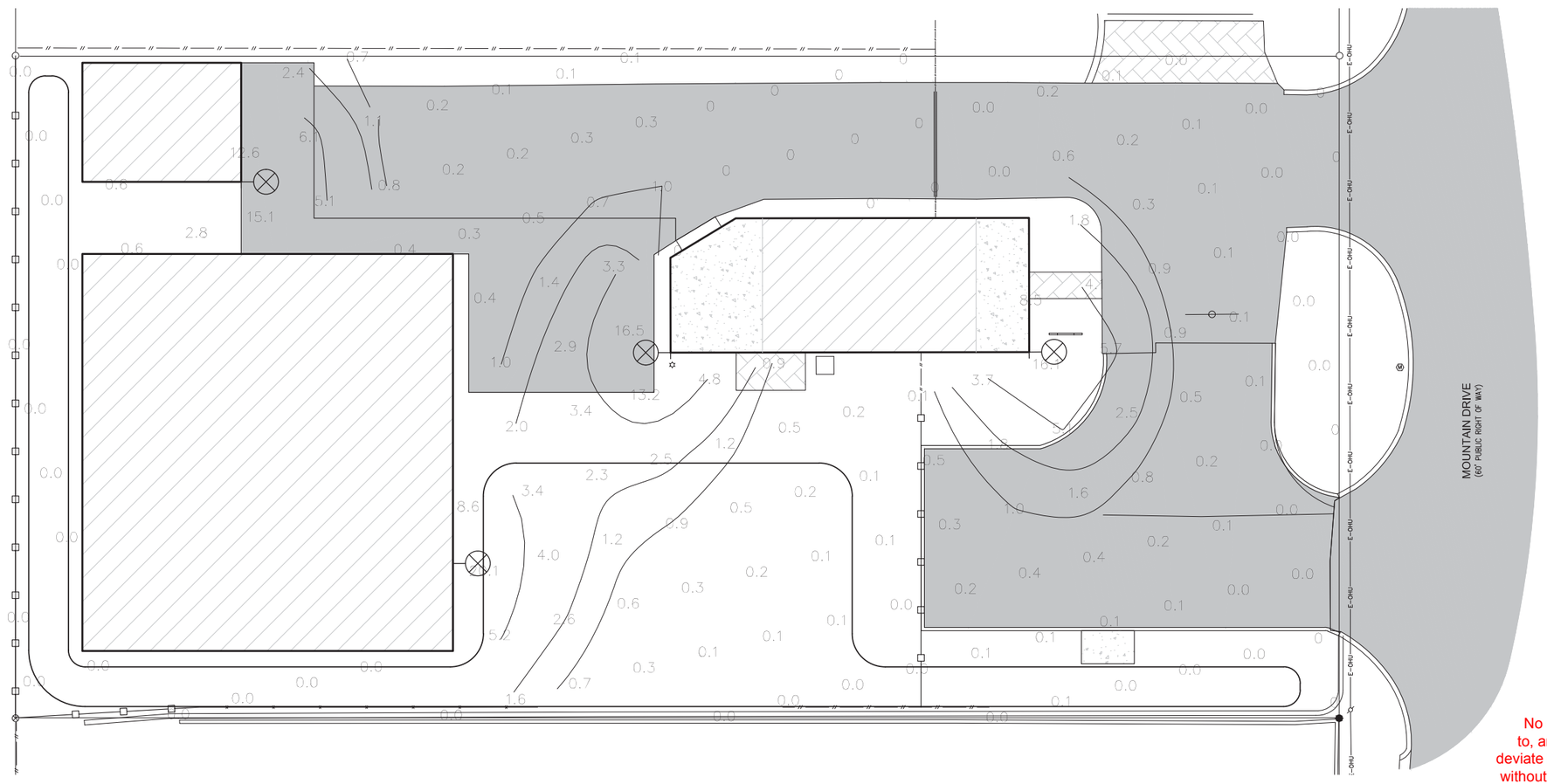
System Wattage	Input Voltage	Input Current	Input Freq.	Power Factor	Ambient Temp	THD
44W	120-277V/480V*	0.38-0.17A / 0.10A	50/60Hz	>0.95	-40 to 130 F°	<10%
61W	120-277V/480V*	0.50-0.21A / 0.13A	50/60Hz	>0.95	-40 to 130 F°	<10%
78W/ 82.6 / 36.9-dimmed	120-277V/480V*	0.63-0.29A / 0.16A	50/60Hz	>0.95	-40 to 130 F°	<10%
90W/ 94.4 / 46.9-dimmed	120-277V/480V*	0.70-0.32A / 0.19A	50/60Hz	>0.95	-40 to 130 F°	<10%
111W/ 118.0 / 58.5-dimmed	120-277V/480V*	0.93-0.42A / 0.22A	50/60Hz	>0.95	-40 to 130 F°	<10%
134W/ 141.6 / 70.1-dimmed	120-277V/480V*	1.05-0.46A / 0.28A	50/60Hz	>0.95	-40 to 130 F°	<10%
165W/ 168.0 / 85.0-dimmed	120-277V/480V*	1.35-0.61A / 0.35A	50/60Hz	>0.95	-40 to 130 F°	<10%

*Legal Notice: Full Spectrum Solutions owns proprietary rights in the Kind Light® Series of fixtures in the form of U.S. Patents No. D616,512, D636,518, D638,162 Additional Patents Pending.

LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	NOT FOR PRODUCTION USE	NOTE 1	NOTE 2	NOTE 3	QUANTITY
Everlast		(1) INDUCTION	GRAY POLYMERIC HOUSING WITH CLEAR ACRYLIC DROP LENS ANDINTERNAL SPECULAR REFLECTOR	ELECTRONIC	SURFACE	Full Spectrum, 100w Cobra	FOR EVALULATION USE ONLY	ONE 100 WATT INDUCTION LAMP	FULL SPECTRUM SOLUTIONS INC. EB-100W	.L.P.-LexaLite 09/04/09	4

Luminaire Schedule



1 **SITE LIGHTING PLAN**
SCALE: 1" = 10'

A P P R O V E D
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

CALL BEFORE YOU DIG
SUNSHINE 1-800-432-4770

N

0 10 20
FULL SCALE: 1"=10'

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.COM

CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865
Not valid unless bearing Engineer's embossed seal

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D,
DESTIN, FLORIDA

SITE LIGHTING PLAN

Job No.:	2014.08.005
Date:	02/02/2015
Scale:	1" = 10'
Designed:	CLO
Drawn By:	CLO
Checked:	ELS
Sheet:	7 of 15

C-6

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

SITE DATA TABLE		
PARCEL ID(S)	00-2S-22-0310-000E-3550, 00-2S-22-0310-000E-3560	
SITE AREA	0.46 ACRES/ 20,000 SF	
FLOOD ZONE	FLOOD ZONE X	
ZONING	COMMERCIAL TRADES & SERVICES (CTS)	
EXISTING LAND USE	VACANT NURSERY	
FUTURE LAND USE	COMMERCIAL TRADES & SERVICES (CTS)	
PROPOSED USE	NURSERY (WHOLESALE)	
	REQUIRED	PROPOSED
FLOOR AREA RATIO (MAX)	1.30	0.1430
OPEN SPACE (MIN)	25%	40.1%
BUILDING HEIGHT (MAX)	35 FT	22 FT
BUILDING SETBACKS (MIN)		
FRONT	10 FT	≈47 FT
BACK	10 FT	10.1 FT
SIDE	0 FT	10.1 FT/ 1.0 FT (STORAGE)
PARKING SPACES (MAX)	5 STD/ 1 ADA/ 1 BIKE	4 STD/ 1 ADA/ 2 BIKE

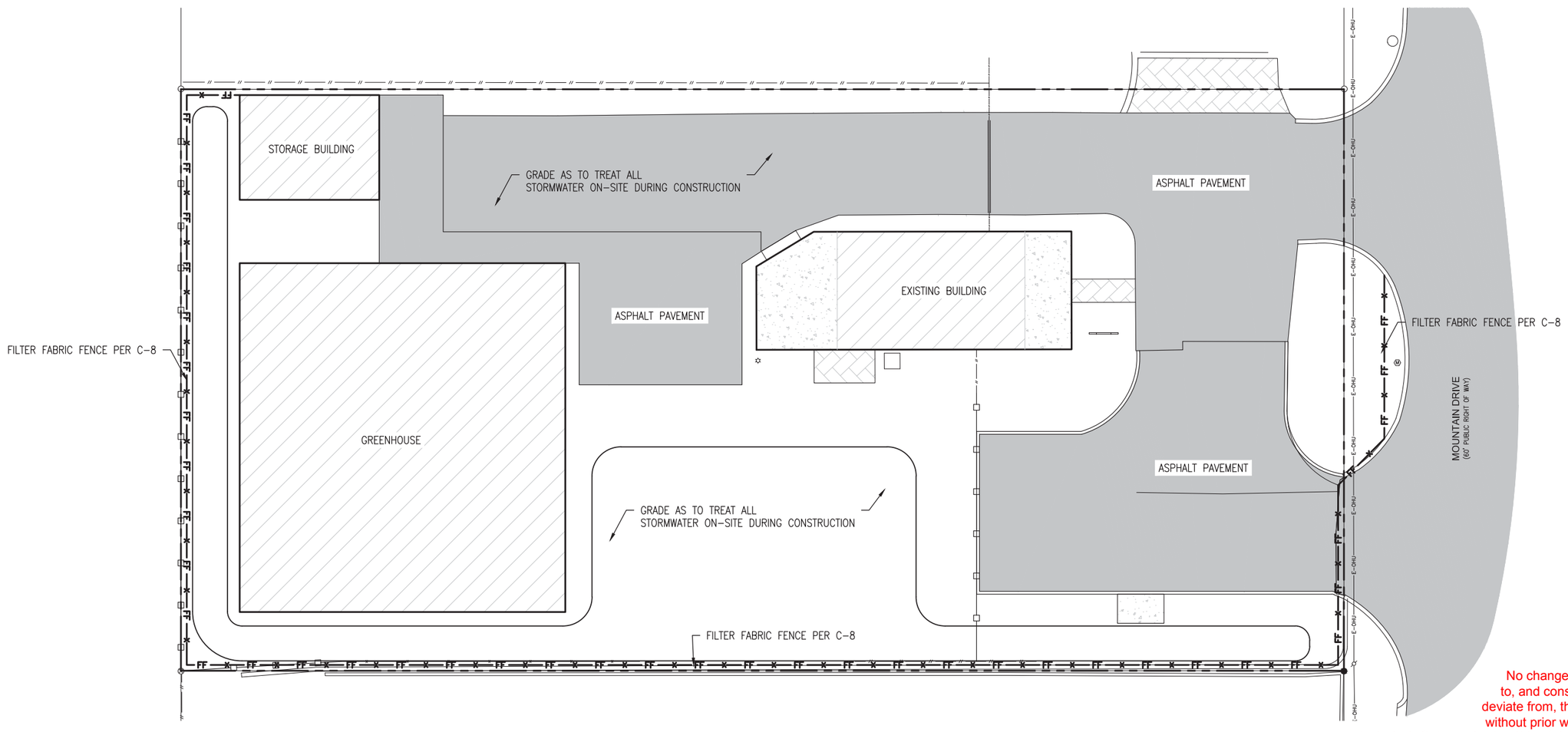
NOTES:

1. TEMPORARY SITE FENCE SHALL MEET ALL REQUIREMENTS IN DESCRIBED IN CITY OF DESTIN LAND DEVELOPMENT CODES.
2. CONTRACTOR SHALL INSTALL FILTER CLOTH AT ALL INLETS UNTIL COMPLETION OF PAVING.
3. CONTROL MEASURES SHALL COMPLY WITH MANAGEMENT PRACTICED CONTAINED THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION'S FLORIDA DEVELOPMENT MANUAL.
4. LIMIT OFF SITE RUNOFF BY COVERING ALL TRUCKS IN ACCORDANCE WITH STATE REQUIREMENTS. SITE WILL BE MONITORED DAILY AND R.O.W. CLEARED OF ANY DEBRIS ON AN AS-NEEDED BASIS DURING CONSTRUCTION.
5. UTILIZE ON-SITE WATER TO WASH OFF TRUCKS PRIOR TO LEAVING SITE.
6. FOLLOWING FINAL GRADING OF OPEN AREAS, ALL DISTURBED AREAS TO BE SODDED.
7. FOLLOWING COMPLETION OF SITE GRADING, THE STORMWATER SYSTEM SHALL BE MAINTAINED SO THAT RECOVERY RATES, DISCHARGE QUANTITY, AND QUALITY STANDARDS REMAIN AS DESIGNED.

CALL BEFORE YOU DIG
SUNSHINE 1-800-432-4770

N

0 10 20
FULL SCALE: 1"=10'



1 **EROSION CONTROL PLAN**
SCALE: 1" = 10'

APPROVED
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.com
CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D, DESTIN, FLORIDA

EROSION CONTROL PLAN

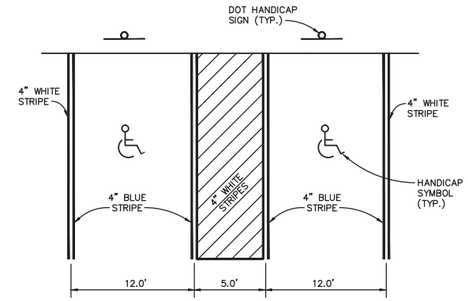
Not valid unless bearing Engineer's embossed seal

Job No.: 2014.08.005
Date: 02/02/2015
Scale: 1" = 10'
Designed: CLO
Drawn By: CLO
Checked: ELS
Sheet: 8 of 15

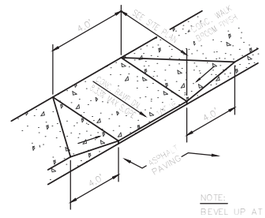
C-7

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

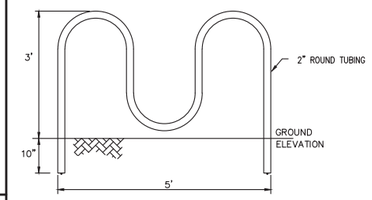
\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NG-GRNHS.dwg



HANDICAP AREA STRIPING DETAIL
N.T.S.



HANDICAP RAMP DETAIL
NTS



TUBULAR BICYCLE RACK (GALV.)
N.T.S.

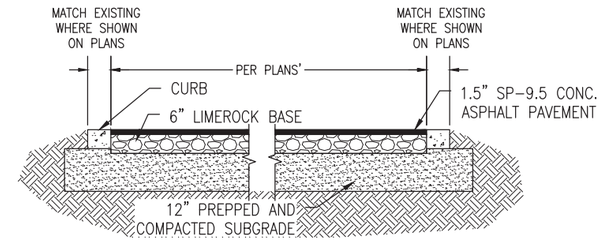
NOTE
BICYCLE PARKING SPACES SHALL BE AT LEAST ONE FOOT BY SIX FEET. AN ACCESS AISLE OF AT LEAST FIVE FEET SHALL BE PROVIDED IN EACH BICYCLE PARKING FACILITY AND MAY BE COLLOCATED WITH THE SIDEWALK. SUCH BICYCLE PARKING SPACES SHALL HAVE A VERTICAL CLEARANCE OF AT LEAST SIX FEET.

BICYCLE PARKING FACILITIES SHALL BE SECURELY ANCHORED TO THE LOT SURFACE SO THEY CANNOT BE EASILY REMOVED AND SHALL BE OF SUFFICIENT STRENGTH TO RESIST VANDALISM AND THEFT.

BICYCLE PARKING FACILITIES SHALL SUPPORT BICYCLES IN A STABLE POSITION WITHOUT DAMAGE TO WHEELS, FRAME OR OTHER COMPONENTS. BICYCLE RACKS MUST BE EASILY USABLE WITH BOTH U-LOCKS AND CABLE LOCKS. RACKS SHOULD SUPPORT THE BIKES IN A STABLE UPRIGHT POSITION SO THAT A BIKE, IF BUMPED, WILL NOT FALL OR ROLL DOWN. RACKS THAT SUPPORT A BIKE PRIMARILY BY A WHEEL, SUCH AS STANDARD 'WIRE RACKS' ARE DAMAGING TO WHEELS AND THUS ARE NOT ACCEPTABLE.

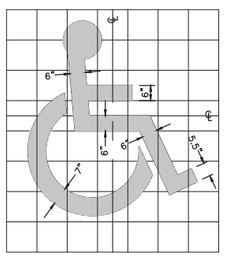
PAVING IS NOT REQUIRED, BUT THE OUTSIDE GROUND SURFACE SHALL BE FINISHED OR PLANTED IN A WAY THAT AVOIDS MUD AND DUST.

BICYCLE PARKING FACILITIES WITHIN VEHICLE PARKING AREAS SHALL BE SEPARATED BY A PHYSICAL BARRIER TO PROTECT BICYCLES FROM DAMAGE BY CARS, SUCH AS CURBS, WHEEL STOPS, POLES OR OTHER SIMILAR FEATURES.



NOTES:
1. FILL SOILS TO BE SANDS CONTAINING NO MORE THAN 12% FINER THAN NO. 200 MESH SIEVE.
2. FILL TO BE FREE OF ORGANICS, RUBBLE, CLAY BALLS, AND OTHER DELETERIOUS MATERIALS
3. PLACE FILL IN LEVEL LIFTS COMPACTED TO A 95% DENSITY OF THE MODIFIED PROCTOR AASHTO T-180 MAX. DRY DENSITY FULL DEPTH.
4. SUBGRADE PREPARATION TO EXTEND MIN. 3 FT BEYOND EDGE OF PAVEMENT.
5. ALL MATERIALS TO BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF LATEST ADDITION FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

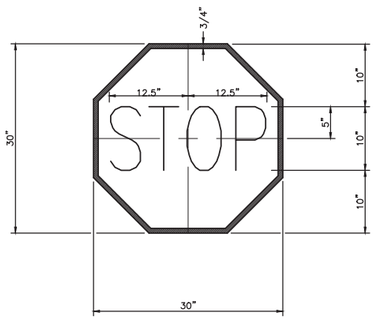
1-1/2" ASPHALT PAVEMENT DETAIL
N.T.S.



COLOR CONTRAST
CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUNDS – EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTERS ON A LIGHT BACKGROUND.

HANDICAP SYMBOL DETAIL
N.T.S.

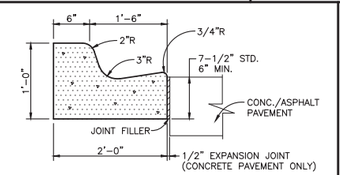
SYMBOL SHALL BE PAINTED BLUE AND TO THE DIMENSIONS SHOWN



STOP SIGN DETAIL
N.T.S.

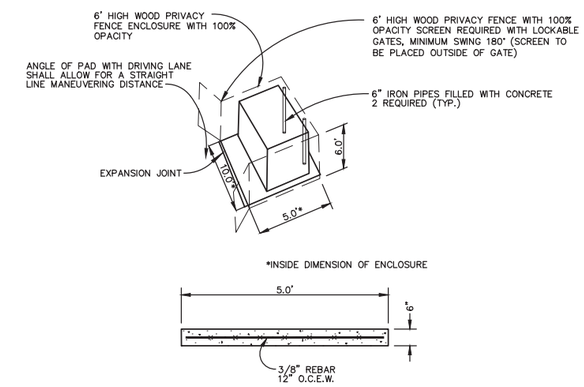
NOTE:

SIGN DESIGNATION:	R1-1	(REFL.)
RELECTORIZATION:	LEGEND, BORDER	(REFL.)
	BACKGROUND	
SIGN COLORS:	LEGEND, BORDER	(WHITE)
	BACKGROUND	(RED)

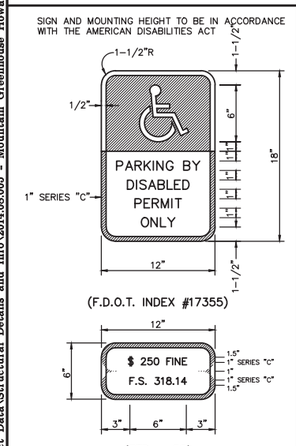


TYPE-F CONCRETE CURB AND GUTTER DETAIL
N.T.S.

WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT AND THE THICKNESS OF THE LIP SHALL BE 6" MIN., UNLESS OTHERWISE SHOWN ON PLANS. EXPANSION JOINT, PREFORMED JOINT FILLER AND JOINT SEAL ARE REQUIRED BETWEEN CURB AND CONCRETE PAVEMENT OR CONCRETE STRUCTURES.

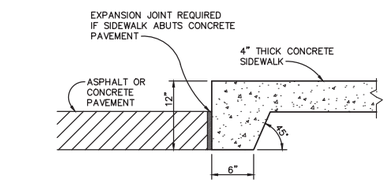


2 YARD BIN DUMPSTER PAD AND ENCLOSURE DETAIL
N.T.S.



THIS PANEL SHALL BE INSTALLED UNDER THE FTP-25 OR FTP-26 HANDICAP PARKING SIGN.

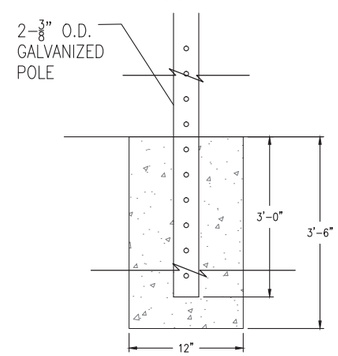
HANDICAP SIGN DETAIL
(F.D.O.T. INDEX No. 17355)
N.T.S.



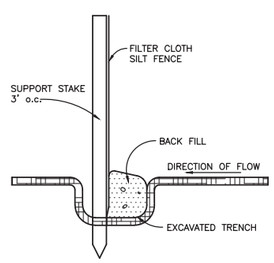
SIDEWALK THICKENED EDGE DETAIL
N.T.S.

THICKENED EDGE SIDEWALK SHALL BE INSTALLED WHEN SIDEWALK ABUTS PAVED PARKING AREA OR STREETS.

SIGN AND MOUNTING HEIGHT TO BE IN ACCORDANCE WITH LATEST FDOT SPECIFICATIONS, LOCAL CODES, OR AMERICAN DISABILITIES ACT.



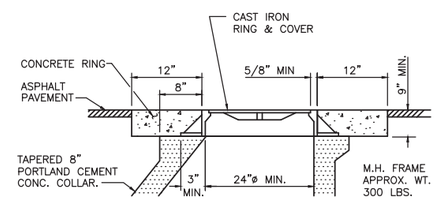
SIGN POST DETAIL



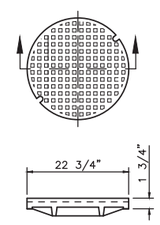
NOTE:
SILT FENCE TO BE CONSTRUCTED AND MAINTAINED AROUND ALL INLETS; ALSO ACROSS DRAINAGE COURSE AT EDGE OF SITE AND AT 150' INTERVALS.

SILT FENCE DETAIL
N.T.S.

EROSION NOTES:
1. EROSION PROTECTION: SOIL EROSION SEDIMENTATION MUST BE CONTROLLED AND RETAINED ON SITE DURING CONSTRUCTION. THEREFORE, EROSION PROTECTION, SUCH AS STAKED BALED HAY AND SILT FENCE BARRIERS, MUST BE INSTALLED PRIOR TO START OF CONSTRUCTION.
2. SILT FENCE BARRIER SHALL BE INSTALLED AS SHOWN ON PLANS, AND IN ALL AREAS SUBJECT TO SOIL EROSION SEDIMENTATION.
3. STORMWATER DETENTION AREAS SHALL BE SODDED.
4. GRADES AT CURBS ARE AT FLOWLINE.



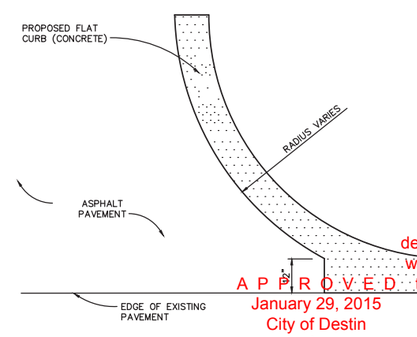
MANHOLE IN PAVED AREA



SOLID– INDENTED

APPROX. WEIGHT 150 LBS.

M.H. COVER



CURB TRANSITION DETAIL
N.T.S.

APPROVED
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.com

CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 855 AND 856, BLOCK E, CALHOUN S/D, DESTIN, FLORIDA

CONSTRUCTION DETAILS

Not valid unless bearing Engineer's embossed seal

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

Job No.:	2014.08.005
Date:	02/02/2015
Scale:	N.T.S.
Designed:	CLO
Drawn By:	CLO
Checked:	ELS
Sheet:	9 of 15

C-8

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

SPECIFICATION: CLEARING AND GRUBBING

All site Clearing and Grubbing shall be in accordance with section 110 of the "Florida Department of Transportation Specifications for Road and Bridge Construction" unless modified herein. This work shall be performed in the following areas:

A. All street rights-of-way.
B. All areas where excavation or embankment are to take place.
C. Detention areas.

In addition, certain other areas where underground utilities are to be installed are to be cleared and grubbed to the extent necessary to properly install the utilities. Such work shall be incidental to the contract unit price for the utility to be installed.

SCOPE: Site clearing work includes, but is not limited to:

A. Removal of trees and other vegetation.
B. Topsoil stripping.
C. Clearing and Grubbing.
D. Removing above grade improvements.
E. Removing below grade improvements.

JOB CONDITIONS:

Traffic:
Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from the Owners and or Local approving authority.

Clearing and Protection in Construction Areas:
Preserve trees 6 inches or larger measured breast height (6" dbh) where possible within construction areas.

Protection of Existing Improvements:
Provide protection necessary to prevent damage to existing improvements indicated to remain in place.

Protect improvements on adjoining properties and on project site.

Restore damaged improvements to original condition as acceptable to the Owner.

LIMITATIONS:

Clearing will be limited to the extent necessary to allow for construction of the proposed improvements as a result of:

A. Need for access to the project site for construction equipment.
B. Essential grade changes.
C. Surface water drainage and utility installation.
D. Location of driveways, buildings, and required parking.

CLEARING AND GRUBBING:

Remove trees, shrubs, grass, other vegetation, improvements, or obstructions interfering with the installation of new construction. Removal includes digging out stumps and roots. Do not remove items elsewhere on site or premises unless specifically indicated. Disposal of trees, limbs, stumps, and debris shall be the responsibility of the Contractor.

Strip topsoil to whatever depths encountered to prevent intermingling with underlying subsoil or other objectionable material. Cut heavy growths of grass from areas before stripping.

Stockpile topsoil in storage piles in areas shown or where directed by the Owner. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent windblown dust.

Dispose of unsuitable or excess topsoil same as specified for waste material.

FILLING:

Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

Place fill material in horizontal layers not exceeding 6" loose depth, and thoroughly compact to density equal to adjacent ground, unless otherwise shown on the plans.

REMOVAL OF IMPROVEMENTS:

Remove existing above and below grade improvements and abandoned underground piping or conduit necessary to permit construction and other work.

DISPOSAL OF WASTE MATERIALS:

No burning of any material, debris, or trash will be allowed.

Remove waste materials from the project site on a daily basis and dispose of off-site in an approved area.

SPECIFICATION: EXCAVATION AND PAVING

Excavation, Embankment and Subgrade: All excavation and embankment shall be performed in accordance with Section 120 of the Florida D.O.T. Specifications. All subgrade fill material, and the top 12 inches in cut area, shall be compacted to 100 percent of maximum density as determined by AASHTO T-99. The subgrade compaction (stabilization) shall conform to Section 160 of the Florida D.O.T. Specifications. In most cases this will consist of compacting existing cleaned soil. However, it is the Contractor's responsibility to assure that the finished roadbed section meets bearing value requirements, regardless of the quantity of stabilizing materials to be added. One field density test shall be taken for each 5000 square feet or fraction thereof.

Where required subgrade density cannot be obtained, unsuitable material shall be removed so that the road base will be constructed on a minimum of 3 feet of suitable, properly compacted material. This work shall be included in the contract lump sum price for earth excavation.

Soil-Cement Base Course: As a minimum the soil cement base course will conform generally to Section 270 of the Florida D.O.T. Specifications for Road and Bridge Construction. The detailed specifications of the soil cement base course are to be determined by an independent testing laboratory after testing of the material the Contractor proposes to use. Moisture and cement content will be specified by the laboratory. However, as a guide for bid purposes, estimate 12% cement by weight and include a price reduction schedule if tests show less cement is required. The soil cement mix will be at optimum moisture content, i.e., neither mushy nor dry, but containing sufficient moisture to make a firm case when squeezed in the hand. Water should not appear on the hand when so squeezed. This requires 5 to 6 gallons per square yard but actual quantity of water to be added will depend on latent moisture in the base material. From a practical standpoint the highest moisture content should be maintained that permits packing and finishing without surface checking, shoving or rutting during compaction and finishing operations.

The freshly compacted and finished soil-cement mix must be adequately cured. An application of bituminous material such as RC-2, MC-3, RT-5 or asphaltic emulsion at the rate of 0.15 to 0.20 gallon per square yard is preferred as the curing medium. Waterproof paper of moist hay is acceptable if properly maintained. Competent inspection is required.

Sand-Clay Base Course shall comply with the requirements of Sections 240 and 912 of the Florida D.O.T. Specifications. Tests necessary to determine compliance with Section 912 shall be performed prior to placing the material on the roadbed. These tests include:

1. Clay and Silt Content
2. Limerock Bearing Ratio Value
3. Liquid Limit and Plastic Index

The results of these tests shall be submitted to the Engineer for approval. After approval of the material, the sand-clay base course shall be placed in accordance with Section 240. The base course shall be compacted to not less than 98 percent of the maximum density as determined by AASHTO T-180. One density test shall be taken for each 5000 square feet or fraction thereof.

Note: Sand-clay base material shall not be used in areas where the seasonal high groundwater table is within two (2) feet of the bottom of the base material.

CONTINUED ON NEXT COLUMN

Dolomite Base Course: shall be constructed in accordance with Section 200 of the Florida D.O.T. Specifications for Road and Bridge Construction. The material shall meet the requirements of Section 911 of the specifications. Tests necessary to determine compliance with Section 911 shall be performed prior to placing the material on the subgrade. These tests include:

Test	Requirement
1. Liquid Limit	Less than 35
2. Plastic Index	Non-Plastic
3. Gradation	97% passing 3.5 inch sleeve
4. Limerock Bearing Ratio	Not less than 100

The results of these tests shall be submitted to the Engineer for approval. After approval of the material, the dolomite base course shall be placed in accordance with Section 200. The base course shall be compacted to not lees than 98 percent of the maximum density as determined by AASHTO T-180. A minimum of three density tests shall be made on each day's compaction operation. More frequent tests shall be made as deemed necessary by the Engineer. The base shall be installed to a compacted thickness as shown on the plans, plus or minus one half inch. Deviations from this specifications shall be corrected as indicated in the State Specifications.

Graded Aggregate Base Course shall comply with the requirements of Section 204 of the Florida D.O.T. Specifications. Tests necessary to determine compliance with Section 204 shall be performed prior to placing the material. These tests include:

1. Soundness Loss, Sodium Sulfate: AASHTO T-104
2. Percent Wear: AASHTO T-96 (grading A)
3. Sieve Analysis
4. Limerock Bearing Ratio Value

The results of these tests shall be submitted to the Engineer for approval. After the approval of the material, the graded aggregate base course shall be placed in accordance with Section 204. The base course shall be compacted to a density of not less than 100 percent of the maximum density as determined by AASHTO T-180. At least three density tests shall be made on each day's final compaction operation of each course, and the density determinations shall be made at more frequent intervals if deemed necessary by the Engineer.

Asphalt Base Course shall comply with the requirements of Sections 280, 330, 331 and 916 of the Florida D.O.T. Specifications. The design mix for Asphaltic Base Course Type 3 shall conform to the requirements in Tables 331-1 and 331-2. The Minimum Marshall stability shall be 1000 lbs./sq. inch as indicated in Table 331-2. Percent bitumen by weight of total mix: 5.0 (minimum). Two copies each of the actual design mix shall be submitted to the Engineer. Written approval of the asphalt base course design mix must be submitted from the Engineer prior to commencing base course construction. Once the design mix has been approved by the Engineer, sieve analysis tolerances indicated in Table 331-5 are allowable during construction. If sieve analysis values fall outside these tolerances, design mix must be resubmitted for acceptance. After the approval of the mix design, the asphalt base course shall be placed in accordance with Section 280 and compacted in accordance with Section 330-10.

Asphaltic Concrete Surface Course shall be the type and thickness shown on the plans. Type II Asphalt shall comply with the requirements of Section 332 of the Florida D.O.T. Specifications. Type S-1 Asphalt shall comply with the requirements of Section 331. The type specified shall be placed and compacted as required by Section 330. In addition to these sections, the Contractor shall submit a Job Mix Formula for the mixture to be used, showing the percentages and types of aggregate to be used, sieve analysis of blended aggregate, and percent bitumen. Tests shall be performed every 400 linear feet to determine the gradation, bitumen content and stability of the mixture. A coring shall be taken for each 3000 square feet of pavement surface to determine thickness and density of the compacted mixture.

Portland Cement Concrete Pavement: The Portland Cement concrete pavement and curbs specified on the plans shall be constructed in one course, on a prepared subgrade, in accordance with the Florida D.O.T. Standard Specifications for Road and Bridge Construction, Sections 345 and 350, and shall be in reasonably close conformity with the lines, grades, dimensions, and notes shown in the plans. Compressive strength shall be 3000 psi as specified in Section 345.6 of D.O.T. Specifications.

Testing of Materials shall be performed by an independent testing laboratory under the direction of a licensed Engineer. The laboratory shall comply with the requirements of ASTM E-329 as applicable to the project requirements. All costs of testing required above shall be the Contractor's expense unless otherwise specified.

Note: Stormwater drainage shall be controlled during all phases of construction.

SPECIFICATION: STORM SEWER SYSTEM

1. The Contractor shall provide and install all storm sewer material shown on the drawings and in this specification. In addition, he shall obtain all permits and conduct all tests required by local, state and federal authorities and as specified on these drawings.

2. Materials: All materials and equipment incorporated in the work shall be new, clean and free of visual defects unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All work not conforming to these requirements may be considered defective.

A. Corrugated Polyethylene Pipe:
1. Shall comply with section 948 of the latest edition "Florida Department of Transportation Specifications for Road and Bridge Construction" unless modified herein. Pipes 12 inches to 24 inches in diameter shall comply with ASTM F-405 and ASTM F-667. Joints shall be by means of dimpled band. If used outside of dry wells, joints shall be wrapped in filtercloth 2 feet in width and with 2 feet of overlap on the diameter. This pipe, in the perforated form, shall be used inside dry wells. It may be used outside dry wells only when used with a filter sock. Perforations shall be 1/4 inch diameter and spaced 10 inches on center in the valley of the corrugations.

B. Polyvinyl-Chloride Pipe:
1. Shall comply with Section 948 of the latest edition Florida Department of Transportation Specifications for Road and Bridge Construction" unless modified herein. Polyvinyl-chloride pipe shall meet the requirements of ASTM D-3034, SDR-35, or ASTM F-949, profile wall without perforations. Polyvinyl-chloride pipe for use as underdrain shall conform to the requirements of ASTM F-758 or ASTM F-949. Also, PVC underdrain manufactured from PVC pipe meeting ASTM D-3033 or ASTM D-3034, perforated in accordance with the perforation requirements given in AASHTO M-36, or AASHTO M-196 will be permitted.

C. Reinforced Concrete Pipe:
1. Comply with requirements of ASTM C-76, Class III, unless otherwise indicated on drawings, and install with rubber gasketed joints complying with ASTM C-443. Install rubber gaskets in strict accordance with pipe manufacturer's recommendations.

D. Manholes:
1. Precast reinforced concrete manhole sections shall conform to ASTM Specifications C-478. Construct manholes of precast concrete sections as required by drawings to size, shape and depth indicated, but never less than 4'-0" inside diameter. All joints for precast sections shall be approved by the Engineer.

E. Inlets/Catch Basins
1. Precast reinforced concrete inlets/catch basins sections shall conform to ASTM Specification C-478. Construct inlets/catch basins of precast concrete construction as required by drawings to size, shape and depth indicated.

F. Main and Lateral Pipes:
1. Neatly cut off main and lateral pipes flush with inside of manhole or inlet where they enter structure walls. Dress all irregularities and rough edges with nonshrinking grout (inside and outside).
a. Where pipes enter or exit manholes, a "Kor-N-Seal" molded neoprene boot with stainless steel internal and external bands as manufactured by the National Pollution Control Systems, Inc., Nashua, New Hampshire, or a polyurethane joint with a short transition joint as manufactured by Moorform Corporation, Centralia, Illinois, or an approved equal (or superior) connection shall be provided.

CONTINUED ON NEXT COLUMN

G. Cast-Iron Frames, Covers and Grates:
1. After completion of manhole inlet, set cast iron frame in full mortar bed after adjusting to required elevation. Cast iron frames and covers shall conform to the drawings in all essentials of design. All castings shall be made of clean, even grain, tough gray cast iron. The quality of iron in the castings shall conform to the current ASTM Specification A-48 for Class 20 gray iron castings. The weight of castings shall be as shown in the plans. Castings shall be smooth, true to pattern, and free from projections, sand, holes, or defects. A raised word "STORM SEWER" shall be cast on the upper non-skid surface of all manhole covers. The portion of the frame and cover which forms the cover seat shall be machined so that no rocking of the cover is possible. The castings shall be coated with coal-tar pitch varnish. On roadways the frame and cover shall be set flush with and in the plane of the surface. In other locations, they shall be set to grades determined by the Engineer. The frame and cover shall be heavy duty traffic bearing.

H. Plastic Filter Fabric:
1. Plastic Filter Fabric shall be the non-woven type and shall comply with Sections 514 and 985 of the latest edition Florida Department of Transportation Specifications for Road and Bridge Construction unless modified herein.

I. Concrete:
1. Concrete shall comply with Section 345 of the latest Florida Department of Transportation Specifications for Road and Bridge Construction unless modified herein. Minimum compressive strength at 28 days shall be 4000 psi.

J. Detention Areas and Grassy Swales:
1. Swales must be landscaped with seeding, sodding or sprigging, which does not inhibit the infiltration rate of the soil. Engineer requires 48 hours notice prior to landscaping of infiltration areas to make appropriate inspections.
2. The system will require periodic maintenance for continued proper operation. This will include, as a minimum: A) removal of silt debris from surface infiltration areas and catch basins, and B) maintenance of vegetative cover in surface infiltration areas.

K. Stormwater Drywells:
1. Drywells shall be constructed to the dimensions as detailed in the plans. The washed granular material shall have a void ratio of not less than 0.4 and the gradation shall conform to Section 901 of the latest edition Florida Department of Transportation Specifications for Road and Bridge Construction. The dry well shall be completely wrapped in woven (as opposed to spun) filter cloth with a minimum 2 feet of overlay at field joints. The dry well shall contain perforated pipes as detailed in the plans.

3. Installation: The Contractor shall comply with all local, state and federal regulations. The The Contractor shall provide proper facilities for handling and laying pipe and accessories. Trenches shall be properly prepared; pipe shall be supported over its full length and bell holes hand dug as required. No pipe will be laid in unsuitable weather or in water. The Contractor will verify all field dimensions and report all discrepancies (including field stake-out) prior to commencing work. The Contractor shall notify the Engineer at least 24 hours prior to installing any portion of the storm sewer system. He shall also stake all service connections and provide as-built dimensions to the Engineer. Manholes, cleanouts and the like shall be located, built and sized as shown on these drawings. Connections with existing storm sewer systems shall be coordinated by the Contractor with the Utility Authority. Adequate traffic control shall be provided.

A. A minimum separation of 10 feet horizontal measured outside to outside and 18 inches vertical is required between storm sewer lines and all water lines.

B. In accordance with rules of the Florida Department of Environmental Regulations, Chapter 17-25, the Engineer of record will be responsible for observation of construction of the storm sewer system. The Engineer must be notified at commencement and completion of construction. To assure compliance with plans and specifications, said Engineer will report to DER upon completion of construction before the system can be placed in service.

4. Tests: The Contractor shall coordinate all tests and inspections with the Utility Authority and the Engineer. All lines, fittings and manholes shall be clean and dry before the Inspector is summoned. Tests and subsequent corrections shall be at the expense of the Contractor.

1. Non-Perforated Storm Sewers:
A. Leakage tests by exfiltration and/or infiltration will be made on all pipe as deemed necessary by the Engineer. The Engineer shall have the option of determining which tests shall be employed. Generally, if the groundwater table is below the bottom of the pipe, an exfiltration test shall be used. Duration of test shall be not less than two (2) hours. Visible leaks encountered shall be corrected regardless of leakage test results. Leakage as measured by either the infiltration or exfiltration test shall not exceed 0.2 gallons per inch diameter per 100 feet of pipe per hour. When leakage exceeds the maximum amount specified, satisfactory correction shall be made and retesting accomplished.

B: Deflection testing shall be done on all flexible pipe at the direction of the Engineer. Testing shall be done using a mandrel having a diameter equal to 95 percent of the inside diameter of the pipe. When a deflection device is used in lieu of the mandrel, such device shall be approved by the Engineer prior to use. No pipe deflection shall exceed 5 percent.

5. Erosion Protection:
1. New and existing drainage structures shall be protected from soil erosion sedimentation by placing baled hay around structures.
2. Staked baled hay and silt fence barriers shall be installed downhill from any earthwork activity, and in all areas subject to soil erosion, prior to start of construction.
3. Soil erosion sedimentation shall be controlled during all phases of construction.
4. All soil erosion sedimentation shall be retained on site.

SPECIFICATION: GRASSING

1. The Contractor shall provide and install all grassing material shown on the drawings and in this specification. In addition, he shall obtain all permits and conduct all tests required by local, state and federal authorities and as specified on these drawings.

2. Basic Landscaping Requirements:
Grassing: The Contractor shall install a permanent vegetational ground cover within all unpaved areas within the limits of construction and adjacent road right-of-ways. In all areas adjacent to the site where the existing vegetation has been disturbed by construction operations, the natural ground cover shall be restored. All slopes greater than 3 horizontal to 1 vertical shall be sodded or planted with ground cover plants at the approval of the Owner. Finish grades on the plans area grades after grassing is established. Final site grading must allow for grassing.

Detention Areas and Grassy Swales: Swales must be landscaped with soddiing or as noted on the plans. Engineer requires 48 hours notice prior to landscaping of infiltration areas to make appropriate inspections.

3. Materials: All materials and equipment incorporated in the work shall be new, clean and free of visual defects unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All work not conforming to these requirements may be considered defective and rejected by the Owner.

A. Topsoil:
1. Topsoil shall be fertile, natural topsoil, typical of the locality. It shall be without admixture of subsoil or slag and shall be free of stones, lumps, plants or their roots, sticks or other extraneous matter that is not conducive to production of plant life or would interfere with future maintenance.
2. Topsoil shall be spread over all areas to receive ground cover to a minimum compacted depth of two (2) inches.

B. Fertilizer:
1. All fertilizer shall be complete formula fertilizers and shall conform to the applicable State Fertilizer Laws.
2. Fertilizer shall be applied at rates required for good plant growth.

C. Sod:
1. Sod shall be well rooted, 2-year old stock, containing a blend of at least 85% of permanent grasses common to the site location. The type of grass sodding shall be as specified by the Owner. The sod shall be certified sod, free of weeds, insects and diseases.
2. Topsoil and fertilizer shall be applied to all areas to be sodded.
3. Sod shall be secured to all slopes greater than 3 horizontal to 1 vertical with 10" wooden stakes places at intervals no greater than 3'-0" on center.
4. Sod shall be maintained by the Contractor as long as necessary to provide a healthy stable turf, firmly knitted to the soil and free of any areas of erosion or washout damage.

CONTINUED ON NEXT COLUMN

D. Seed:
1. Seed shall be a blend of certified lawn grass seeds common to the site location. The seed shall meet the tolerance for germination and purity in accordance with the U.S. Department of Agriculture Rules and Regulation under the latest edition of the Federal Seed Act. Seed shall be mixed by the Dealer and shall be delivered to the site in sealed containers which bear the Dealer's guaranteed analysis.
2. Topsoil, fertilizer and seed shall be applied to all areas to be seeded.
3. All areas which do no show a satisfactory catch of grass shall be reseeded at intervals of 21 days until a dense lawn of permanent grasses, free from any bare spots, areas of washout or erosion damage has been established.
4. Seeded areas shall be maintained by the Contractor as long as necessary to establish a dense cover as specified above (paragraph 3 D (3)).

E. Mulch:
1. Seeded areas shall be mulched with dry hay or straw free of weed seeds.
2. Seeded slopes shall be mulched with hay or straw as specified above with binder, wood cellulose fiber, open mesh webbing or netting.

F. Hydro-Seeding:
1. Hydro-Slurry mix shall consist of the following:
A. Seed mix specified, at rate of 6 pounds per square foot.
B. Fertilizer shall be 13-13-13 grade, pelleted, uniform in composition, free-flowing, and suitable for application with approved equipment. Apply at rate of 800 pounds per acre.
C. Wood cellulose fiber, dyed green, at 2000 pounds per acre.
D. "M" binder (tackifyer) at 120 pounds per acre.

2. Areas to be hydro-seeded shall be prepared to a smooth and evenly graded condition prior to hydro-seeding. Mix specified seed, fertilizer, pulverized mulch and binder in water using equipment specifically designed for hydro-seed application. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage. Apply slurry uniformly to all areas at the specified rate.

SPECIFICATION: PIPEWORK

General: This section includes furnishing and installing lines, manholes, fittings and appurtenances required for a complete system as shown on the drawings and specified herein. The following piping systems are included under this section of the specifications.

1. Gravity sewerage piping
2. Potable water pressure piping
3. Sewage force main and reclaimed water pressure piping

GRAVITY SANITARY SEWERAGE PIPING:

A. Materials: All material shall be free from defects impairing strength and durability and be of the best commercial quality for the purpose specified. It shall have structural properties sufficient to safely sustain or withstand strains and stresses to which it is normally subjected and be true to detail.

All pipework will be inspected upon delivery and such as does not conform to the requirements of these specifications shall be rejected and must be immediately remove from the site by the Contractor. The Contractor shall furnish and provide all labor necessary to assist the Engineer in inspecting the material.

The basis of rejection shall be as specified in applicable ASTM Specifications.

B. Unplasticized Polyvinyl Chloride (PVC): PVC gravity sewer pipe and fittings shall be unplasticized polyvinyl chloride meeting or exceeding ASTM Specification D-3034.

Pipe lengths shall not exceed 20 feet and provisions shall be made at each joint to accommodate expansion and contraction. Gravity sewerage piping shall be green in color.

Minimum wall thickness shall be:

Diameter	4"	6"	8"	10"	12"	15"
Wall Thickness	.125"	.180"	.240"	.300"	.360"	.437"

providing a minimum SDR ratio of 35 and a minimum "pipe stiffness" (F/Y) = 46 at 5% deflection when tested in accordance with ASTM D-2412, external loading properties of plastic pipe by paneled plate loads.

All pipe and fittings shall be jointed by means of an integral wall bell and spigot joint and sealed with a rubber ring. The pipe and fittings shall be shipped to the job with a solid cross sections rubber sealing ring securely locked in place in the bell. The bell shall consist of an integral wall section of pipe formed into shape and stiffened with two PVC retainer rings which also serve to securely lock the rubber rung in place.

The joint shall be capable of withstanding an internal hydrostatic pressure of 25 psi for one hour with no leakage.

In every instance where pipe enters or leaves a manhole, a fitting shall be provided which will accommodate expansion and contraction of the pipe; release strain on the pipe caused by differential settlement between pipe and manhole; and provide a rubber ring water seal between pipe and manhole.

Each length of pipe shall be clearly marked with the following information at intervals of five feet or less:

1. Manufacturer's name (or trademark)
2. Nominal pipe size
3. ASTM Specification
4. National Sanitation Approval

C. Ductile Iron Pipe: Ductile iron pipe shall meet the requirements of ANSI A21.51, including Addenda A21.51a. Pipe dimensions shall conform to Federal Specification WW-P-421, Class 150. Each pipe shall be conspicuously marked on the outside of the barrel to readily identify it from cast-iron. Metal thickness shall conform to ANSI A21.51, Table 51.1, 2-1/2 to 5 feet cover.

1. Mechanical Joints: ANSI Standard Specification A21.11, Rubber Gasket Joints for Cast-Iron Pressure Pipe and Fittings.

2. Push-on Joints: ANSI Standard Specification A21.11, Rubber Gasket Joints for Cast-Iron Pressure Pipe and Fittings, Single gasket push-on type.

3. Flanged Joints: ANSI Standard Specification B16.1, Cast-Iron Pipe Flanges and Flanged Fittings, 125 pounds. Screwed on flanges, faced and drilled to ANSI Class 125 pound template. The flanged joints shall be assembled by threading plain end pipe and screwing on long hub flanges. The connection shall then be power tightened and refaced across both face of flange and end of pipe. Provide one-sixteenth-inch ring gaskets of red sheet rubber meeting the requirements of Grade I, Table I, of ASTM Specification D-1330, Sheet Rubber Gaskets. Connections shall be made with machine bolts and hexagonal nuts.

4. Fittings: Fittings shall meet ANSI Standard Specification A21.10, latest, Cast-Iron Fittings, 2 inch through 48 inch for Water or Other Liquids. Minimum pressure rating shall be equivalent to that of the pipe specified.

D. Coatings for Ductile Iron Pipe: All ductile iron pipe and fittings to convey wastewater shall be lined and coated with bituminous material in accordance with A21.6. The exterior of all above ground pipe shall receive a coat of rust inhibitor prime compatible with the finish paint schedule. All bolts, nuts, studs and other uncoated parts of joints for underground installation shall be coated with asphalt or coal-tar prior to backfilling.

E. Manholes: Unless otherwise shown on the drawings, manholes shall have an inside diameter of 4 feet. If the manhole depth equals or exceeds 5 feet, it shall have an eccentric cone section that narrows to 2 feet in diameter at the top. Manholes shall be installed at all changed in sewer alignment, grade, pipe diameter, at junctions of two or more sewers, at the upstream end of a sewer and at intervals not to exceed 400 feet.

CONTINUED ON NEXT SHEET

A P P R O V E D
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.CORECONSULTING.COM
CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

Not valid unless bearing Engineer's embossed seal

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D, DESTIN, FLORIDA

SPECIFICATIONS
1 OF 2

Job No.: 2014.08.005
Date: 02/02/2015
Scale: N/A
Designed: CLO
Drawn By: CLO
Checked: ELS
Sheet: 10 of 15

C-9

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

1. Precast Concrete Manholes: All manholes shall be of precast concrete construction and shall meet the requirements of ASTM C-4, except as modified herein. The concrete used shall be Type II or approved equivalent with a 28-day strength of 4000 lbs. per sq. inch.

   The vertical walls shall have a minimum thickness of five-inches and shall be reinforced a minimum of 0.12 sq. inch per linear foot. The flat tops on shorter manholes shall be reinforced with No. 6 bars on six-inch centers both ways or as shown on the drawings.

   The inside diameter shall be 48 inches on the riser sections with an eccentric cone section that narrows to 24 inches inside diameter at the top. The cone section shall be used on manholes with a depth of 5 feet or more and flat top used on manholes less than 5 feet.

   The bottom section shall be of monolithic design with a minimum bottom thickness of six-inches.

   The joints between the sections shall be tongue and groove with the tongue up and the groove down and shall be sealed with round or other flexible type natural rubber joint rings. In addition to the rubber ring gaskets, the interior and exterior voids in the pipe joints shall be sealed with "RAM-NEK" flexible plastic gasket manufactured by K.T. Snyder Company. "RAM-NEK" shall be installed in strict accordance with the manufacturer's recommendations.

2. Manhole Accessories: Manhole steps shall be constructed of 1/2-inch steel road completely encased in a corrosion-resistant rubber capable of resisting chemicals and gasses encountered in manholes. Each step shall have a vertical load resistance of 400 lbs. and a pull out resistance of 500 lbs. per leg. Each step shall be a minimum of 12 inches wide and each leg shall extend 5 inches from the manhole face and have a 4-inch wall penetration. Steps shall have foot guide lugs and traction cleats and shall be installed on 16-inch centers. The manhole frames and covers shall be Vulcan Foundry No. VM-37, Neenah Foundry No. R-1600 series or equivalent. Solid covers shall be marked "SEWER". Frames for the covers shall be set to grade in a bed of cement mortar. Frames and covers shall be machined or ground at bearing surfaces to seat firmly and prevent rocking. Any set not matching perfectly shall be removed and replaced at no additional cost.

3. Water-Proofing: Both concrete and pre-cast sections below grade shall be painted on the outside with either two coats of bitumastic paint or a heavy layer of emulsified asphalt to water-proof completely. Manholes shall be inspected for water tightness prior to being placed in service. All incoming and outcoming sewer lines shall be plugged and the manhole filled with water to a level to create a minimum positive head of two feet or above the highest section joint. If the water level drop exceeds 1/8" per vertical foot of manhole depth in 5 minutes, the manhole shall have failed the test.

4. Manhole Invert Channels: The manhole invert channels shall be smooth and accurately shaped to a semicircular bottom conforming to the connecting sewer section. Invert channels and manhole bottoms shall be shaped and smoothed with one to two (1:2) cement-sand mortar of still consistency. Changes in size and grade shall be made gradually and evenly.

F. Submittals: The Contractor shall submit a minimum of four (4) copies of catalog data for approval by the Engineer for materials to be used. This submittal shall include but not be limited to the following:

1. Pipe
2. Fittings
3. Manholes
4. Manhole steps
5. Frames and covers
6. Coatings

PRESSURE PIPING:

This section includes furnishing and installing all pressure pipework and appurtenances for potable and non-potable water systems complete and fully operable in all respects.

A. Materials: All material shall be free from defects impairing strength and durability and be of the best commercial quality for the purpose specified. It shall have structural properties sufficient to safely sustain or withstand strains and stresses to which it is normally subjected and be true to detail.

   Certified records of material tests made by the manufacturer or by a reliable commercial laboratory shall be submitted to the Engineer if requested.

   All pipework will be inspected upon delivery and such as does not conform to the requirements of these specifications shall be rejected and must be immediately removed from the site by the Contractor. The Contractor shall furnish and provide all labor necessary to assist the Engineer in inspecting the material.

   The basis of rejection shall be as specified in applicable ASTM Specifications.

B. Unplaticized Polyvinyl Chloride (PVC) Pressure Pipe: PVC pressure pipe shall have a bell-type joint designed for conveying potable water under pressure. Ring-type neoprene gasket shall be provided in recesses in the bells to make the joints watertight for all slip joint piping. Only where specifically called for on the construction plans shall solvent-weld or flanged connections be used. All fittings shall be of the same joint design as recommended by the manufacturer. PVC pipe shall meet or exceed the minimum requirements of Commercial Standard CS-256063 for Type 1120 material made to SDR-21 dimensions. PVC compounds used shall be as specified in ASTM D-1784. Dimensions and specifications for PVC pipe shall be as required in ASTM D-2241, Class Designation 12454-B. PVC joints shall meet ASTM D-3139, for Bell End Pipe. PVC pipe shall be as manufactured by the Johns-Manville Co., the Ethyl Corp., the Certain-Teed Products Corp, the Clow Corporation or approved equivalent.

   All fittings for PVC pressure pipe shall be cast iron mechanical joint meeting ANSI Standard Specification A21.10, latest, Cast Iron Fittings, 2 inch through 48 inch for Water and Other Liquids unless indicated otherwise on the construction plans. Minimum pressure rating shall be equal to that of the pipe specified. Linings and coatings shall be as specified on the next page under "Linings and Coatings for Ductile Iron Pipe".

   Unless otherwise indicated on the drawings all PVC pressure pipe shall be SDR-21 type. All pressure piping shall be supplied in the following colors:

   1. Potable water – White
   2. Non-potable water – Purple
   3. Sewer force main – Brown

   Standard laying lengths shall be 20 feet and randoms shall not be less than 10 feet.

   Pipe for potable water use must be certified as suitable by the National Sanitation Foundation (N.S.F.) and marked as follow: NSF-PW.

   Each length of pipe shall be clearly marked with the following information at intervals of not more than five feet:

   1. Nominal pipe size
   2. Material designation code
   3. Standard pipe dimension ratio and pressure class
   4. ASTM Designation D-2241
   5. Manufacturer's name (or trademark)
   6. NSF approval seal, if applicable.

C. Ductile Iron Pipe: Ductile iron pipe shall meet the requirements of ANSI A21.51, including Addenda A21.51a. Pipe dimensions shall conform to Federal Specification WW-P-421, Class 150. Each pipe shall be conspicuously marked on the outside of the barrel to readily identify it from cast-iron. Metal thickness shall conform to ANSI A21.51, Table 51.1, 2-1/2 to 5 feet cover.

   1. Mechanical Joints: ANSI Standard Specification A21.11, Rubber Gasket Joints for Cast-Iron Pressure Pipe and Fittings.

   2. Push-on Joints: ANSI Standard Specification A21.11, Rubber Gasket Joints for Cast-Iron Pressure Pipe and Fittings, Single gasket push-on type.

   3. Flanged Joints: ANSI Standard Specifications B16.1, Cast-Iron Pipe Flanges and Flanged Fittings, 125 pounds. Screwed on flanges, faced and drilled to ANSI Class 125 pound template. The flanged joints shall be assembled by threading plain end pipe and screwing on long hub flanges. The connection shall then be power tightened and refaced across both face of flange and end of pipe. Provide one-sixteenth-inch ring gaskets of red sheet rubber meeting the requirements of Grade I, Table I of ASTM Specification D-1330, Sheet Rubber Gaskets. Connections shall be made with machine bolts and hexagonal nuts.

   4. Fittings: Fittings shall meet ANSI Standard Specification A-21.10, latest, Cast-Iron Fittings, 2 inch through 48 inch for Water and Other Liquids. Minimum pressure rating shall be equal to that of the pipe specified.

D. Linings and Coatings for Ductile Iron Pipe: All pipe, valves and fittings for potable water shall be thin cement lined, the lining shall comply with ANSI Standard A21.4 (AWWA C104) Cement-Mortar Lining for Cast Iron Pipe and Fittings for Water. All ductile iron pipe and fittings for non-potable and sewer force mains to be installed underground shall be coated on the interior with hot-dip coal-tar. All ductile iron pipe and fittings to be installed underground shall be coated on the exterior with hot-dip coal-tar. The exterior of all above ground pipe shall receive a coat of rust inhibitor prime compatible with the finish paint schedule. All bolts, nuts, studs and other uncoated parts of joints for underground installation shall be coated with asphalt or coal-tar prior to backfilling.

CONTINUED ON NEXT COLUMN

E. Copper Locator Wire: Number 12 copper wire is to be installed with each joint of PVC pipe. Strap copper wire to top of pipe. Attach wire to all metal fittings with good electrical connection. Leave enough wire in valve boxes to extend two (2) feet above final grade.

The Contractor shall submit a minimum of four (4) copies of catalog data for

F. Submittals:
   approval by the engineer for materials to be used. This submittal shall include but not be limited to the following:

   1. Pipe
   2. Fittings
   3. Interior coating
   4. Exterior coating

VALVES, HYDRANTS AND MISCELLANEOUS APPURTENANCES:

This section includes furnishing and installing complete all equipment and materials necessary for a complete and fully operable system.

A. Materials: All materials shall be free from defects impairing strength and durability and be of the best commercial quality for the purpose specified. It shall have structural properties sufficient to safely sustain or withstand strains and stresses to which it is normally subjected and be true to detail.

   All pipework will be inspected upon delivery and such as does not conform to the requirements of these specifications shall be rejected and must be immediately removed from the site by the Contractor. The Contractor shall furnish and provide all labor necessary to assist the Engineer in inspecting the material.

   The basis of rejection shall be as specified in applicable ASTM Specifications.

B. Valves:

   1. Gate Valves: All gate valves shall conform to AWWA Specifictaions for a working pressure of 200 psi. All valves shall open counterclockwise. Valves installed below ground shall be fitted with hub-type hand operators and shall have a cast-iron valve box installed concentrically over the valve. The top of the valve box shall be set flush with the ground and shall have a cast-iron cover. Valves installed above ground shall be fitted with wheel-type hand operators. Valves used for ties to existing pressure system shall be mechanical joint.

      a. Valves Three Inches and Over: Valves shall be manufactured in accordance with AWWA Specification C-509. They shall be iron body, resilient-seated gate valves with nonrising stems with wide flanged, mechanical joint or spigot ends depending on installation. Flanged gate valves shall be provided with 125 lb. American Standard flanges.

      b. Valves Under Four Inches: Gate Valves under four inches shall be iron or bronze body, resilient wedge valves equipped with nonrising stem and 2" operating nuts.

   2. Check Valves: Provide check valves meeting the following requirements:

      a. Over Three-Inches: The check valves over three-inches (3") shall be iron-body, bronze-mounted, horizontal-swing check with flanged ends. All working parts shall be spring-loaded to prevent slamming. The check valves shall be M&H Fig. 250F, American Darling 50 Line or approved equivalent.

      b. Under Three-Inches: Check valves under three-inches (3") shall be screwed-end, bronze-body, silent check valves as manufactured by Crane Co., No 34 or approved equivalent.

   3. Air Release and Vacuum Valves: The combination air release and vacuum valve shall be furnished with both a large and small orifice. The valve shall automatically function to release to atmosphere both large and small amounts of air that accumulate in the pipeline. Once the air has been exhausted both the large and small valves shall seat tightly to prevent water leakage. The valve shall also function to admit air into the line, tank or chamber under emergency conditions, or when it is being drained. The valve body and cover shall be of semi-steel; floats of stainless steel; levers of bronze and resilient seats. The air and vacuum valve shall be manufactured by G-A Industries, Inc. Type 1-AV or approved equivalent.

   4. Butterfly Valves: Provide valves conforming to AWWA C-504 (latest) with lug wafer type body suitable for use between ANSI 125 or 150 lb. flanges. Disc shall be 316 stainless steel or have a welded nickel edge. Valve shaft shall be supported on three permanently lubricated bronze or on TFE coated stainless steel bearings. The valve seat shall be of Hycar or equivalent. Disc-to-shaft connections shall be 316 stainless steel and securely locked in position. Valves 8-inches and larger shall have a thrust collar of stainless steel. Threes shaft seals shall protect bearings from internal and external corrosion. Infinite position levers shall provide manual throttling and locking in any position from open to closed. Butterfly valves and actuators shall be Figure 632 as manufactured by DeZurick or approved equivalent.

   5. Hose Bibs: Hose bibs shall be Crane No. 58 or approved equivalent.

C. Hydrants:

   1. Spacing: Spacing shall be as approved by the Engineer.

   2. Fire Hydrants: All fire hydrants shall be 5-1/4 inch hydrants with two 2-1/2 inch connections and one pumper connection designed for 150 psi working pressure, and shall conform to the requirements of AWWA C-502. Hydrants shall have mechanical joint inlets, shall be for a 3-foot bury, and shall be breakaway or traffic model, dry barrel type.

      The hydrants shall be Mueller Co., Centurion A-423, M&H Style No. 129, or approved equivalent.

      The hydrants shall be painted "chrome yellow" (safety yellow) and nozzle caps to be color coded base on the hydrant's flow rating in accordance with National Fire Code NFPA-291 "Fire Flow Testing and Marking of Hydrants". After installation, the local Fire District will flow test the hydrant and color code the nozzles as required.

D. Water Services:

   1. Water Meters and Meter Boxes shall be furnished and installed by Destin Water Users, Inc.

   2. Tapping Saddles shall be Rockwell Model 311 or approved equivalent.

   3. Corporation Stops shall be Ford Model No. F-1000; Hays Model 5200, or approved equivalent. Inlets shall have iron pipe threads and outlets shall have compression connections.

   4. Curb Stops shall be Ford Model No. B-43-232-W with locking wing or approved equivalent. Inlets shall have compression connections and outlet shall have iron pipe threads. Valves shall be equipped with padlock eyes or approved equivalent.

   5. Service Tubing shall meet the requirements of ASTM D-2666, SDR-9 and shall be listed as having the approval of the National Sanitation Foundation for Water Distribution; and shall have the NSF approval designation stamped on the tubing. Service tubing material shall be polybutylene. It shall be delivered in rolls and cut to required lengths.

   6. Wye Branches for double services are to be pack joint wye branches, Ford Model No. Y44-243 or approved equivalent.

E. Valve boxes: Cast-iron valve boxed shall be provided for all underground valve installations. They shall consist of a base covering the operating nut and head of the valve, a vertical shaft, at least 5-1/4 inches in diameter, and a top section extending to a point even with the finished ground surface. Provide a cast iron cover marked "WATER" or "SEWER" as required and placed concentrically over the operating nut. The valve boxes shall be Clow F-2452 screw type valve box, or an approved equivalent.

F. Steel Casing: All casing used for boring and bridge crossing shall be wrought steel Schedule 40 with a minimum yield strength of 35,000 psi.

   Bore casing shall have an exterior protective coating of coal-tar enamel in accordance with AWWA C-204. The casing shall be installed by either jacking or boring at the option of the Contractor. Ends shall be free from splits or other rough edges which might damage the carrier pipes.

   Bridge crossing casing exterior shall be painted with two (2) coats of rust inhibitor paint, light gray.

G. Backflow Preventer: Backflow preventers shall be one of the following types as indicated on the drawings:

   1. Double check valve assembly shall be a complete assembly including two positive seating check valves, tight closing shut-off valves located upstream and downstream of the check valves, and four suitably places ball-type test cocks. The entire assembly shall be protected by a strainer. The device shall be bronze construction. The first and second check valves shall be of modular design and interchangeable.

   2. Reduced pressure principle backflow preventer assembly shall contain a minimum of two independently acting, approved check valves, together with an automatically operated pressure differential relief valve located between the two check valves. The assembly shall include tightly closing, shutoff valves located at each end of the assembly, and each assembly shall be fitted with properly located test cocks.

CONTINUED ON NEXT COLUMN

   The backflow preventers shall be in full conformance with the American Society of Sanitary Engineering Standard for Double Check Valve Assemblies, ASSE Standard 1015 and with the requirements of the U.S.C. Foundation for Cross-Connection Control.

H. Submittals: The Contractor shall submit a minimum of four (4) copies of catalog data for approval by the Engineer for materials to be used. This submittal shall include but not be limited to the following:

   1. Pipe and fittings
   2. Tubing
   3. Valves
   4. Hydrants
   5. All service materials
   6. Casing
   7. Backflow preventer

INSTALLATION:

This section covers installation of gravity and pressure pipework. Excavation and backfilling shall be in accordance with the preceding, applicable sections of these specifications.

A. General:

   1. All pipe, fittings and valves shall be carefully handled at all times to prevent damage to the pipe or other installations on the job site.

   2. At times when pipe installation is not in progress, the open ends of the pipe shall be closed by approved means and shall remain closed until construction on that particular section is resumed, eliminating the possibility of any flow obstructions getting into the pipe.

   3. All joints shall be wiped free of all dirt, sand and foreign material and the pipe shall be carefully examined for defects before installation.

   4. Cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe.

   5. Deviations from the piping location, line and grade indicated on the construction plans shall not be made without the prior approval of the Engineer.

B. Pipe Laying Procedures:

   1. Gravity Flow Piping: Gravity flow piping shall be installed to the line and grade indicated on the construction drawings. Before lowering the pipe into the ditch, the bottom of the ditch shall be graded so that when the pipe rests on the ditch bottom, it will have a uniform bearing for its entire length. Bell holes shall be dug for bell placement. The pipe shall be carefully examined for defects and the inside cleaned. After placing the pipe in the ditch, the ends shall be wiped free from all dirt, sand and foreign material. The joints shall then be made in accordance with the recommendations of the pipe manufacturer.

      Installation of pipe shall proceed in a upstream direction with bells facing in the direction of laying. All pipe reaches will be inspected for straightness. No bows or dips, either horizontally or vertically, will be accepted. A full circle of light must be readily seen when looking from one end of a pipe through to the other end.

   2. Pressure Piping: Pressure piping shall be installed in strict accordance with the manufacturer's printed instructions. Before lowering the pipe into the trench the bottom of the trench shall be graded so that when the pipe rests on the trench bottom it will have a uniform bearing for its entire length. The pipe shall be carefully examined for defects and the inside cleaned. After placing the pipe in the trench, the ends shall be wiped free from all dirt, sand and foreign material. The joints shall be made in accordance with the recommendations of the pipe manufacturer.

      Suitable concrete reaction or thrust blocks shall be applied on all lines (except those having screwed or flanged joints), at all tees, plugs, caps and bends deflecting 22-1/2 degrees or more, or movement shall be prevented by attaching metal rods or straps approved by the Engineer. Unless otherwise directed, the pipe shall be laid with bell ends facing in the direction of laying. Whenever it is necessary to deflect the pipe from a straight line, either in the vertical or horizontal plane, to avoid obstruction, to plumb stems, or where long radius curves are permitted, the degree at deflection shall be as recommended by the manufacturer of the pipe.

      The minimum cover for pipe will be 30-inches unless otherwise indicated on the plans. The depth of cover shall be measured from the established street grades or the surface of the permanent improvement to the top of the barrel of the pipe. At street intersections or where the new pipe lines cross existing underground lines at the approximate same depth as the new line, the cover shall be increased and the new line laid below existing lines or structures. Where the existing lines or structures are of sufficient depth that the new lines when laid will have 6-inches of separating earth between them and other pipe or structure and 30-inches cover, the new lines may be laid above the existing lines.

   3. Sub-Surface Explorations: Whenever necessary to determine the location of existing pipes, valves or other underground structures, the Contractor shall examine all available records and shall make all explorations and excavations for such purpose. Where the locations of existing utilities are furnished by the Owner, they should be considered approximate only. The Contractor is responsible for locating and protecting all existing utilities whether shown on the drawings or not shown.

   4. Protecting Underground and Surface Structures: Temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers and other obstructions encountered in the progress of the work shall be furnished by the Contractor at his own expense under the direction of the Engineer.

   5. Construction Equipment: Mechanical equipment may be used for trenching and excavating. However, in places where the operation of same will cause damage to trees, shrubbery, pavements or existing structures, above or below ground, hand methods shall be employed.

      Where a main is installed along paved streets, only rubber-tired equipment will be allowed for excavation and backfilling; the use of bulldozers or equipment with tracks will not be permitted. The Contractor will be responsible for any damage done to paved streets or lawns. Either air hammers or concrete saws should be used for cutting concrete pavement.

   6. Unsuitable Conditions: No pipe shall be laid or manholes placed in water or unsuitable soils conditions. Unsuitable soil, as determined by the Engineer, shall be removed or replaced with an approved material.

   7. Trench Water: At times when pipe laying is not in progress, the open ends of pipe shall be closed by approved means, and no trench water shall be permitted to enter the pipe.

   8. Setting Valves and Boxes:

      a. Valves and Fittings: Gate valves and pipe fittings shall be set and jointed to new pipe in the manner heretofore specified for cleaning, laying and jointing pipe.

      b. Valve Boxes: Cast-Iron valve boxes shall be firmly supported and maintained, centered and plumb, over the wrench nut of the gate valve and box cover flush with the surface of the finished pavement or at such other level as may be directed.

   9. Cutting Pipe: Cutting of pipe for inserting fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe.

   10. Dewatering: The Contractor shall provide all necessary pumps to dewater the site properly, shall provide all labor and materials required to keep any open excavation dewatered during construction; and shall provide all necessary sheeting, bulkheads, drains, etc., so that construction operations may be performed under dry conditions. Discharge from pumps must be led to natural drainage channels, to drains, or to sewer.

   11. Service Pipe: Service pipe shall have a minimum depth of 30 inches at all highway crossings and 18 inches elsewhere. The requirements for trenching and backfilling shall apply. Removal of pavement or sidewalk will not be permitted for water service lines. They may be installed by jacking, boring or pushing under sidewalks.

   12. Casing: Steel casing shall be installed by either jacking or boring at the option of the Contractor. Any section damaged by the installation shall be removed from the casing leaving both ends free from splits or other rough edges which might damage the carrier pipe. All state highway crossings shall require steel casing.

   13. Plugging Dead Ends: Standard plugs shall be inserted into the bells of all dead ends of pipes, tees or crosses, and spigot ends shall be capped. Plugs or caps shall be jointed to the pipe or fittings in the appropriate manner.

   14. Concrete Encasement and Specials: Provide concrete pipe encasements or special pipe supports as shown on the drawings or directed by the Engineer. Various pipe supports shall be worked out in the field to suit local conditions and emergencies. Where, in the opinion of the Engineer, pipe covering is inadequate, concrete encasement for protection shall be provided in accordance with the details on the drawings. Concrete encasements shall be made using concrete with a 28-day strength of 2000 psi and shall be to the dimensions indicated on the construction plans and as required by the applicable Department of Transportation or Public Health regulations. All other concrete needed to build and protect the pipe work shall be used at the direction of the Engineer.

   15. Backfilling: Backfill material shall be free from shells, rocks or boulders, or any other objectionable material and shall be placed in the trench and compacted simultaneously on both sides of the pipe for the full width of the trench, and to an elevation level with ground on either side to the densities indicated in Section 2 of these specifications.

CONTINUED ON NEXT COLUMN

   16. Repaving: Pavement removal where required in the construction of this project shall be done by the Contractor in a workmanlike manner. Care must be taken to make the saw cut in a straight line so the patch will be neat.

       Asphalt paving shall be replaced as described in the applicable sections of these specifications. Concrete driveways and pavement shall be replaced using concrete with high early strength so that traffic may be resumed quickly. Concrete must be finished to conform with existing pavement.

   17. Clean-Up: Before final inspection and acceptance, the Contractor shall clean ditches, shape shoulders, and restore all disturbed areas, including street crossing, grass plots, to as good a condition as existed before work started. All trenches shall be leveled, and loose material removed from pavement gutters and sidewalks, employing hand labor, if necessary.

C. Anchorage of Bends, Tees and Plugs:

   1. Thrust Backing Placement: Reaction or thrust backing shall be placed on all pipe lines two-inches in diameter or larger at all tees, plugs, caps and at bends deflecting 22-1/2 degrees or more, or movement shall be prevented by attaching metal rods or straps as approved by the Engineer.

   2. Materials for Thrust Backing: Reaction, or thrust backing shall be of concrete that has a 28-day compressive strength of not less than 2000 psi. Reaction backing will be placed in accordance with the details on the construction plans.

      Backing shall be places between solid ground and the fitting to be anchored. The backing shall, unless otherwise directed, be so placed that the pipe and fitting joints will be accessible for repairs. No extra payment will be made for this material but shall be included in the unit price bid for the various sizes of pipe.

      In some cases, the Engineer may direct the Contractor to provide backing using cables and "deadman" anchors where the soil conditions will not support the normal concrete type as described above.

TESTING AND INSPECTION:

A. General: During construction and at the completion of the work, the Contractor shall make such tests as required in these specifications or as may be directed by the Engineer. The Engineer will observe the tests, but the Contractor shall furnish all apparatus required and shall pay all costs connected therewith unless otherwise stated in these specifications.

   Defective work shall be repaired immediately at the Contractor's expense.

   In general, tests shall conform to usually accepted testing practices for the specific type and class of test. All data, observations and results will be carefully recorded, and the Engineer will be furnished two signed copies of all data and reports. Project acceptance may be held contingent on receipt of satisfactory test reports.

B. Hydrostatic Tests of Pressure Pipework:

   1. Pressure During Test: After the pipe has been laid and backfilled as specified, each valved section of newly laid pipe shall, unless otherwise specified, be subjected to a hydrostatic pressure equal to the pressure rating of the pipe being tested. The Contractor shall record the testing by the use of a pressure recording gauge and after all testing is complete, the recordings shall be turned over to the Engineer for his files.

   2. Duration of Pressure Test: The duration of each pressure test shall be at least 2 hours.

   3. Procedure: Each section of pipe shall be slowly filled with water and the specified test pressure, measured at the lowest point of elevation, shall be applied by means of a pump connected to the pipe in a satisfactory manner. The pump, pipe connection, gauges, meter and all necessary apparatus shall be furnished by the Contractor.

      The test shall be applied to each valved section in order to check the leakage through all valves.

   4. Expelling Air Before Test: Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevation, and afterwards tightly plugged.

   5. Definition of Leakage: Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved section of it, necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

   6. Permissible Leakage: Suitable means shall be provided by the Contractor for determining the quantity of water lost by leakage under normal operating pressure. No pipe installation will be accepted until or unless this leakage (evaluated at specific pressure) is less than the figures stated below:

Pipe Size	gal's/1000'/24 hrs.	gal's/1000'/1 hr.
2"	3.8 gal.	0.16 gal.
3"	5.7 gal.	0.24 gal.
4"	7.6 gal.	0.32 gal.
6"	11.4 gal.	0.47 gal.
8"	15.2 gal.	0.63 gal.
10"	18.9 gal.	0.79 gal.
12"	22.7 gal.	0.95 gal.

   7. Variation From Permissible Leakage: Should any test of combined sections of pipe laid disclose leakage greater than the specified limit, the Contractor shall, at his own expense, locate and repair the defective joints until the leakage is within the specified allowance.

   8. Water for Testing: Water for testing shall be provided by the Contractor and at his own expense. The Owner shall provide and install a metered connection at no charge.

   9. Time for Making Test: Pipe may be subjected to hydrostatic pressure, inspected, and tested for leakage at any convenient time after partial completion of backfill. The Contractor may test the system with joints exposed or will backfilling complete at his option. The Engineer and the Utility Company shall be notified at least 24 hours before beginning testing.

C. Tests of Gravity Pipework:

   1. Inspection: 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. After completion, the sewers, or sections thereof, will be tested and gauged, and if infiltration is above allowable limits specified, the sewer will be rejected.

      On completion of each section of sewer, or such other time as the Engineer may direct, the section of sewer is to be cleaned, tested and inspected. All repairs shown necessary by the tests area to be made, broken or cracked pipe replaced, all deposits removed and the sewers left true to line and grade as herein specified, or shown on the plans, entirely clean and ready for use. Each section of the sewer between manholes is to shown from either end on examination, a full circle of light. Each manhole or other appurtenance to the system shall be the specified size and form, be watertight, neatly and substantially constructed, with the top set permanently to exact position and grade.

   2. Limits of Infiltration and Methods of Testing: The allowable limit of groundwater infiltration for the entire system shall be in accordance with ASTM C-425 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 infiltration flow of water over a measuring weir set up in the invert of known distance from a temporary bulkhead or other limiting point of infiltration. After the sewer or 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 (3) hours, with weir readings taken at 20 minute intervals. The test shall be made by the Contractor. The Engineer shall be notified 24 hours in advance. Where infiltration occurs in excess of the specified amount, the defective pipe or joints shall be located and repaired at the expense of the Contractor. If the defective portions cannot be so located, the Contractor, at his own expense, shall remove and reconstruct as much of the original work as necessary to obtain a sewer within the allowable infiltration limits upon such retesting as necessary.

D. Chlorination of Water Distribution Facilities:

   1. Disinfection: After the water distribution system has been hydrostatically tested to the satisfaction of the Engineer and the Utility Company, it shall be disinfected in accordance with AWWA Specification C-601 which provides for contact with a 50 ppm solution of chlorine remaining for 24 hours, with chlorine residual of at least 10 ppm.

   2. Chlorinating Valves and Flushing Hydrants: In the process of chlorinating water pipe, all valves or other appurtenances shall be operated while the pipe line is filled with the chlorinating agent.

   3. Final Flushing and Test: Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe line at its extremities until the replacement water throughout its length shall, upon test, both chemically and bacteriologically, be approved by the Florida Department of Environmental Regulation. The Contractor shall be responsible for arranging for the Test Samples.

   4. Repetition of Procedure: Should the initial treatment, in the opinion of the Engineer, prove ineffective, the chlorination procedure shall be repeated until confirmed tests show that the water sampled conforms to the requirements stated above.

A P P R O V E D
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.CORECONSULTING.COM
CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:

EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D,
DESTIN, FLORIDA

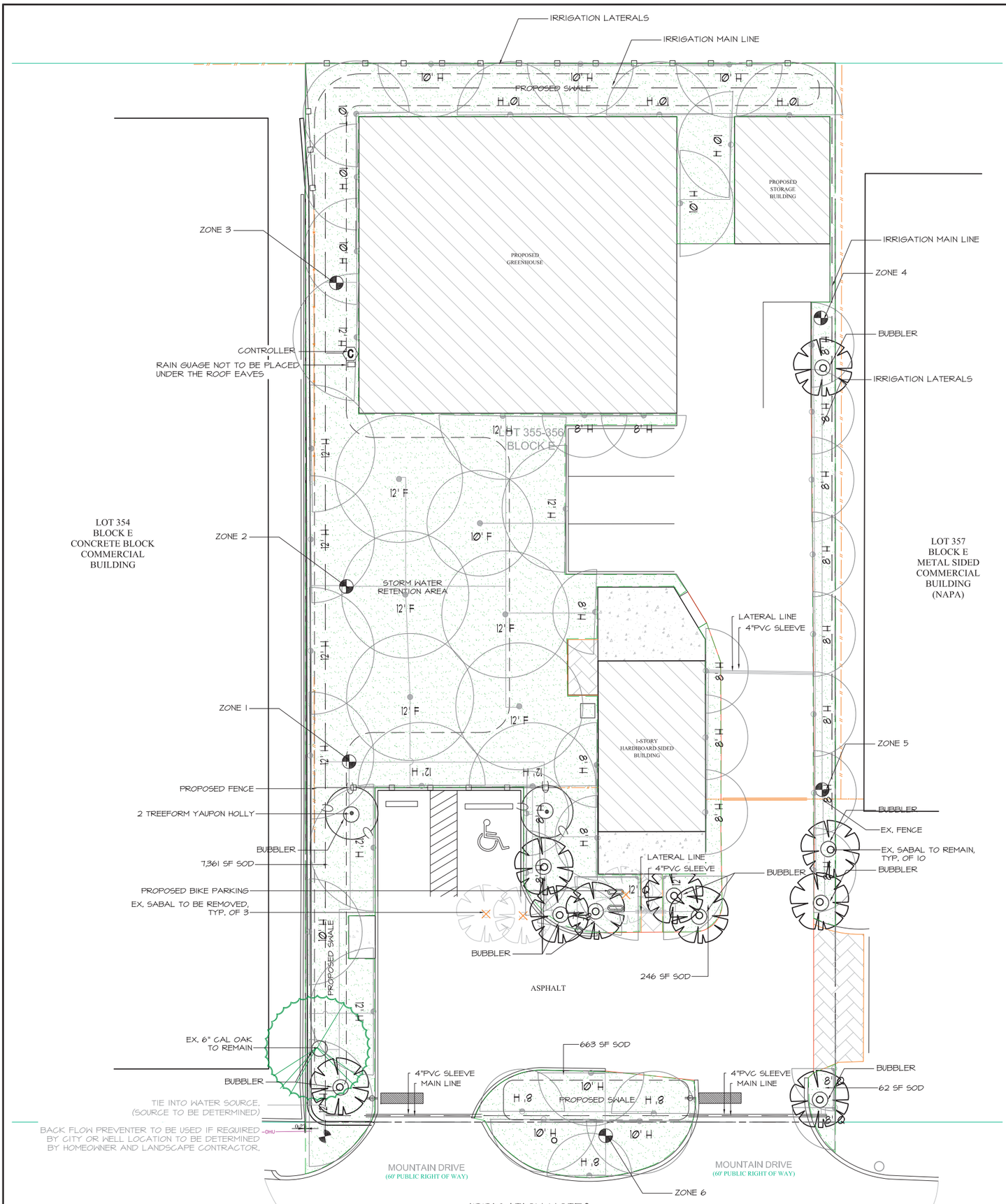
SPECIFICATIONS
2 OF 2

Not valid unless bearing Engineer's embossed seal

Job No.:	2014.08.005
Date:	02/02/2015
Scale:	N/A
Designed:	CLO
Drawn By:	CLO
Checked:	ELS
Sheet:	11 of 15

C-10

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.



**IRRIGATION NOTE: EXISTING IRRIGATION SYSTEM TO BE UTILIZED AND INCOPORATED AS MUCH AS POSSIBLE INTO PROPOSED SYSTEM. (TO BE DETERMINED IN FIELD) **

LANDSCAPE REQUIREMENTS:

OPEN SPACE:
25% OPEN SPACE REQUIRED/ 40% PROVIDED
20,000 SF TOTAL - 11,982.3 SF HARDSCAPE = 8,017.7 OPEN SPACE

FRONT PERIMETER/ COMON BOUNDARY LANDSCAPE:
N/A - OLD DESTIN MMTD SUB-AREA

INTERIOR PARKING LANDSCAPE:
ONE TREE AT THE END OF EACH PARKING ROW REQUIRED/ 2 PROVIDED

BUFFER ZONE LANDSCAPE:
N/A - OLD DESTIN MMTD SUB-AREA

PRESERVATION/ RESTORATION:
1 REFORESTATION TREE PER ½ ACRE REQUIRED
0.459 ACRE SITE = 5 REQUIRED TREES/ 32 PROVIDED (EX TREE CREDITS)

EX TREES TO REMAIN
(1) 6" LIVE OAK = 2 POINTS
(10) 12" SABAL = 30 POINTS
TOTAL = 32 POINTS

IRRIGATION NOTES:

1. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THERE ARE OTHER ACTIVE UTILITIES AND SERVICES IN AND AROUND THE SITE. CONTRACTOR IS RESPONSIBLE FOR LOCATING THESE TO AVOID DAMAGE TO THEM.
2. THE CONTRACTOR SHALL MAKE ANY NECESSARY ADJUSTMENTS IN THE PROPOSED IRRIGATION SYSTEM TO AVOID DAMAGE TO EXISTING STRUCTURES, PAVING, AND UTILITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A WELL AND PUMP AND VERIFYING THERE IS PROPER WATER PRESSURE FOR THE PROPOSED SYSTEM.
4. ALL WORK, ADJUSTMENETS, AND INSPECTIONS SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS AND LABOR TO FULLY EXECUATE AND GUARANTEE, AS REQUIRED, THE TOTAL WORK SHOWN ON THIS PLAN IN ACCORDANCE WITH SPECIFICATIONS, AND ALSO AS PER INSTRUCTIONS OF THE LANDSCAPE ARCHITECT AND THE OWNER.
6. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES AND FLOWS TO ASSURE ADEQUATE INSTALLATION OF THE SYSTEM.
7. LINE LOCATIONS AS INDICATED ON THE PLAN ARE SCHEMATIC. THE CONTRACTOR SHALL LOCATE ALL LINES IN SUCH A WAY AS TO CAUSE THE LEAST CONFLICT WITH THE LOCATION OF PROPOSED PLANT MATERIALS (AS SHOWN ON THE LANDSCAPE PLANTING PLAN) AND OTHER SITE AMENITIES.
9. ALL MAINLINES SHALL BE INSTALLED AT A MINIMUM OF 18" DEEP AND ALL LATERAL LINES SHALL BE INSTALLED AT A MINIMUM OF 12" DEEP.
10. THE ENTIRE SYSTEM SHALL BE UNCONDITIONALLY GUARANTEED BY THE IRRIGATION CONTRACTOR AGAINST ALL DEFECTIVE WORK AND MATERIALS FOR A PERIOD OF ONE YEAR FOLLOWING THE DATE OF FINAL ACCEPTANCE.
11. CONTRACTOR SHALL PROVIDE HEAD TO HEAD COVERAGE.

IRRIGATION LEGEND

- C — CONTROLLER (RAINBIRD ESP-16LX)
- ELECTRIC VALVE (RAINBIRD 100-DV)
- IRRIGATION MAINLINE (1 1/2") (All piping to be pressure rated at 200psi)
- IRRIGATION LATERAL (Contractor shall verify pipe sizes are correct not exceed 5 feet per second velocity.) All pipe sizes 1/2" unless otherwise stated on the plan.
- SPRAYHEAD (RAINBIRD 1800 SERIES)
  - TURF AREAS: (MODEL 1804)
  - LANDSCAPE BEDS: (MODEL 1812)

APPROVED
January 29, 2015
City of Destin
Technical Review Team
NORTH
SCALE: 1"=10'-0"

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of building permits and the inability to secure a Certificate of Occupancy.

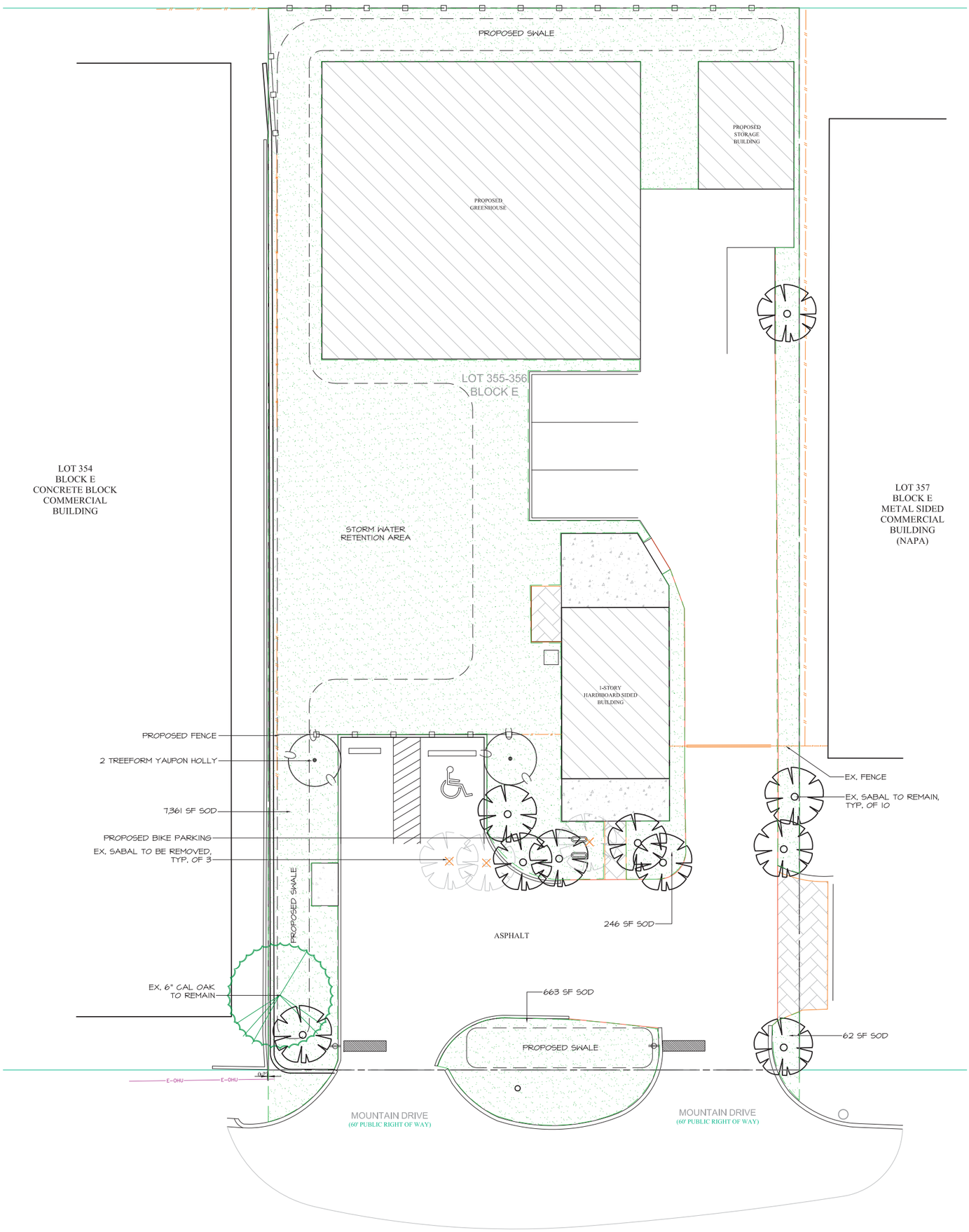
SHEET I-I
12 OF 15

REGISTERED LANDSCAPE ARCHITECT CALLIE A. HOWARD LA 0001758 STATE OF FLORIDA

SCALE:	1"=10'
DATE:	12-2-14
FILE NAME:	HOWARD
DRAWN BY:	NAJ
REVIEWED BY:	CRB
REVISIONS:	

IRRIGATION PLAN
HOWARD
515 MOUNTAIN DRIVE
DESTIN, FLORIDA

CALLIE & Co.
Land Planners
Landscape Architects
882 Harbor Blvd.
Suite 101
Destin, FL 32541
PHONE: 850-269-0663
FAX: (850) 269-0037
www.calliecandco.com



LANDSCAPE REQUIREMENTS:

OPEN SPACE:
25% OPEN SPACE REQUIRED/ 40% PROVIDED
20,000 SF TOTAL - 11,982.3 SF HARDSCAPE = 8,017.7 OPEN SPACE

FRONT PERIMETER/ COMON BOUNDARY LANDSCAPE:
N/A - OLD DESTIN MMTD SUB-AREA

INTERIOR PARKING LANDSCAPE:
ONE TREE AT THE END OF EACH PARKING ROW REQUIRED/ 2 PROVIDED

BUFFER ZONE LANDSCAPE:
N/A - OLD DESTIN MMTD SUB-AREA

PRESERVATION/ RESTORATION:
1 REFORESTATION TREE PER 1/10 ACRE REQUIRED
0.459 ACRE SITE = 5 REQUIRED TREES/ 32 PROVIDED (EX TREE CREDITS)

EX TREES TO REMAIN
(1) 6" LIVE OAK = 2 POINTS
(10) 12" SABAL = 30 POINTS
TOTAL = 32 POINTS

PLANT SCHEDULE

QTY	DESCRIPTION		SIZE	REMARKS
	TREES			
2	Ilex vomitoria 'Treeform'	Treeform Yaupon Holly	10' Ht.	Straight trunk, full head, B&B
	SOD/ MULCH			
8,332	SF Empire Zoysia			

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of building permits and the inability to secure a Certificate of Occupancy.

APPROVED
January 29, 2015
City of Destin
Technical Review Team

NORTH
SCALE IN FEET
0 5 10 20

SHEET L-1
13 OF 15

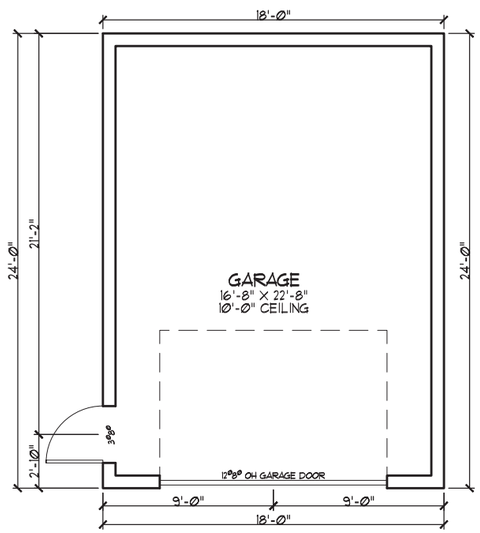
REGISTERED LANDSCAPE ARCHITECT CALLIE A. ROARK LA 0001758 STATE OF FLORIDA

SCALE:	1"=10'
DATE:	12-2-14
FILE NAME:	HOWARD
DRAWN BY:	NAJ
REVIEWED BY:	CRB
REVISIONS:	1-8-15

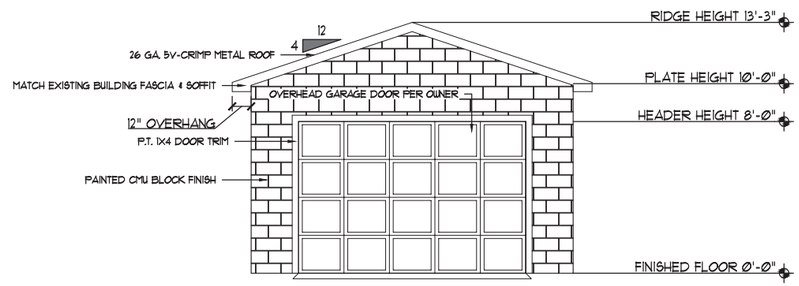
LANDSCAPE PLAN
HOWARD
515 MOUNTAIN DRIVE
DESTIN, FLORIDA

CALLIE & Co.
Land Planners
Landscape Architects
882 Harbor Blvd.
Suite 101
Destin, FL 32541
PHONE: 850-269-0663
FAX: (850) 269-0037
www.calliecandco.com

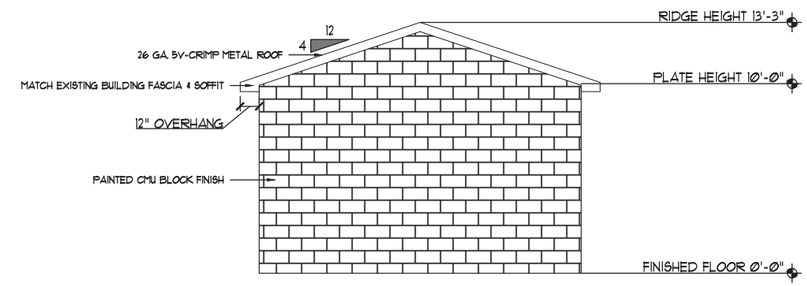
BUILDING CLASSIFICATION	
OCCUPANCY CLASSIFICATION	GROUP S-2
CONSTRUCTION CLASSIFICATION	IIIB W/ 2 HR RATING
FIRE SEPARATION DISTANCE	X < 5 FT
FIRE RATING REQUIRED (TABLE 602 2012 I.B.C.)	2 HRS
EXTERIOR WALLS	8" MASONRY



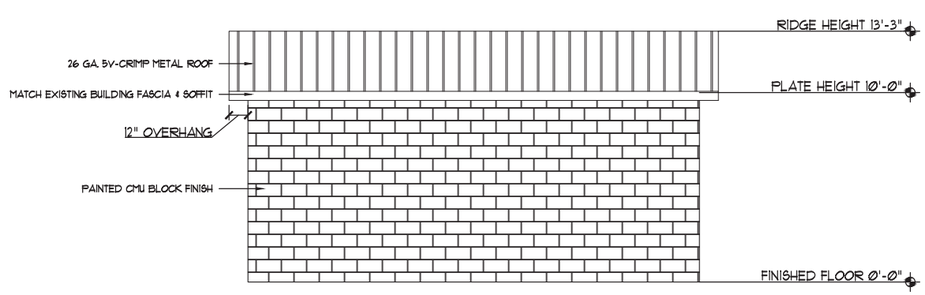
1 FLOOR PLAN
0 FULL SCALE: 1/4"=1'-0" 8



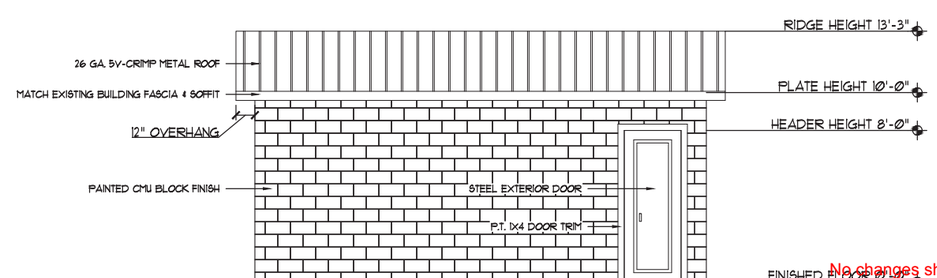
2 SOUTH/ FRONT ELEVATION
0 FULL SCALE: 1/4"=1'-0" 8



3 NORTH/ REAR ELEVATION
0 FULL SCALE: 1/4"=1'-0" 8



4 EAST/ RIGHT ELEVATION
0 FULL SCALE: 1/4"=1'-0" 8



5 WEST/ LEFT ELEVATION
0 FULL SCALE: 1/4"=1'-0" 8

A P P R O V E D
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREconsulting.COM
CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:
EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865
Not valid unless bearing Engineer's embossed seal

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D,
DESTIN, FLORIDA

STORAGE BUILDING
PLAN & ELEVATIONS

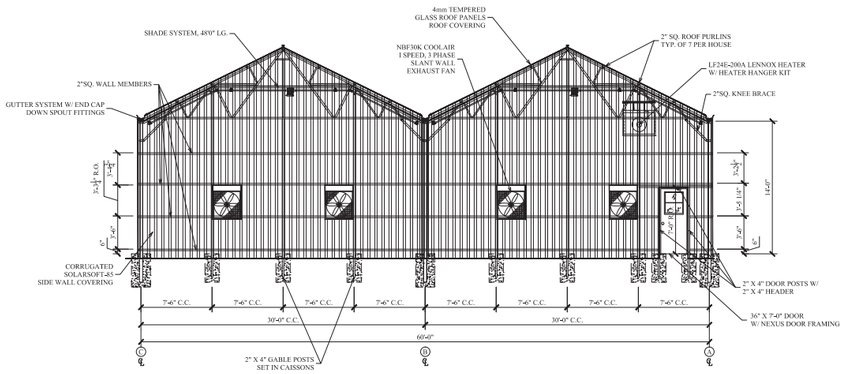
Job No.: 2014.08.005
Date: 02/02/2015
Scale: 1/4" = 1'-0"
Designed: CLO
Drawn By: CLO
Checked: ELS
Sheet: 14 of 15

A-1

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

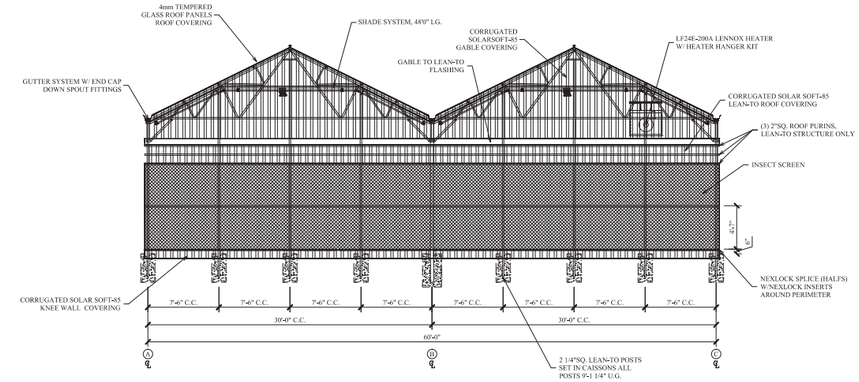
\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg

BUILDING CLASSIFICATION	
OCCUPANCY CLASSIFICATION	GROUP U (GREENHOUSE)
CONSTRUCTION CLASSIFICATION	IIIB
FIRE SEPARATION DISTANCE	10 < X < 30 FT
FIRE RATING REQUIRED (TABLE 602 2012 I.B.C.)	0 HRS
EXTERIOR WALLS	METAL FRAMING



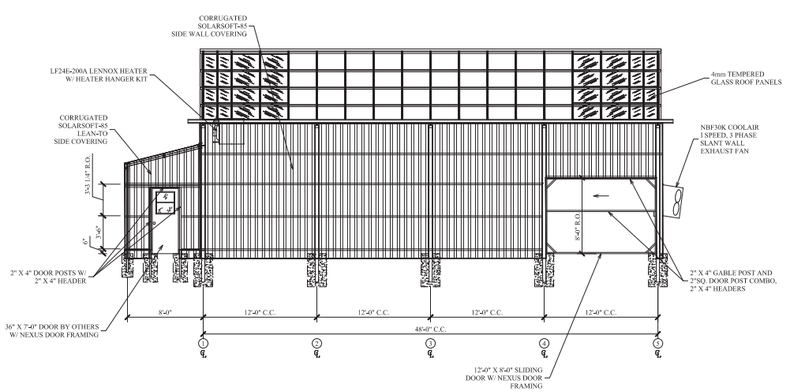
1 SOUTH/ FRONT ELEVATION

FULL SCALE: 1/8"=1'-0"



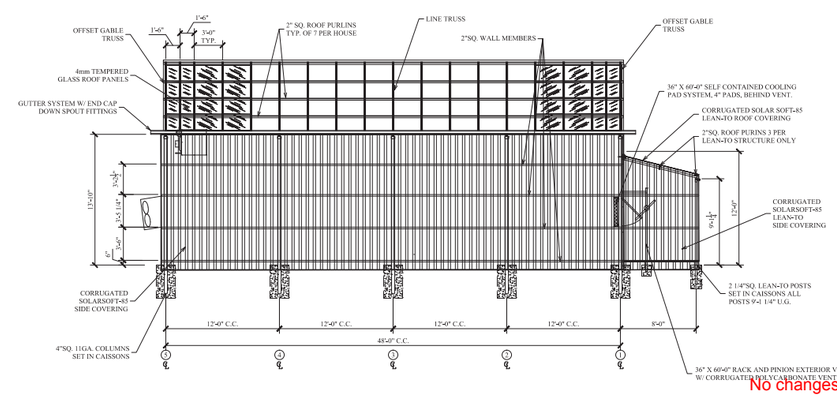
2 NORTH/ REAR ELEVATION

FULL SCALE: 1/8"=1'-0"



3 EAST/ RIGHT ELEVATION

FULL SCALE: 1/8"=1'-0"



4 WEST/ LEFT ELEVATION

FULL SCALE: 1/8"=1'-0"

APPROVED
January 29, 2015
City of Destin
Technical Review Team
15-05-SP

No changes shall be made to, and construction shall not deviate from, these approved plans without prior written approval from the City of Destin. Unapproved deviations may result in the revocation of builfing permits and the inability to secure a Certificate of Occupancy.

REVISIONS:
REV0: ISSUE FOR D.O.
REV1: RE-SUBMITTAL FOR D.O.
REV2: FINAL SUBMITTAL FOR D.O.

CORE ENGINEERING & CONSULTING, INC.
CIVIL & ENVIRONMENTAL ENGINEERING
3997 COMMONS DRIVE W.
SUITE F
DESTIN, FLORIDA 32541
PHONE: (850) 650-2646
FAX: (850) 837-1576
WEB: WWW.COREC0NSULTING.COM

CERTIFICATE OF AUTHORIZATION NO. 28155

Seal:

EDWIN L. STANFORD, P.E.
FL. REG. NO. 57865

PREPARED FOR:
515 MOUNTAIN DRIVE
LOTS 355 AND 356, BLOCK E, CALHOUN S/D,
DESTIN, FLORIDA

GREENHOUSE ELEVATIONS

Not valid unless bearing Engineer's embossed seal

THIS DRAWING IS THE PROPERTY OF CORE ENGINEERING & CONSULTING, INC. & IS NOT TO BE REPRODUCED WITHOUT EXPRESSED WRITTEN CONSENT.

Job No.:	2014.08.005
Date:	02/02/2015
Scale:	1/8" = 1'-0"
Designed:	CLO
Drawn By:	CLO
Checked:	ELS
Sheet:	15 of 15

A-2

\\CORE-SERVER\Share\Project Data\Structural Details and Info\2014.08.005 - Mountain Greenhouse Howard Group\4-0 Production\Drawing CAD\C-NC-GRNHS.dwg