

1350 Baldwin Avenue
Post Office Box 685
DeFuniak Springs, FL 32435



Phone: (850) 892-8500
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www.defuniaksprings.net

**PLANNING BOARD
REGULAR MEETING AGENDA
1350 BALDWIN AVENUE, CITY HALL
MONDAY, APRIL 7, 2025
5:30 PM**

- 1. CALL TO ORDER**
- 2. INVOCATION AND PLEDGE OF ALLEGIANCE**
- 3. ROLL CALL**
- 4. APPROVAL OF MINUTES**
 - A. March 3, 2025
- 5. NEW BUSINESS**
 - A. Review of the Final Plan for Bay Springs Ph 3 (2024-SD-01)
 - B. Review of the preliminary plans for the Circle Drive Lakeside Townhomes (2025-SP-04)
 - C. 2025-SSA-05 & 2025-RZ-04, Jonathan Nash's request to amend the Future Land Use Map and a request to amend the Zoning Map.
- 6. PLANNING DIRECTOR UPDATE**
- 7. CITIZEN COMMENTS**
- 8. ADJOURNMENT**

Florida Statute 286.0105. Notices of meetings and hearings must advise that a record is required to appeal. Each board, commission, or agency of this state or of any political subdivision thereof shall include in the notice of any meeting or hearing, if notice of the meeting or hearing is required, of such board, commission, or agency, conspicuously on such notice, the advice that, if a person decides to appeal any decision made by the board, agency, or commission with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. The requirements of this section do not apply to the notice provided in s. 200.065(3). In accordance with Section 286.26, F.S., persons with disabilities may contact the City Clerk at cityclerk@defuniaksprings.net or 850-892-8500 ext. 1103.

**DeFuniak Springs Planning Board
Regular Meeting Minutes
City Council Chambers
March 3, 2025**

1. Call of Order

Graham Campbell-Work Chair, called the meeting to order at 5:30 pm.

2. Invocation and Pledge of Allegiance

Mayor Campbell lead the Invocation and Pledge of Allegiance.

3. Roll Call

Present: Graham Campbell-Work Chair, Brooke Hoke Vice Chair, Kevin Shepherd, LaKisha Brinson, Mark Bird, Tyrone King.

Absent:

Also, present City Attorney Clay Adkinson, Mayor Bob Campbell, Planning Director Chris Wallace, and City Clerk Rafael Ali.

4. APPROVAL OF MINUTES

A. February 3, 2025

Mrs. Hoke stated that there were two typos within the minutes: the misspelling of her name and the name "La Rumba."

A motion was made to approve the minutes by Mr. Bird and seconded by Mrs. Brinson; the motion passed without objection.

5. NOTICE AND PROCEDURES OF THE PLANNING BOARD

Mr. Wallace presented the notice and procedures of the planning board.

Mr. Wallace stated that we are more than happy to send out a 15-day notice prior to the planning board meeting with a letter stating the request and a map of the request.

Mr. Wallace stated that this should provide sufficient notice.

Mr. Wallace stated that he does not think we need to run this in the newspaper.

Mr. Wallace stated that sufficient mailing will provide people with the opportunity to come and speak.

Mr. Wallace stated that we may get a couple of people to show up.

Mr. Wallace stated that this will allow you to make more informed decisions.

Mr. Campbell-Work asked if this is more of a courtesy.

Mr. Wallace stated yes.

Mr. Wallace stated that if the board is okay, he would need a motion to change the land development code to state that a 15-day notice is required.

A motion was made to approve to have a 15 day notice for the planning board meeting to the land development codes by Mr. Bird and seconded by Mrs. Hoke; the motion passed without objection.

Mayor Campbell stated that we need to making it clear that the only time we will give notice is when there is a zoning change.

Mr. Wallace stated that it will be very specific.

Mr. Wallace stated that it will have to go to the code review committee tonight and then be brought to the council to start that text amendment.

Mr. Townsend stated that the code review committee would like to see if the planning board has any other changes they would like to suggest.

Mr. Townsend stated that the planning board will be engaged in the land development code rewrite.

Mr. Townsend asked if the board would like to see something different when it comes to the planning process.

Mr. Bird asked Mr. Wallace if there is anything that he thinks we can do better.

Mr. Wallace stated that he hopes the information received from him is informative, and he thinks we have had good, productive conversations about the items.

Mr. Wallace stated that he does not think there is anything that needs to be changed but he is open to the board's comments on that.

Mr. Wallace stated that something we have added is the addition of his recommendations.

Mr. Wallace stated that he is more than happy to include more items in his staff report if the board would like.

Mrs. Hoke stated that she would like to get together with other boards and collaborate.

Mr. Wallace stated that is something that can definitely be done.

Mr. Bird stated that a workshop would be great to have.

Mr. Wallace stated that when we have a consultant hired, we will hold a joint meeting for the city council and planning board to be on the same page.

6. PLANNING DIRECTOR UPDATE

Mr. Wallace provided his Planning Director update.

Mr. Wallace stated that in front of 4 C's BBQ, you have the new DeFuniak Springs Plaza.

Mr. Wallace stated that Tractor Supply is moving along.

Mr. Wallace stated that Wendy's is having a ribbon cutting.

Mr. Wallace stated that The Arbour at Emerald Springs is going to have the development order issued.

Mr. Wallace stated that Alden Springs will have 125 single-family homes.

Mrs. Hoke asked about the RFQ that was put out for the second story of the Chautauqua Building.

Mr. Townsend stated that the Department of State has expressed concerns that going out to bid hasn't worked out, and they are going to allow us to choose our own contractor.

Mr. Townsend stated that hopefully, we can get that done by the end of the fiscal year.

Mr. Townsend stated that we probably have about a month and a half until we can get that started.

Mayor Campbell asked, "What is going on across the street from Nola?"

Mr. Wallace answered that it is the wine shop.

Mr. Wallace stated that they started moving dirt and ran into a couple of issues with elevation changes.

Mr. Bird asked about traffic lights between 83 and Walton Road.

Mr. Townsend stated that the state has a design, and we are waiting for FDOT to get the funding for that light.

7. CITIZEN COMMENTS

There was no citizen comment.

8. ADJOURNMENT

A motion was made to adjourn by Mr. Bird and seconded by Mrs. Brinson; the motion passed without objection.

The meeting was adjourned at 5:26 PM.

Approved:

Graham Campbell-Work, Chair

ATTEST:

Rafael Ali, City Clerk
Proper notice having been duly given.

BAY SPRINGS PH III

A RESIDENTIAL DEVELOPMENT IN SECTION 10, TOWNSHIP 2 NORTH, RANGE 19 WEST WALTON COUNTY, FLORIDA

SITE IMPROVEMENT PLANS

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.

UTILITIES NOTE

CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING UTILITIES AND COORDINATE WITH UTILITY COMPANIES 48 HOURS PRIOR TO CONSTRUCTION.

UTILITY COMPANIES

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

GAS, WATER & SEWER: CITY OF DEFUNIAK SPRINGS
P.O. BOX 685
DEFUNIAK SPRINGS, FL 32435
PHONE: (850) 892-8503

TELEPHONE: SPECTRUM
94 WALTON ROAD
DEFUNIAK SPRINGS, FL 32433
PHONE: (850) 874-2389

TV CABLE: BRIGHT HOUSE NETWORKS 94
WALTON ROAD
DEFUNIAK SPRINGS, FL. 32433
PHONE: (800) 876-1872

ELECTRIC: FLORIDA POWER & LIGHT
1655 S. FERDON BOULEVARD
CRESTVIEW FL, 32569
CONTACT: JOEL HUGHES
PHONE: (850)-689-4623

DATE PREPARED:

15 SEPT 2024

REVISIONS:

10 DECEMBER 2024

PREPARED BY:

CHOCTAW ENGINEERING, INC.
112 TRUXTON AVENUE
FT. WALTON BEACH, FL 32547
PHONE: (850) 862-6611
FAX: (850) 863-8059
cei@choctaweng.com

PREPARED FOR:

EOTL, LLC
1474-A WEST 84 STREET
HIALEAH, FL 33014
PHONE: (305) 823-1401
CONTACT: MIKE MCCORMICK

CEI PROJECT NO.: 2020-150-E

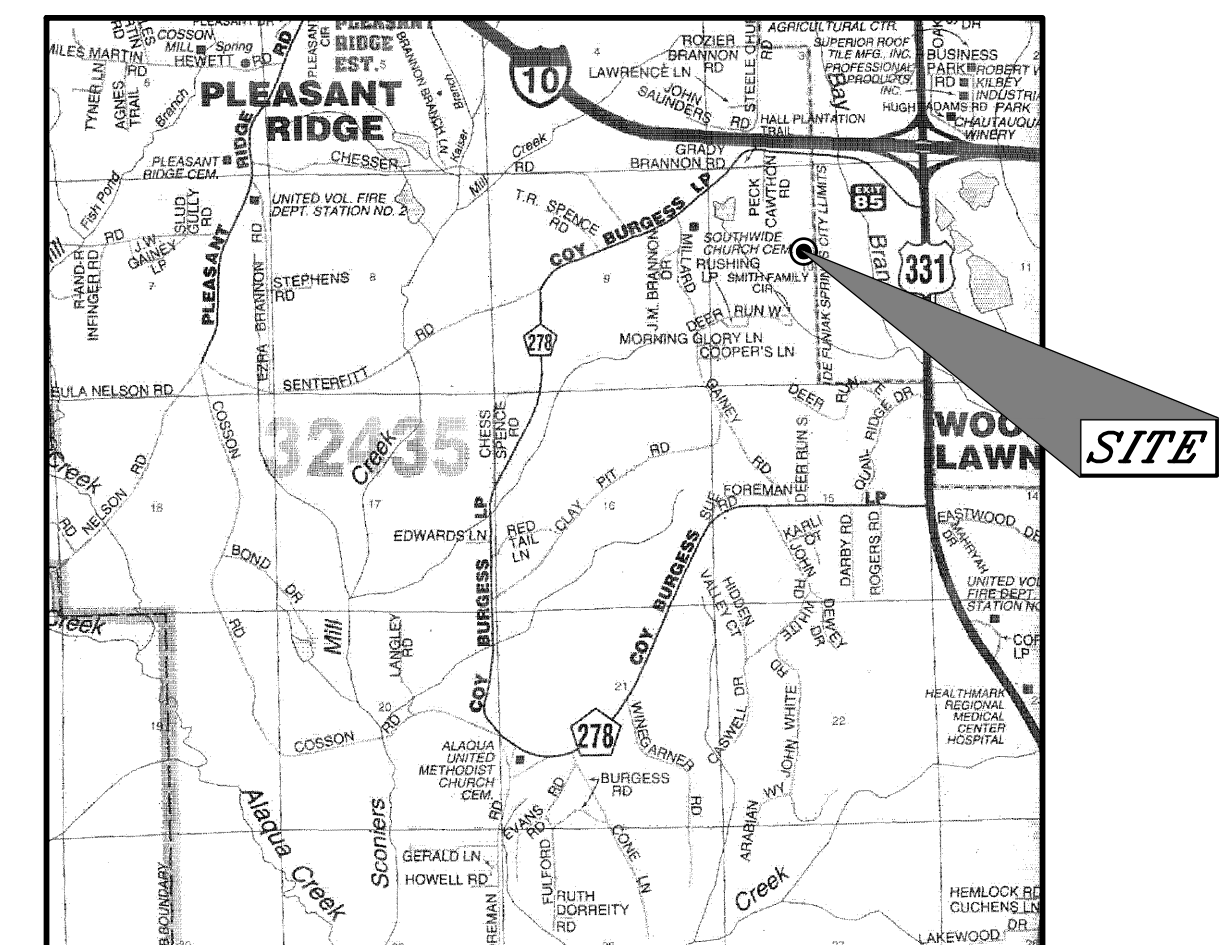
BENCHMARK INFORMATION:

BENCHMARK #1
FOUND IRON ROD LOCATED ON THE
NORTHWEST PROPERTY CORNER OF PH I
ELEV.:147.75

BENCHMARK #2
FOUND IRON ROD LOCATED ±600 FEET EAST
OF NORTHEAST PROPERTY CORNER OF PH I
ALONG SOUTH SIDE OF PECK CAWTHON ROAD
ELEV.:153.53

DESCRIPTION (AS FURNISHED):

A PARCEL OF LAND LOCATED IN SECTION 10, TOWNSHIP 2 NORTH, RANGE 19 WEST, WALTON COUNTY FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS:
COMMENCE AT THE SOUTHWEST CORNER OF THE NORTHEAST QUARTER OF SECTION 10, TOWNSHIP 2 NORTH, RANGE 19 WEST, WALTON COUNTY, FLORIDA; THENCE RUN ALONG THE EAST LINE OF SAID NORTHWEST QUARTER S01°56'53"W FOR A DISTANCE OF 131.13 FEET TO THE POINT OF BEGINNING; THENCE RUN S87°53'42"E FOR A DISTANCE OF 888.64 FEET; THENCE RUN S04°07'04"E FOR A DISTANCE OF 493.45 FEET; THENCE S33°07'04"E FOR A DISTANCE OF 1430.00 FEET; THENCE RUN S16°52'56"W FOR A DISTANCE OF 270.00 FEET; THENCE RUN N73°07'04"W FOR A DISTANCE OF 1750.60 FEET; THENCE N01°53'53"E FOR DISTANCE OF 1473.30 TO THE POINT OF BEGINNING. PARCEL CONTAINS ±48.20 ACRES.



LOCATION MAP
NOT TO SCALE

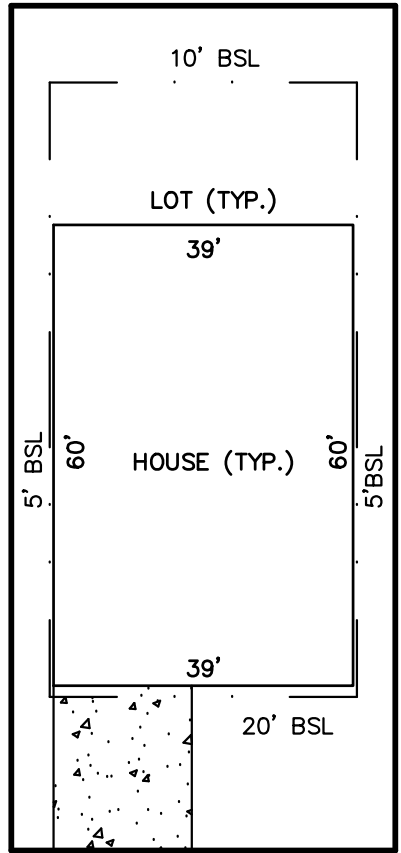
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| 12. UTILITY PLAN (2 OF 2) | 25. SPECIFICATIONS (3 OF 3) |
| 13. SECTIONS AND PROFILES (1 OF 3) | |



Digitally signed by
Mark C Siner
Date: 2025.03.13
13:07:01 -05'00'

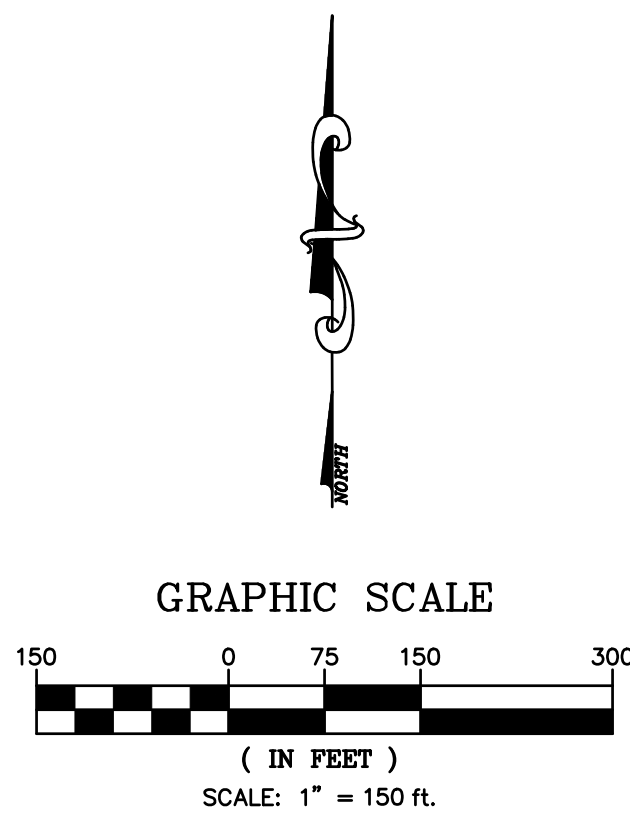
MARK C. SINER, P.E.
FL. REG. NO. 48831



TYPICAL LOT SETBACK DETAIL

NTS

NOTE:
3,250 SF MAXIMUM IMPERVIOUS AREA PER LOT.



LEGEND

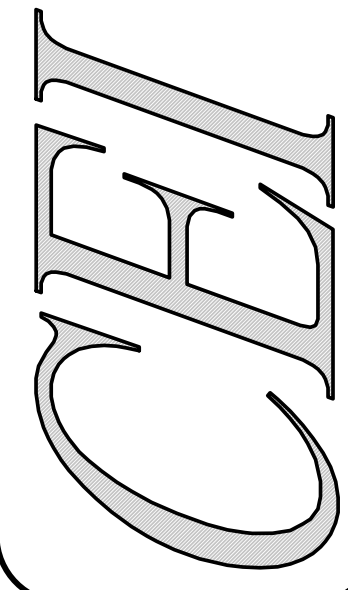
- ASPHALT
- CONCRETE
- SETBACK LINE
- POWER POLE
- GUY ANCHOR
- LIGHT POLE
- OVERHEAD UTILITY LINE
- ELECTRICAL BOX
- TELEVISION BOX
- TRAFFIC SIGNAL BOX
- TELEPHONE BOX
- FENCE
- TRAFFIC ARROW
- CENTERLINE
- SINGLE POLE SIGN
- DOUBLE POLE SIGN
- MONITORING WELL

SITE DATA TABLE:

ZONED: R-2 (RESIDENTIAL)
LAND USE: MDR (MEDIUM DENSITY RESIDENTIAL)
FLOOD ZONE: X, A*
BUILDING SETBACKS:
REQUIRED: FRONT = 20'
SIDE = 5'
REAR = 10'
TOTAL SITE AREA: 2,098,880 SF = 48.2 AC
LIMITS OF CONSTRUCTION: 960,280 SF = 22.0 AC
JURISDICTIONAL WETLANDS: 807,950 SF = 18.5 AC
TOTAL UNITS: 80 SINGLE FAMILY HOMES
SITE DENSITY ALLOWED: 16 DU / AC
SITE DENSITY PROPOSED: 80 DU / 48.2 AC = 1.66 DU/AC
IMPERVIOUS AREA ALLOWED: 734,608 SF = 35.0%
IMPERVIOUS AREA PROVIDED:
3,250 SF / LOT = 260,000 SF
ROADWAY = 198,700 SF
SIDEWALK = 11,600 SF
TOTAL = 470,300 SF = 22.4%
WETLANDS IMPACT AREA: 14,500 SF = 0.33 AC
PARKING SPACES REQUIRED: 2 SP / DU (80 DU) = 160 SPACES
PARKING SPACES PROVIDED: 160 SPACES
MAXIMUM BUILDING HEIGHT: 2 STORIES/ 35'
IMPERVIOUS AREA MAXIMUM PER LOT: 3,250 SF
MINIMUM LOT SIZE : 5,000 SF

* THIS PARCEL LIES IN FLOOD ZONE X (NO MINIMUM), FLOOD ZONE A (NO BASE FLOOD ELEVATION DETERMINED), AND FLOOD ZONE AE (BASE FLOOD ELEVATIONS VARY) AS DETERMINED BY SCALE FROM FEMA PANELS #12131C0260 G AND #12131C0270 G, DATED 30 DECEMBER 2020, AND FURNISHED BY FEMA FLOOD MAP SERVICE CENTER.

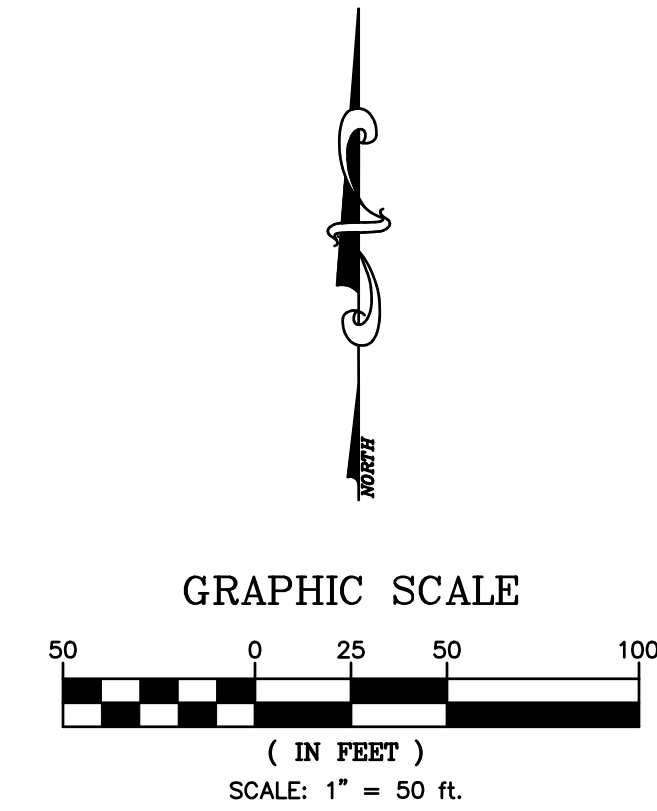
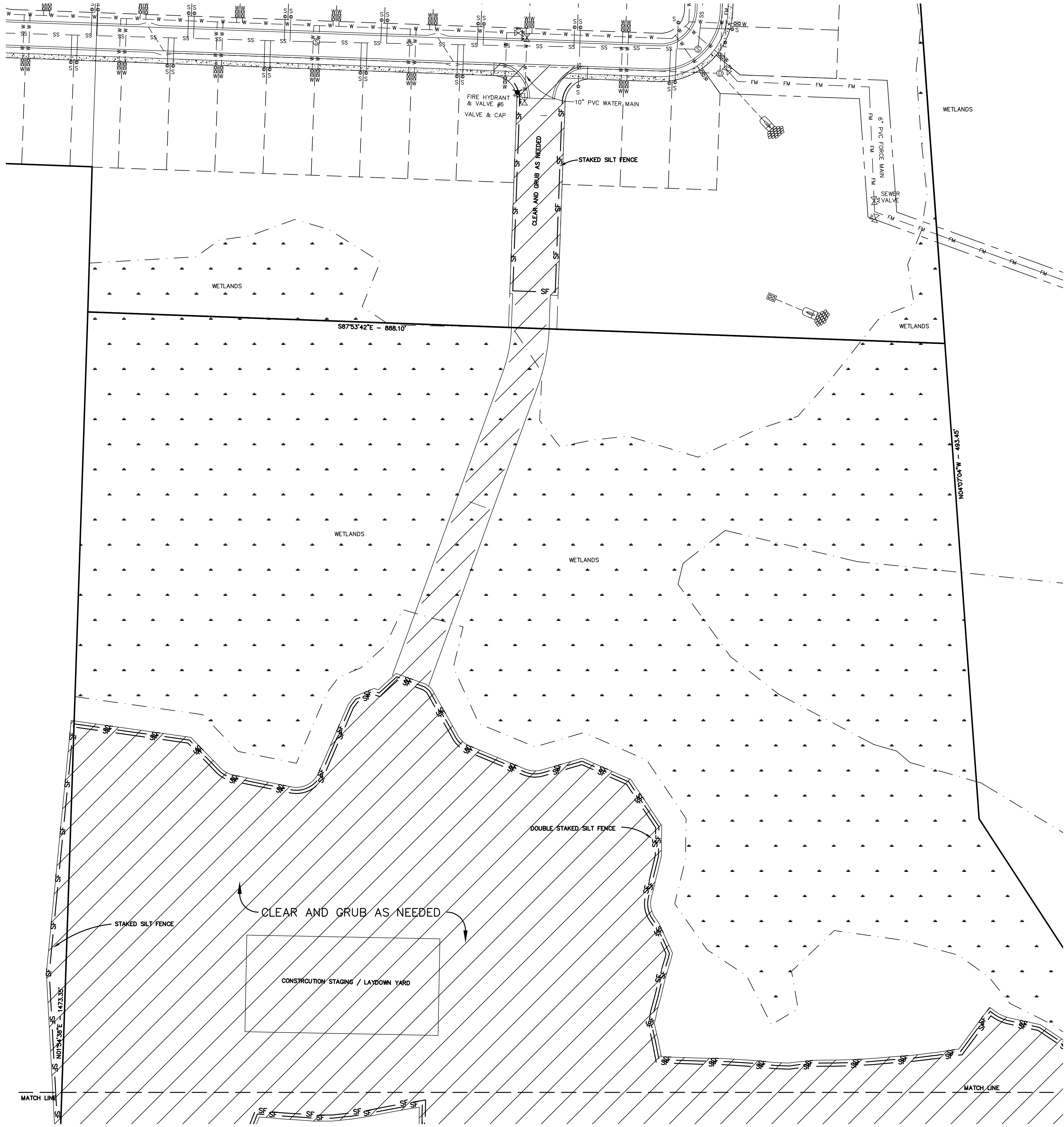
CHOCTAW ENGINEERING, INC.
ENGINEERING • ENVIRONMENTAL • SURVEYING
112 TRUXTON AVENUE
FORT WALTON BEACH, FLORIDA 32547
PHONE: 850-862-6811
FAX: 850-863-8059
EMAIL: cei@choctaweng.com
CERTIFICATE OF AUTHORIZATION No. 1532



Revisions:

BAY SPRINGS PH III
OVERALL SITE PLAN
Not valid unless bearing Engineer's embossed seal.
MARK C. SNER, P.E.
FL REG. NO. 48631

Job No.: 2020-150-E
Date: 15 SEPT 2024
Fld. Vol.: N/A
Scale: 1" = 150'
Disk No.: 20150E-ENG
Designed: MCS
Drawn: KMB
Checked: MCS
Sheet



- LEGEND
- EXISTING FEATURES TO BE REMOVED

DEMOLITION NOTES:

1. REMOVE PAVEMENT, BUILDINGS, BASE COURSE AND CURBING.
2. REMOVE EXISTING UTILITY SERVICES. COORDINATE WITH UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCING WORK.
3. CONTRACTOR SHALL DISPOSE OF ALL DEBRIS OFF-SITE AND BE IN COMPLIANCE WITH FEDERAL, STATE AND COUNTY LAWS AND REGULATIONS.
4. CONTRACTOR SHALL RETAIN ALL SOIL EROSION SEDIMENTATION ON-SITE BY USING STAKED SILT FENCE.
5. THE EXISTING WATER SERVICES WITHIN THE PROPERTY MUST BE LOCATED, DISCONNECTED AND CAPPED AT THE MAIN LINE AND REMOVED FROM THE SITE.
6. EXCAVATION MATERIAL TO BE USED AS FILL MATERIAL ON-SITE OR DISPOSED OFF-SITE.

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 IN ALL AREAS SUBJECT TO SOIL EROSION SEDIMENTATION.
3. GRADES AT CURBS ARE AT FLOWLINE.
4. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS THE 1ST STEP OF CLEARING AND GRADING
5. ADDITIONAL TECHNIQUES TO REDUCE SOIL TRACKING OFF OF SITE & ONTO ROADWAY SUCH AS WHEEL WASHING MAY BE REQUIRED.
6. ANY SEDIMENT THAT IS TRACKED ONTO ROADWAY SHALL BE REMOVED IMMEDIATELY BY SWEEPING. THE SEDIMENT COLLECTED BY SWEEPING SHALL BE REMOVED FROM ROADWAY & STABILIZED ON THE SITE.

CHOCTAW ENGINEERING, INC.

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112 TRUXTON AVENUE

FORT WALTON BEACH, FLORIDA 32547

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FAX: 850-863-8059

EMAIL: cei@choctaweng.com

CEI

CERTIFICATE OF AUTHORIZATION No. 1532

Revisions:

BAY SPRINGS PH III

DEMOLITION PLAN (1 OF 2)

Not valid unless bearing Engineer's embossed seal.

MWB/ACC.SNEHWA P.E.L.

FL REG. NO. 898935

Job No.: 2020-150-E

Date: 15 SEPT 2024

Fld. Vol.: N/A

Scale: 1" = 50'

Disk No.: 20150E-ENG

Designed: MCS

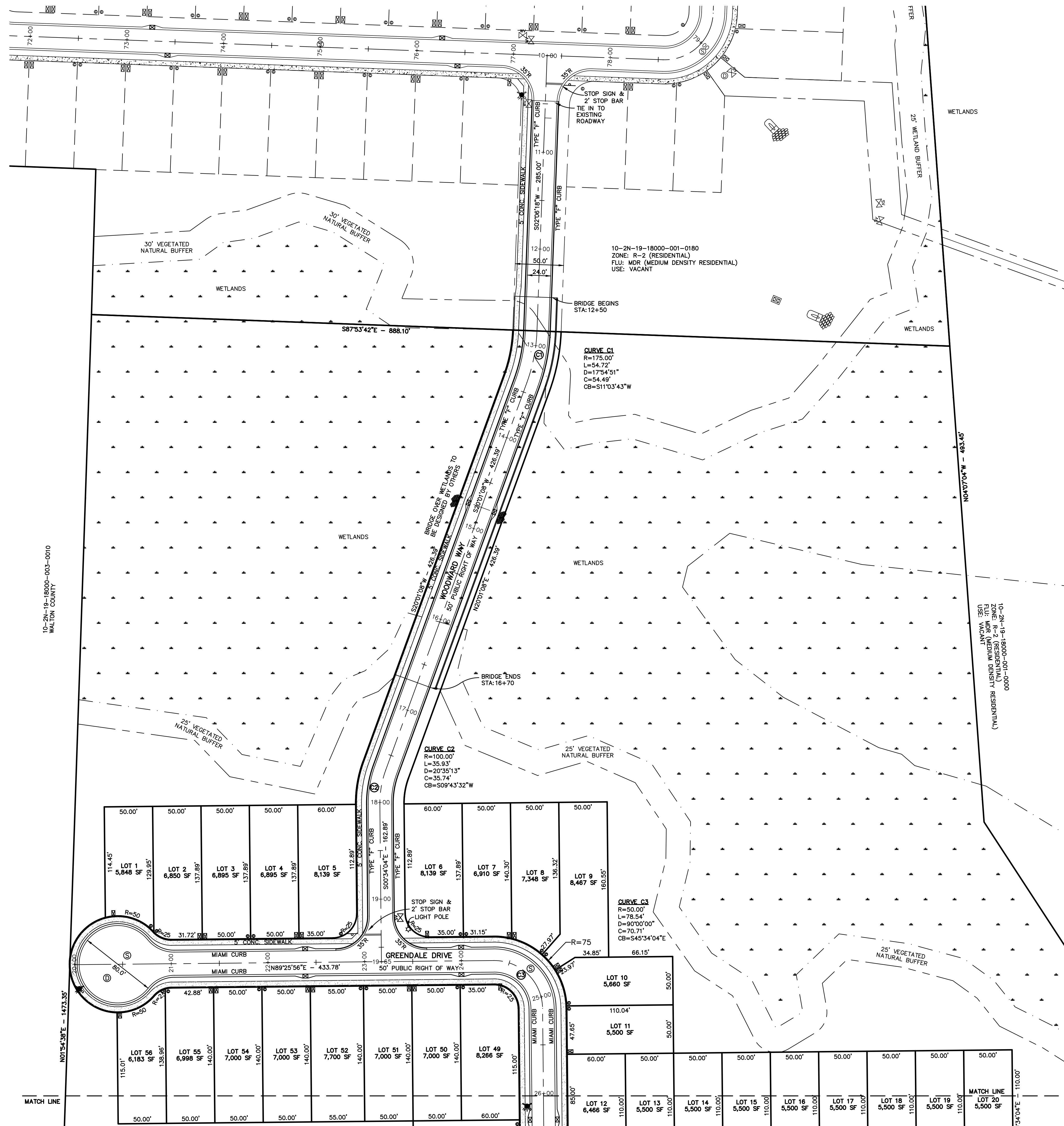
Drawn: KMB

Checked: MCS

Sheet

3 of 25

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GRAPHIC SCALE

(IN FEET)

SCALE: 1" = 50 ft.

LEGEND

- | | |
|--|-----------------------|
|  | ASPHALT |
|  | CONCRETE |
|  | SETBACK LINE |
|  | POWER POLE |
|  | GUY ANCHOR |
|  | LIGHT POLE |
|  | OVERHEAD UTILITY LINE |
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|  | DOUBLE POLE SIGN |
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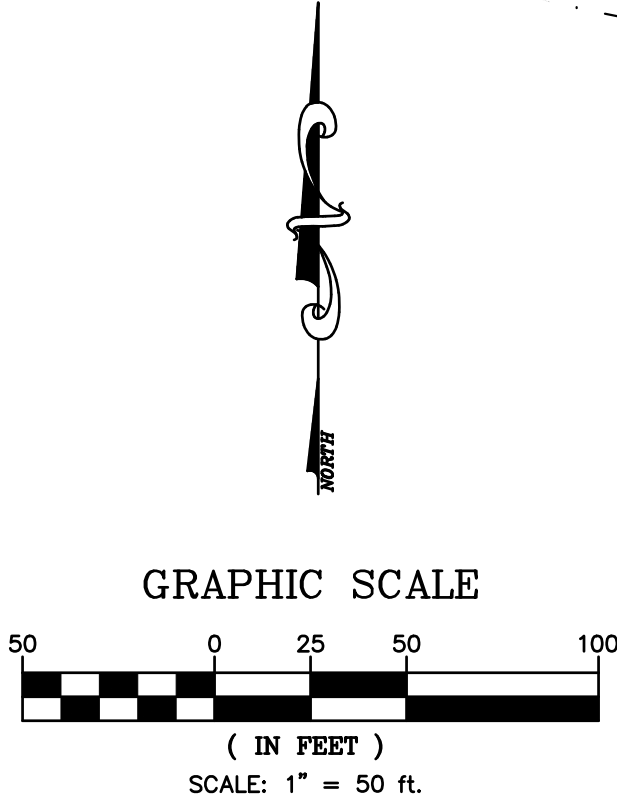
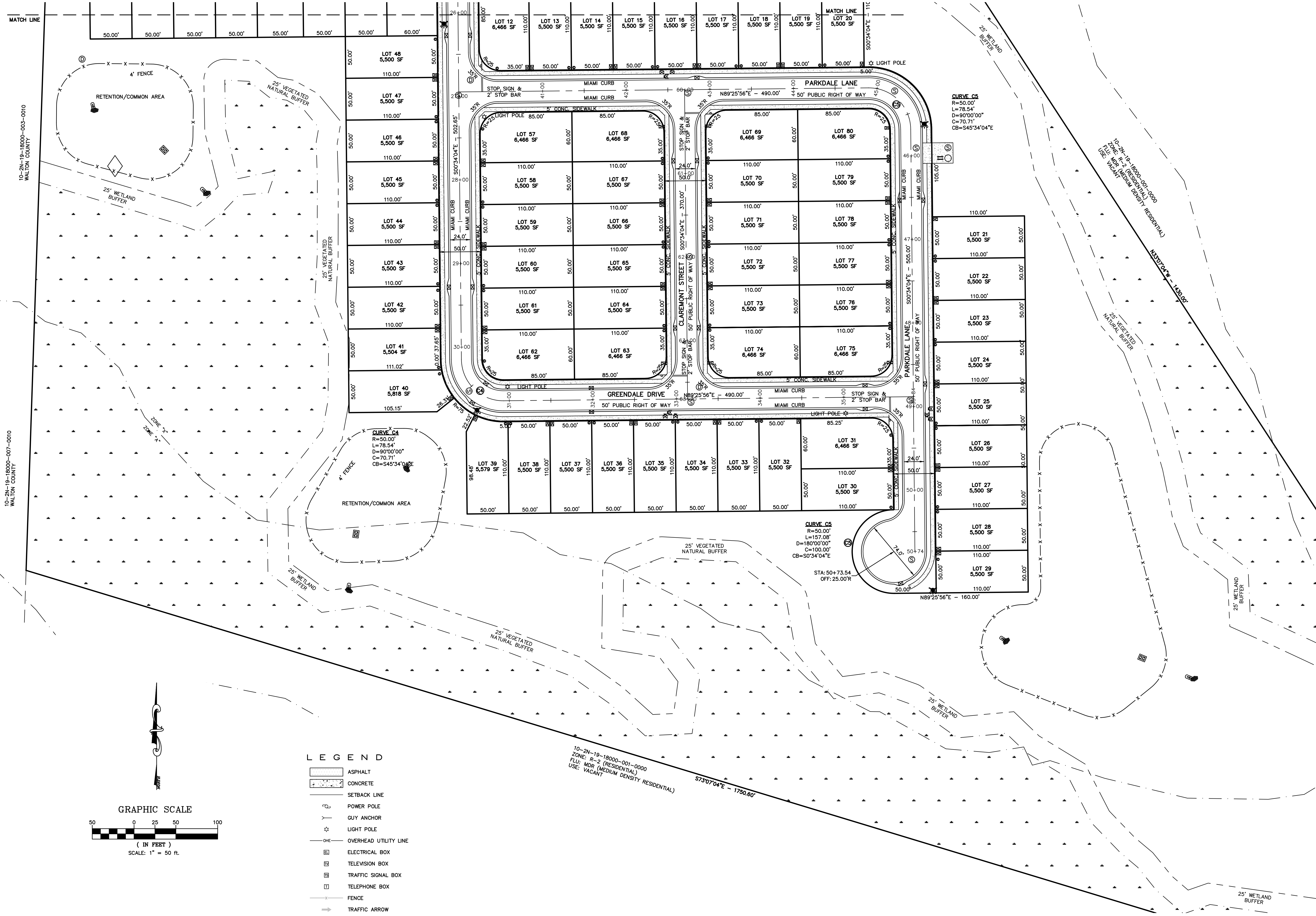
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PHONE: 850-562-6611
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CERTIFICATE OF AUTHORIZATION No. 1532

Revisions:
10 DEC 2024 PER CITY COMMENTS

BAY SPRINGS PH III
SITE PLAN (1 OF 2)

Job No.: 2020-150-E
Date: 15 SEPT 202
Fld. Vol.: N/A
Scale: 1" = 50'
Disk No.: 20150E-ENG
Designed: MCS
Drawn: KMB
Checked: MCS
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5 of 25



- LEGEND**
- ASPHALT
 - CONCRETE
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BAY SPRINGS PH III

SITE PLAN (2 OF 2)

Not valid unless bearing Engineer's embossed seal.

MMB/ACC/SNEHA P. E.I.E.
FL REG. NO. 89895

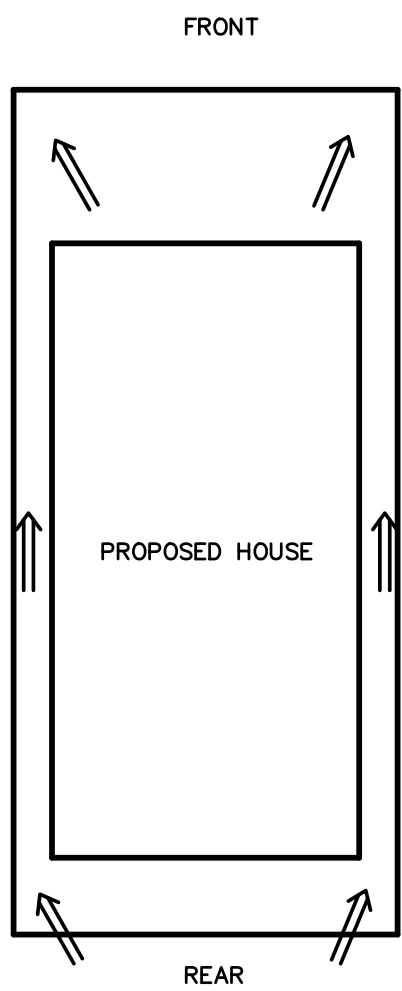
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6 of 25

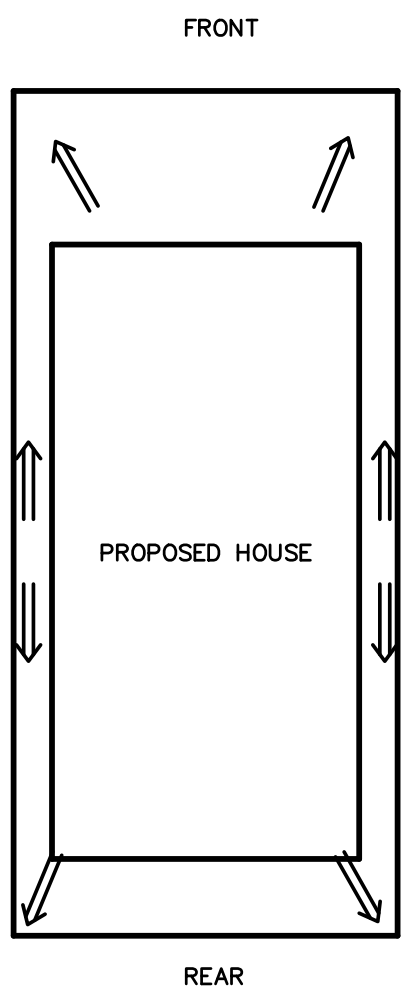
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TYPICAL LOT
GRADING DETAIL

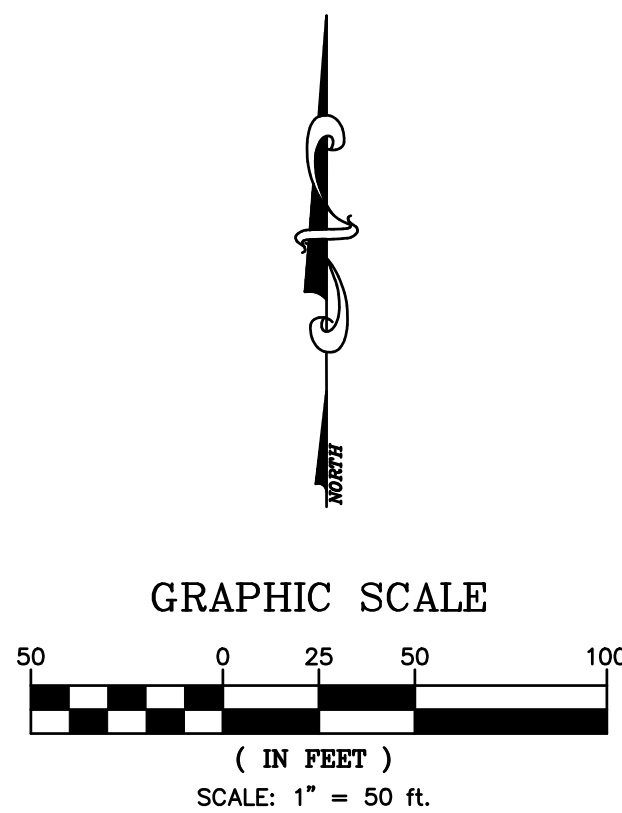
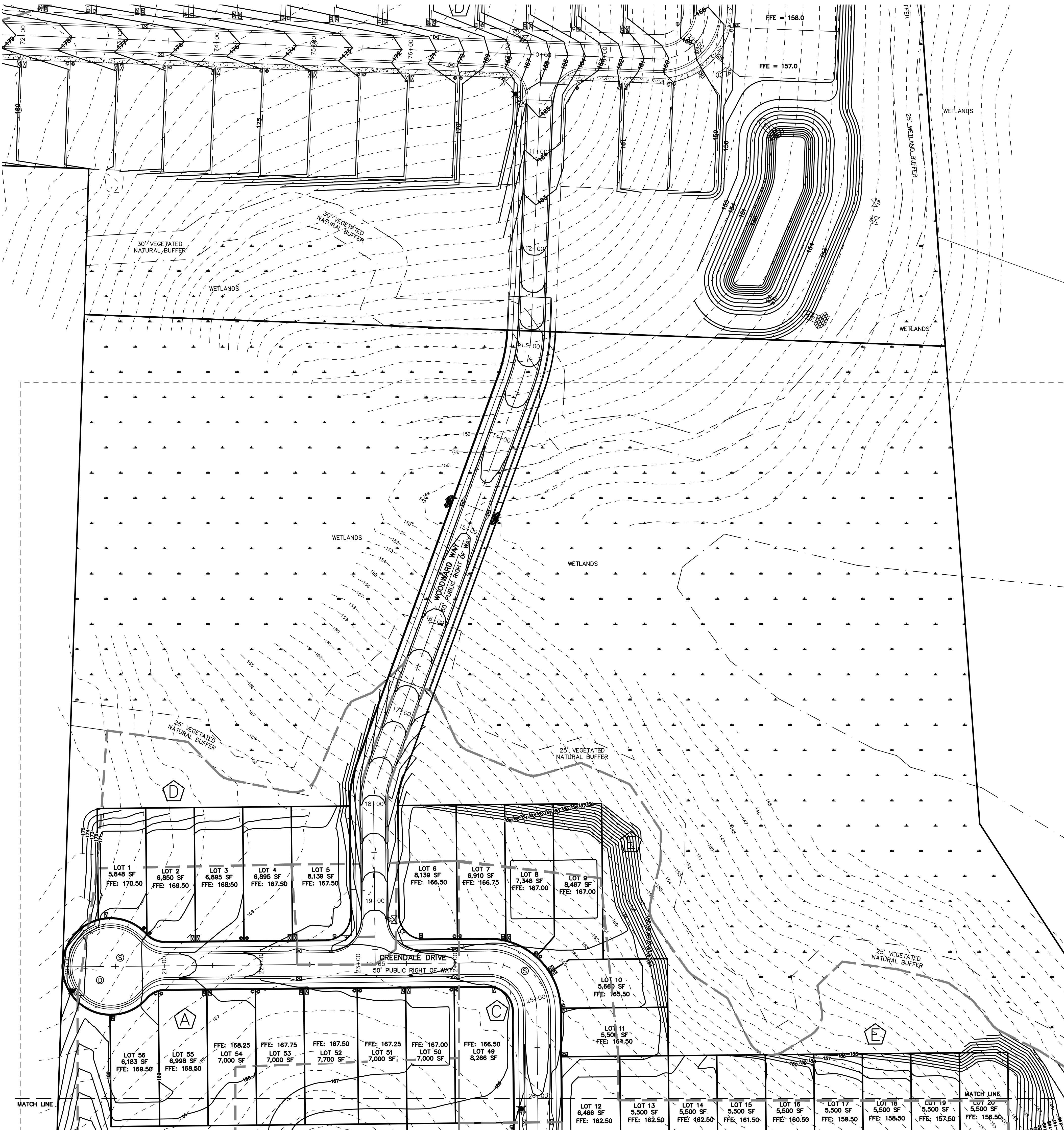


TYPICAL LOT
GRADING DETAIL

NOTE: ALL GRADING CONDUCTED IN
WETLAND BUFFER MUST BE STABILIZED TO
PREVIOUS CONDITIONS.

NOTE: ALL VEGETATED NATURAL
BUFFERS ARE TO REMAIN IN
UNDISTURBED EXISTING CONDITION.

NOTE: ALL RUNOFF FROM REAR OF
HOUSES DIRECTED TOWARDS VNB'S
MUST BE STABILIZED WITH VEGETATIVE
COVER THAT IS CONSISTENT WITH THE
FLORIDA YARDS AND NEIGHBORHOOD
PROGRAM AND NO FERTILIZER SHALL
BE APPLIED TO THESE AREAS



- LEGEND
- DIRECTION OF STORMWATER RUNOFF
 - FFE FINISHED FLOOR ELEVATION
 - DHW DESIGN HIGH WATER
 - PT PERC TEST LOCATION
 - BENCHMARK
 - PROPOSED SPOT GRADE
 - EXISTING SPOT GRADE
 - EXISTING CONTOUR
 - PROPOSED CONTOUR
 - STAKED SILT FENCE
 - BASIN AREA

NOTES:

- MATERIAL EXCAVATED FOR STORMWATER MANAGEMENT SYSTEM TO BE USED FOR FILL MATERIAL THROUGHOUT SITE.
- CONTRACTOR WILL BE RESPONSIBLE FOR MONITORING CONSTRUCTION AND SUBMITTING TO THE DISTRICT NOTICE OF COMMENCEMENT. ENGINEER-OF-RECORD WILL BE RESPONSIBLE FOR AS-BUILT CERTIFICATIONS WHEN PROJECT IS COMPLETED.
- THE PROPOSED DEVELOPMENT SHALL BE CONSTRUCTED WITH THE LOWEST FLOOR ELEVATION (EXCLUDING BASEMENTS AND NON-HABITABLE GARAGE) NOT LESS THAN ONE (1) FOOT ABOVE THE AVERAGE ACTUAL CROWN OR CENTER LINE OF THE LOWEST ELEVATION OF THE ROAD ABUTTING THE SUBJECT PROPERTY.
- STORMWATER RETENTION AREAS SHALL BE SODDED.

NOTE: DIRECT ALL ROOF DRAINAGE
AND ROOF RUNOFF INTO STORMWATER
MANAGEMENT SYSTEM.

VEGETATED NATURAL BUFFER NOTES:

- CONTRACTOR SHALL INSTALL EROSION CONTROL DEVICES TO PREVENT DISTURBANCE/ENCROACHMENT INTO WETLAND BUFFERS.
- ALL WETLAND BUFFERS SHALL BE MAINTAINED IN THEIR NATURAL VEGETATIVE STATE TO THE MAXIMUM EXTENT POSSIBLE.
- IN AREAS WHERE GRADING IS REQUIRED IN THE WETLAND BUFFERS, ALL DISTURBED AREAS SHALL BE STABILIZED AND REPLANTED WITH NATIVE VEGETATION.
- ALL AREAS WITHIN LOTS DRAINING DIRECTED TOWARDS WETLAND BUFFERS MUST BE STABILIZED WITH VEGETATIVE COVER THAT IS CONSISTENT WITH THE FLORIDA YARDS AND NEIGHBORHOOD PROGRAM AND NO FERTILIZER SHALL BE APPLIED TO THESE AREAS.

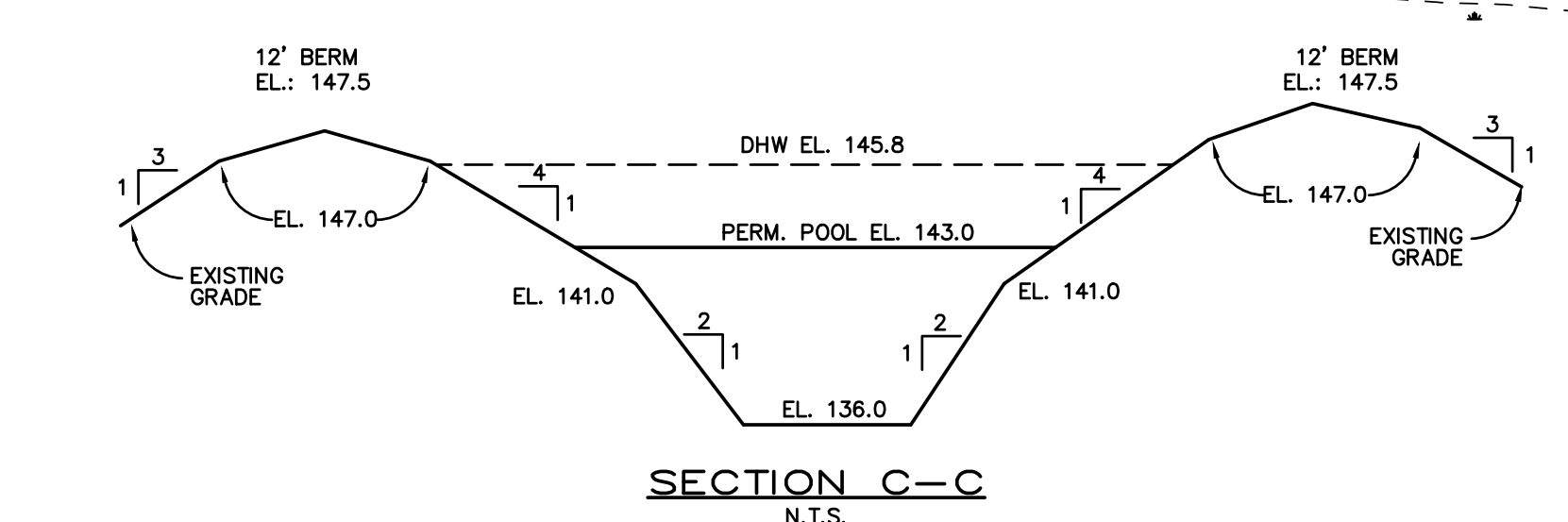
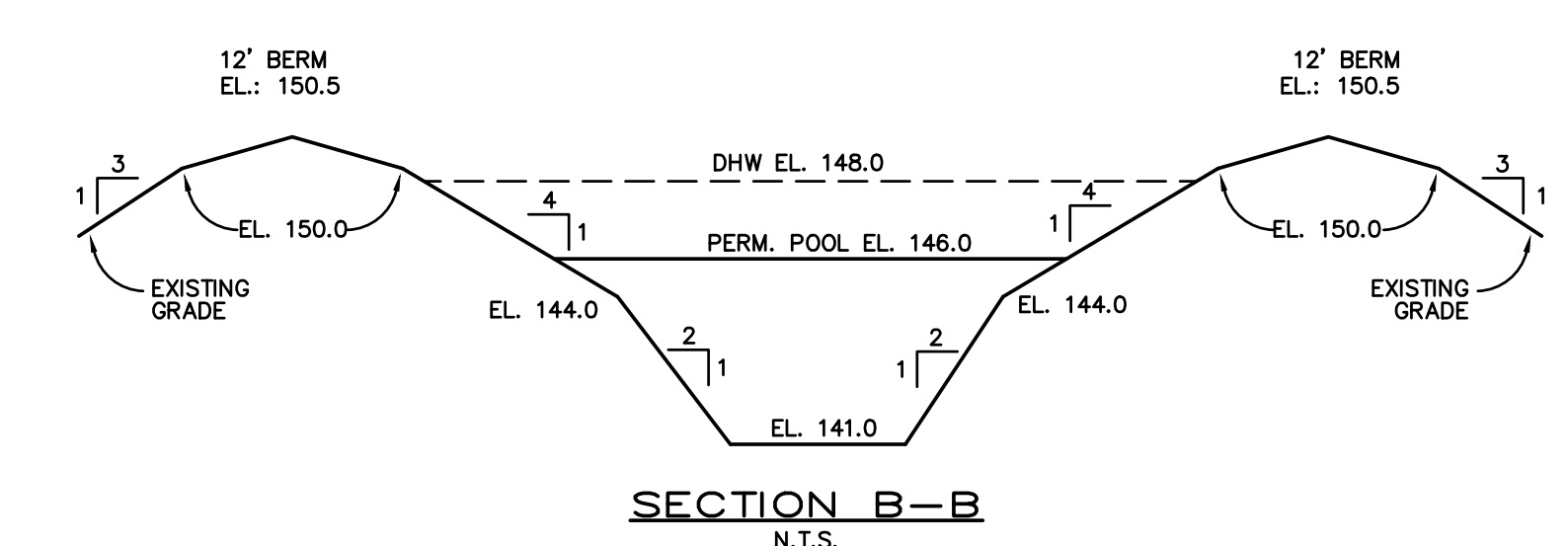
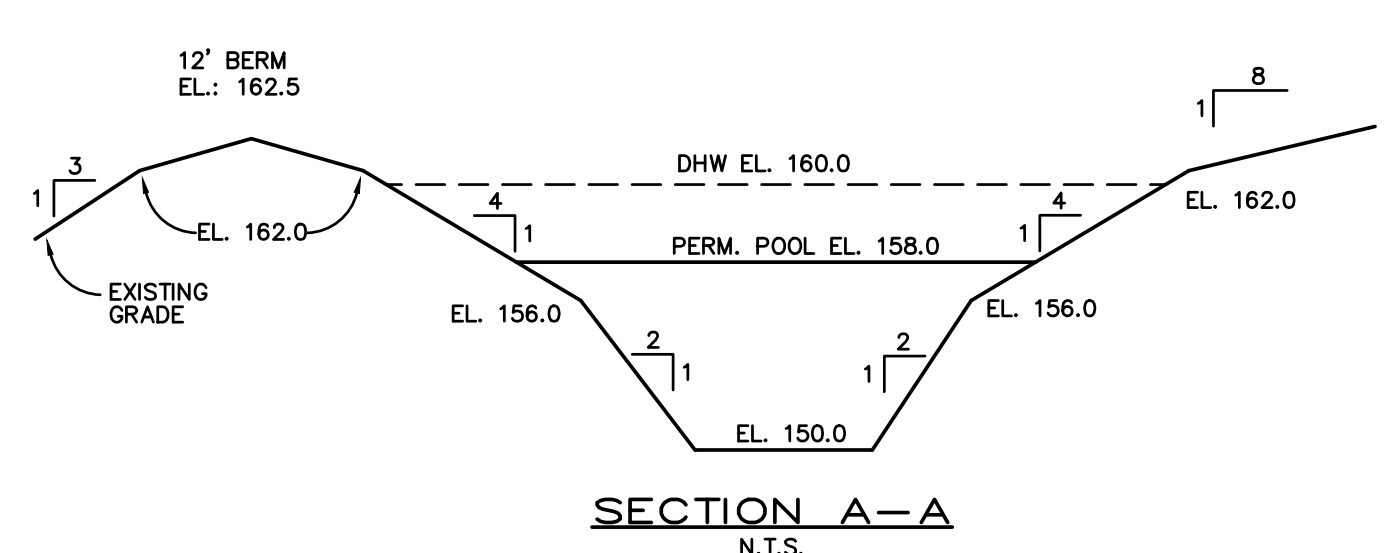
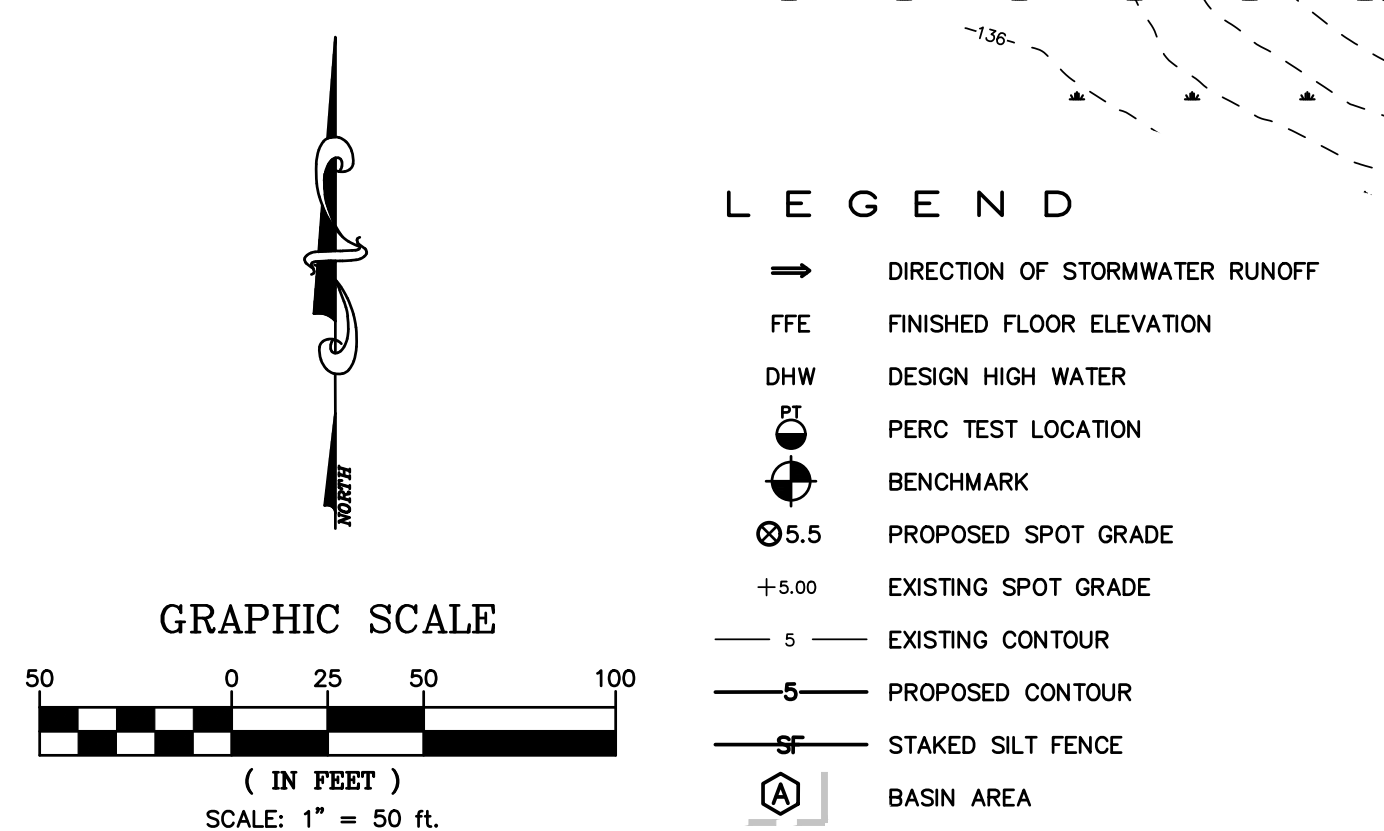
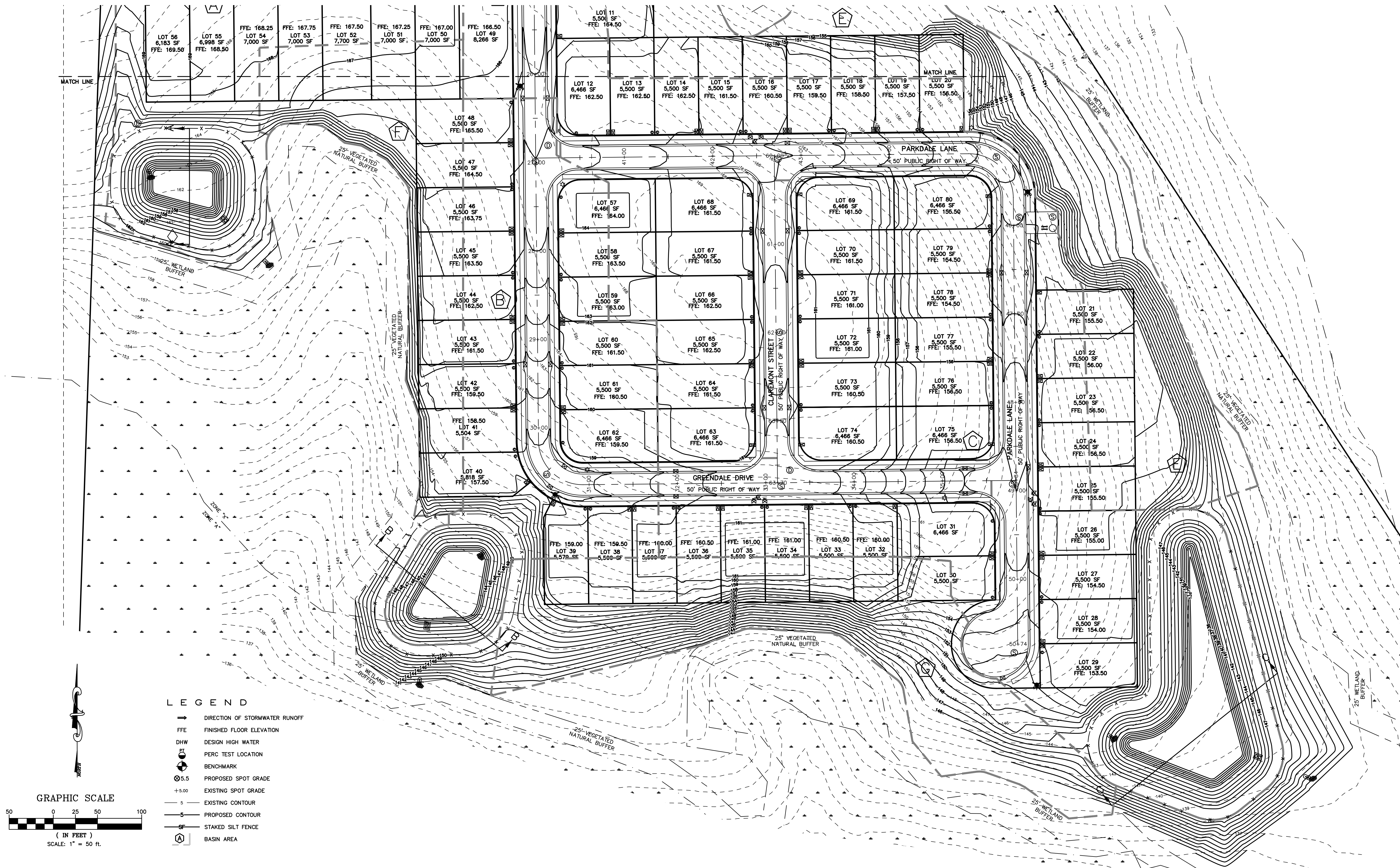
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FL REG. NO. 89935

Job No.: 2020-150-E
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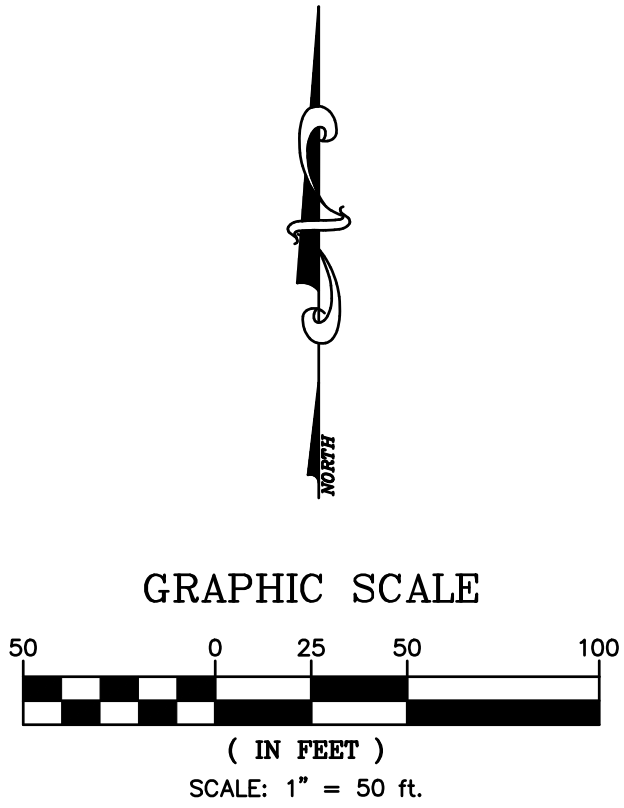
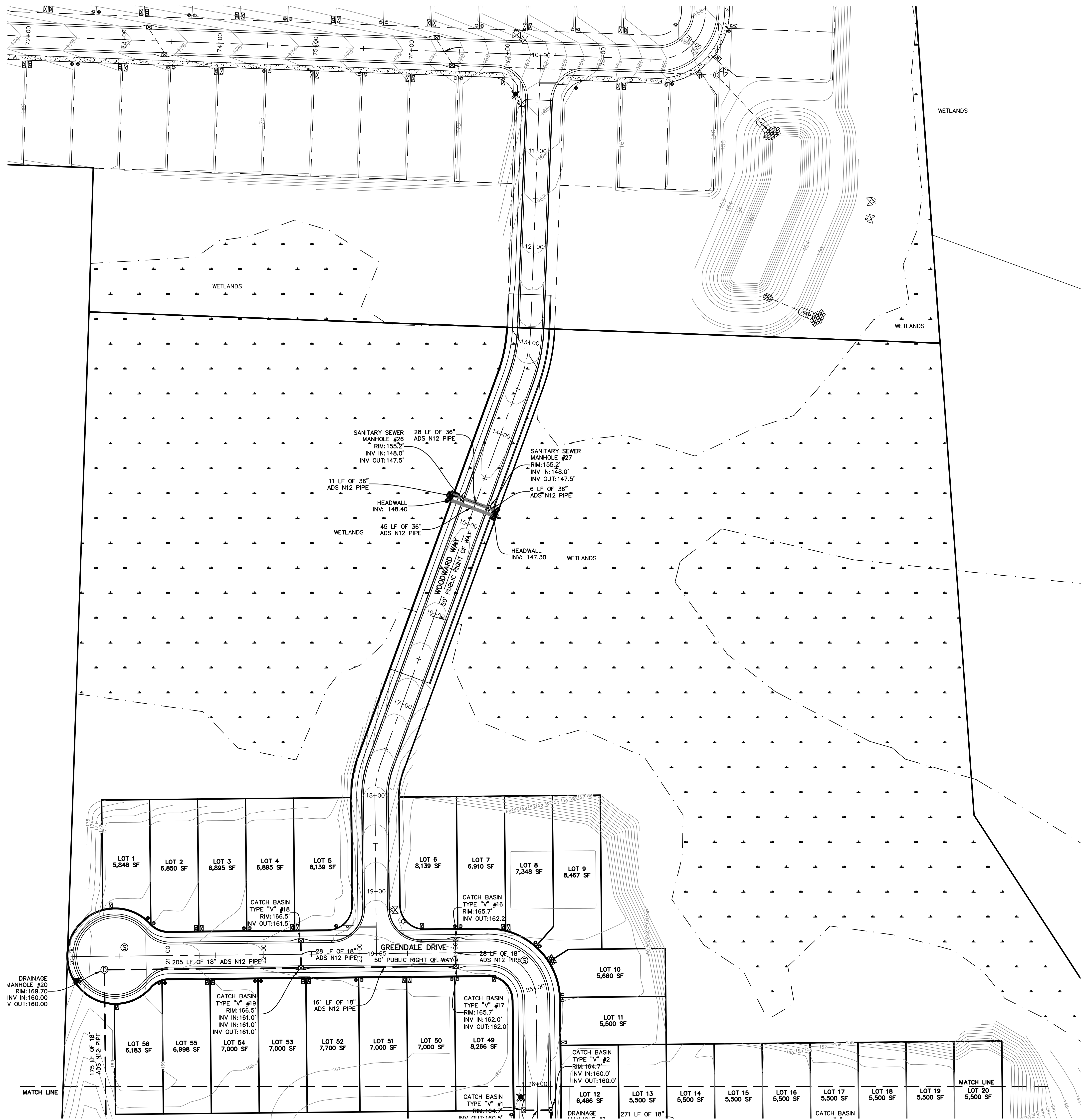
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- LEGEND**
- PROPOSED STORM SEWER PIPE
 - CPP CORRUGATED POLYETHYLENE PIPE
 - PCPP PERFORATED CORRUGATED POLYETHYLENE PIPE
 - EXISTING STORM SEWER PIPE
 - ⊙ STORM DRAIN MANHOLE
 - ⊠ CATCH BASIN
 - ⊠ TYPE "9" CURB INLET
 - ⊠ TYPE "3" CURB INLET
 - ⊠ TYPE "4" CURB INLET
 - ⊠ MITERED END SECTION

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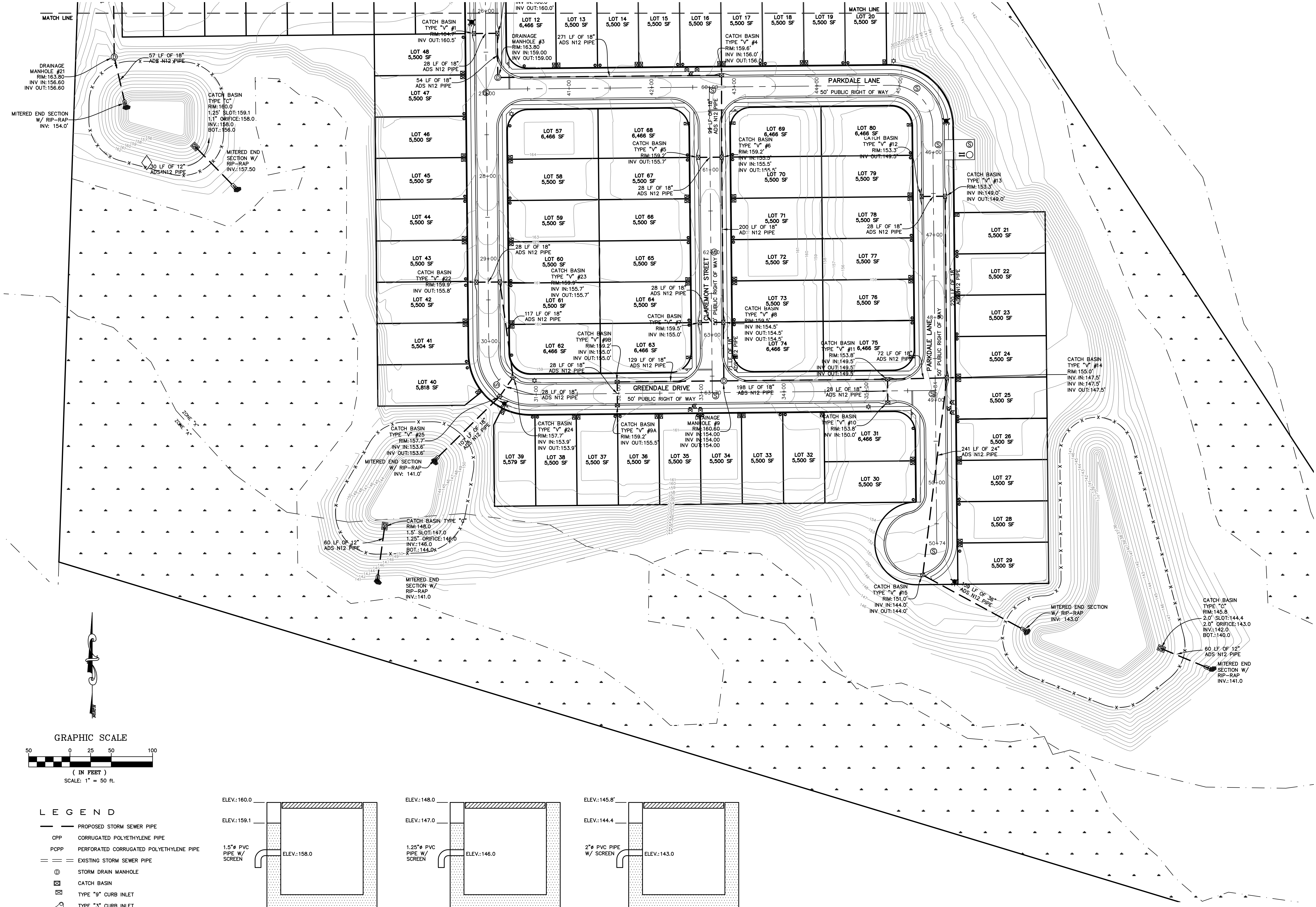
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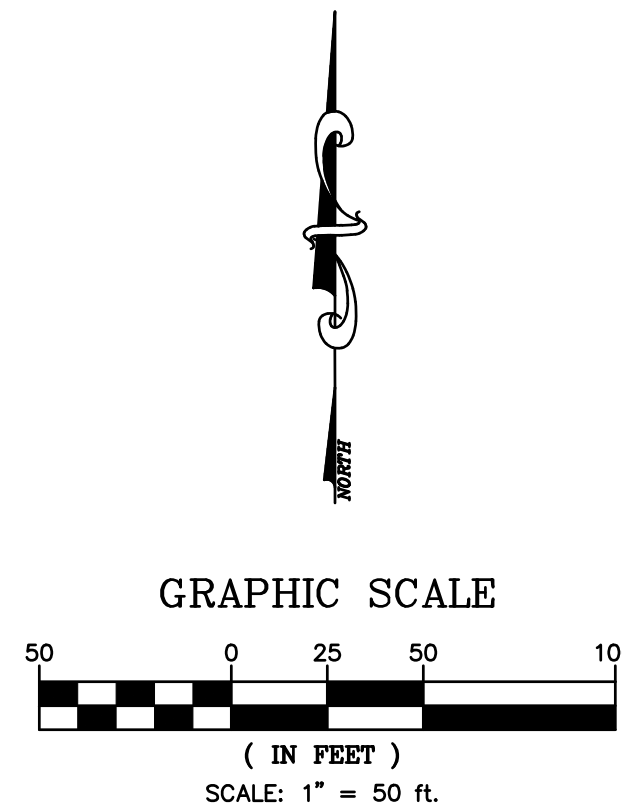
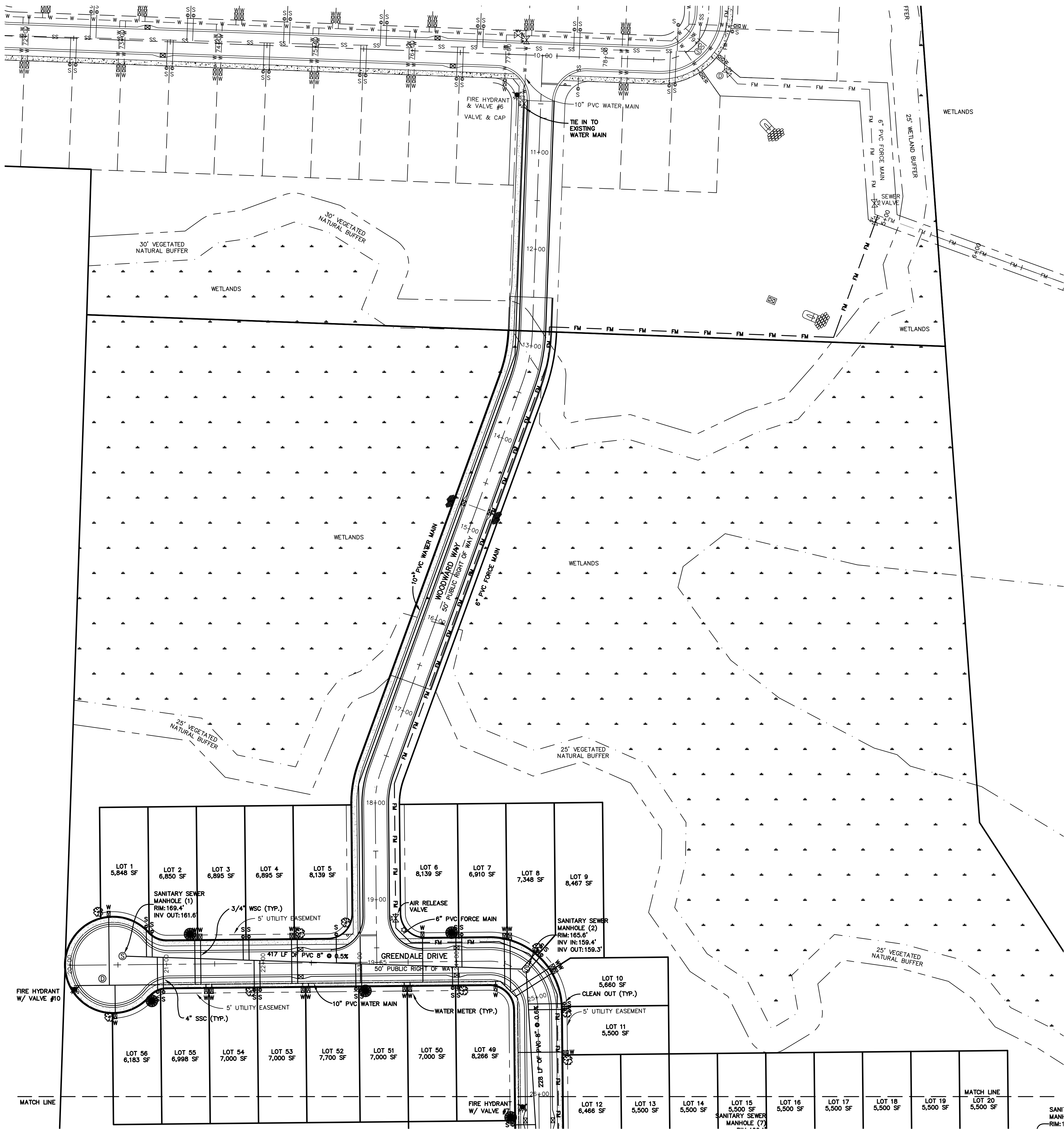
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DRAINAGE PLAN (1 OF 2)
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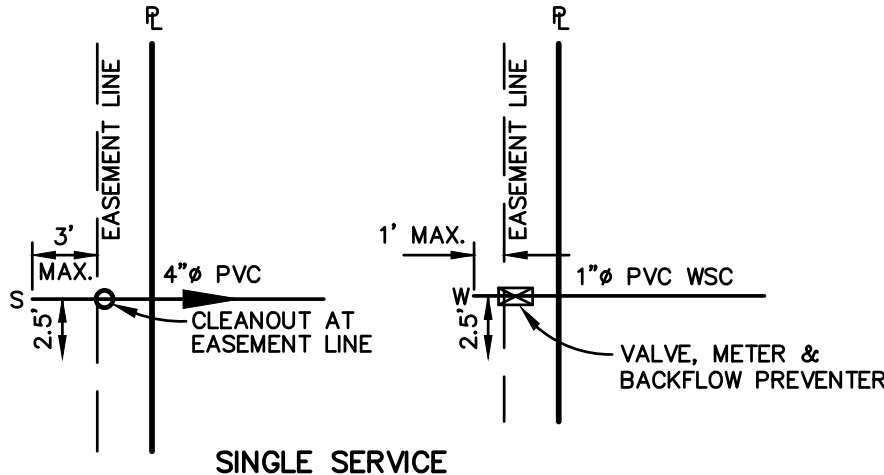


- LEGEND**
- PROPOSED SANITARY SEWER MAIN
 - PROPOSED WATER MAIN
 - WATER SERVICE CONNECTION
 - FIRE SERVICE CONNECTION
 - SEWER SERVICE CONNECTION
 - EXISTING GAS MAIN
 - EXISTING SANITARY SEWER MAIN
 - EXISTING WATER MAIN
 - GAS VALVE
 - GAS METER
 - BACKFLOW PREVENTER
 - WATER METER
 - FIRE HYDRANT
 - WATER VALVE
 - IRRIGATION VALVE
 - WATER SHUT-OFF
 - SANITARY SEWER MANHOLE
 - SANITARY SEWER CLEANOUT

OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS (1)	JOINT SPACING @ CROSSINGS (FULL JOINT CENTERED)
STORM SEWER, STORMWATER FORCE MAIN, RECLAIMED WATER (2)			
GRAVITY OR PRESSURE SANITARY SEWER, SANITARY SEWER FORCE MAIN, RECLAIMED WATER (4)			

(1) WATER MAIN SHOULD CROSS ABOVE OTHER PIPE. WHEN WATER MAIN MUST BE BELOW OTHER PIPE, THE MINIMUM SEPARATION IS 12 INCHES
(2) RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
(3) 3 FT. FOR GRAVITY SANITARY SEWER WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER.
(4) RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

WATER/SEWER MAIN SEPARATION DETAIL
N.T.S.



NOTE:
ALL WATER SERVICES UNDER PAVEMENT TO BE ENCASED IN PVC SLEEVE, WIDTH OF PAVEMENT.

TYPICAL UTILITY SERVICE CONNECTIONS
(FOR SINGLE FAMILY LOTS)
N.T.S.

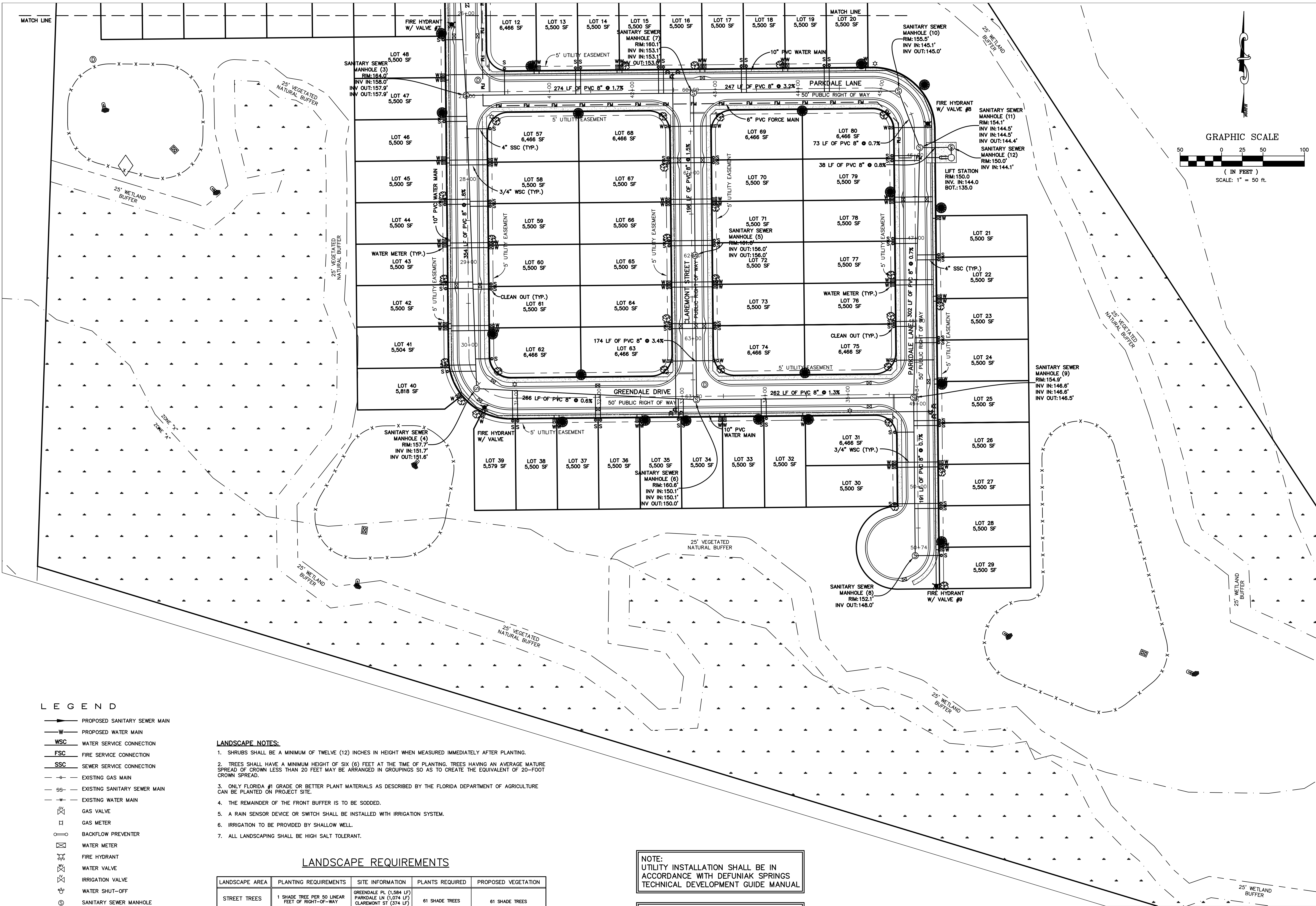
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BAY SPRINGS PH III
UTILITY PLAN (1 OF 2)
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FL REG. NO. 89935

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LEGEND

- PROPOSED SANITARY SEWER MAIN
- PROPOSED WATER MAIN
- WSC WATER SERVICE CONNECTION
- FSC FIRE SERVICE CONNECTION
- SSC SEWER SERVICE CONNECTION
- EXISTING GAS MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING WATER MAIN
- GAS VALVE
- GAS METER
- BACKFLOW PREVENTER
- WATER METER
- FIRE HYDRANT
- WATER VALVE
- IRRIGATION VALVE
- WATER SHUT-OFF
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT

LANDSCAPE NOTES:

- SHRUBS SHALL BE A MINIMUM OF TWELVE (12) INCHES IN HEIGHT WHEN MEASURED IMMEDIATELY AFTER PLANTING.
- TREES SHALL HAVE A MINIMUM HEIGHT OF SIX (6) FEET AT THE TIME OF PLANTING. TREES HAVING AN AVERAGE MATURE SPREAD OF CROWN LESS THAN 20 FEET MAY BE ARRANGED IN GROUPINGS SO AS TO CREATE THE EQUIVALENT OF 20-FOOT CROWN SPREAD.
- ONLY FLORIDA #1 GRADE OR BETTER PLANT MATERIALS AS DESCRIBED BY THE FLORIDA DEPARTMENT OF AGRICULTURE CAN BE PLANTED ON PROJECT SITE.
- THE REMAINDER OF THE FRONT BUFFER IS TO BE SODDED.
- A RAIN SENSOR DEVICE OR SWITCH SHALL BE INSTALLED WITH IRRIGATION SYSTEM.
- IRRIGATION TO BE PROVIDED BY SHALLOW WELL.
- ALL LANDSCAPING SHALL BE HIGH SALT TOLERANT.

LANDSCAPE REQUIREMENTS

LANDSCAPE AREA	PLANTING REQUIREMENTS	SITE INFORMATION	PLANTS REQUIRED	PROPOSED VEGETATION
STREET TREES	1 SHADE TREE PER 50 LINEAR FEET OF RIGHT-OF-WAY	GREENDALE PL (1,584 LF) PARKDALE LN (1,074 LF) CLAREMONT ST (374 LF) TOTAL ROW (3,032 LF)	61 SHADE TREES	61 SHADE TREES
	PROPOSED OAK TREE		TOTAL REQUIRED:	61 SHADE TREES
	PROPOSED MAGNOLIA TREE		TOTAL PROPOSED:	61 SHADE TREES

NOTE:
UTILITY INSTALLATION SHALL BE IN ACCORDANCE WITH DEFUNIAK SPRINGS TECHNICAL DEVELOPMENT GUIDE MANUAL

NOTE:
SITE CONTRACTOR TO COORDINATE WITH HOME BUILDER TO INSTALL CLEANOUT.

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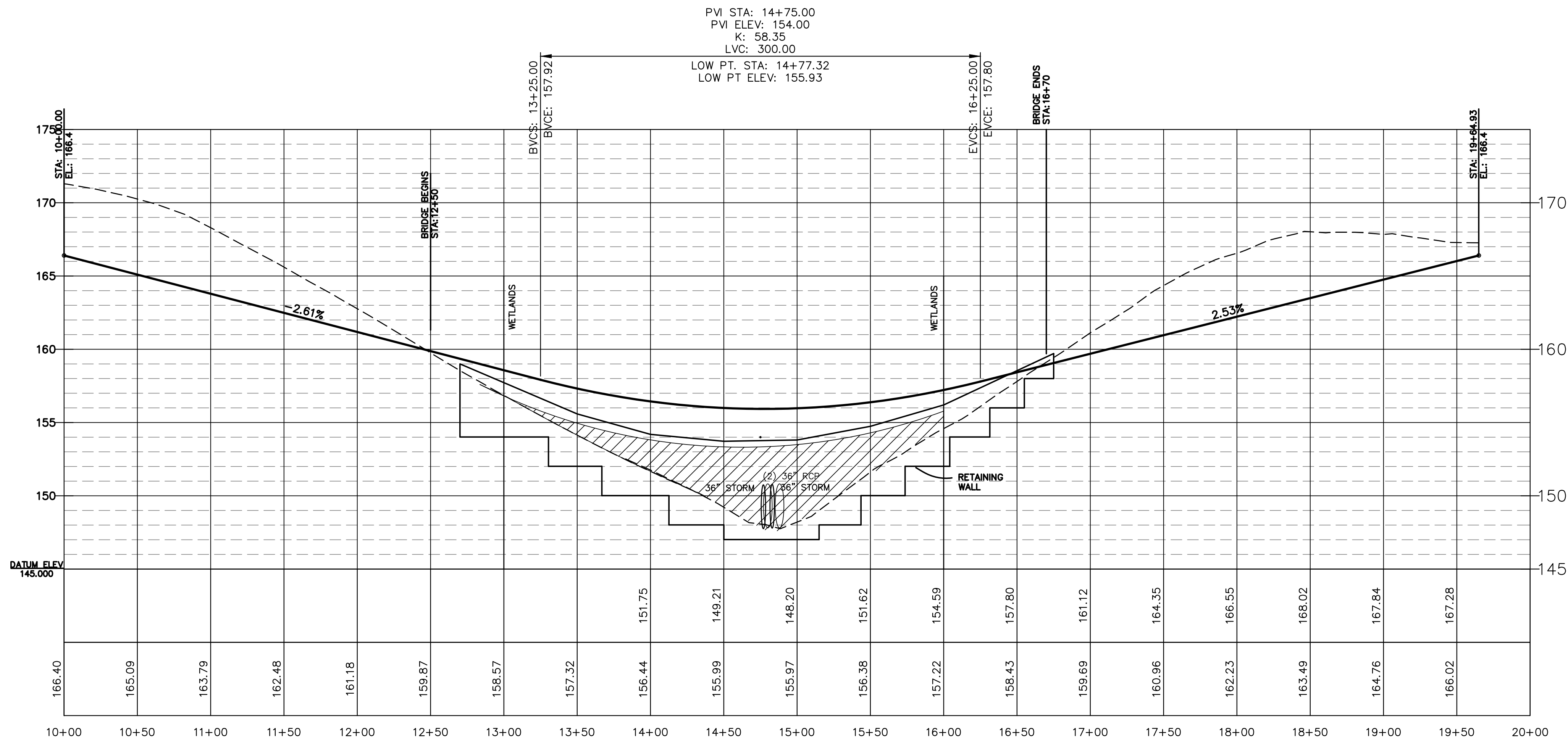
UTILITY PLAN (2 OF 2)

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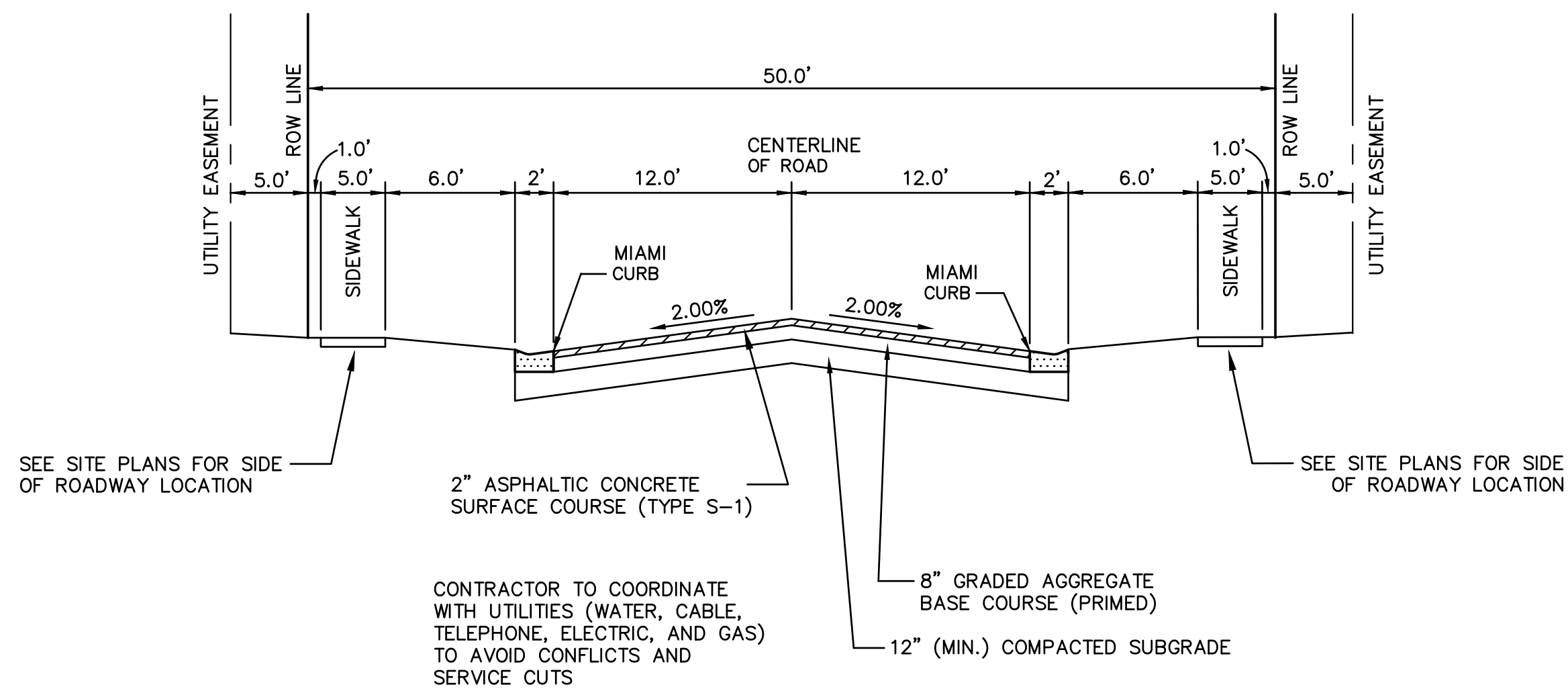
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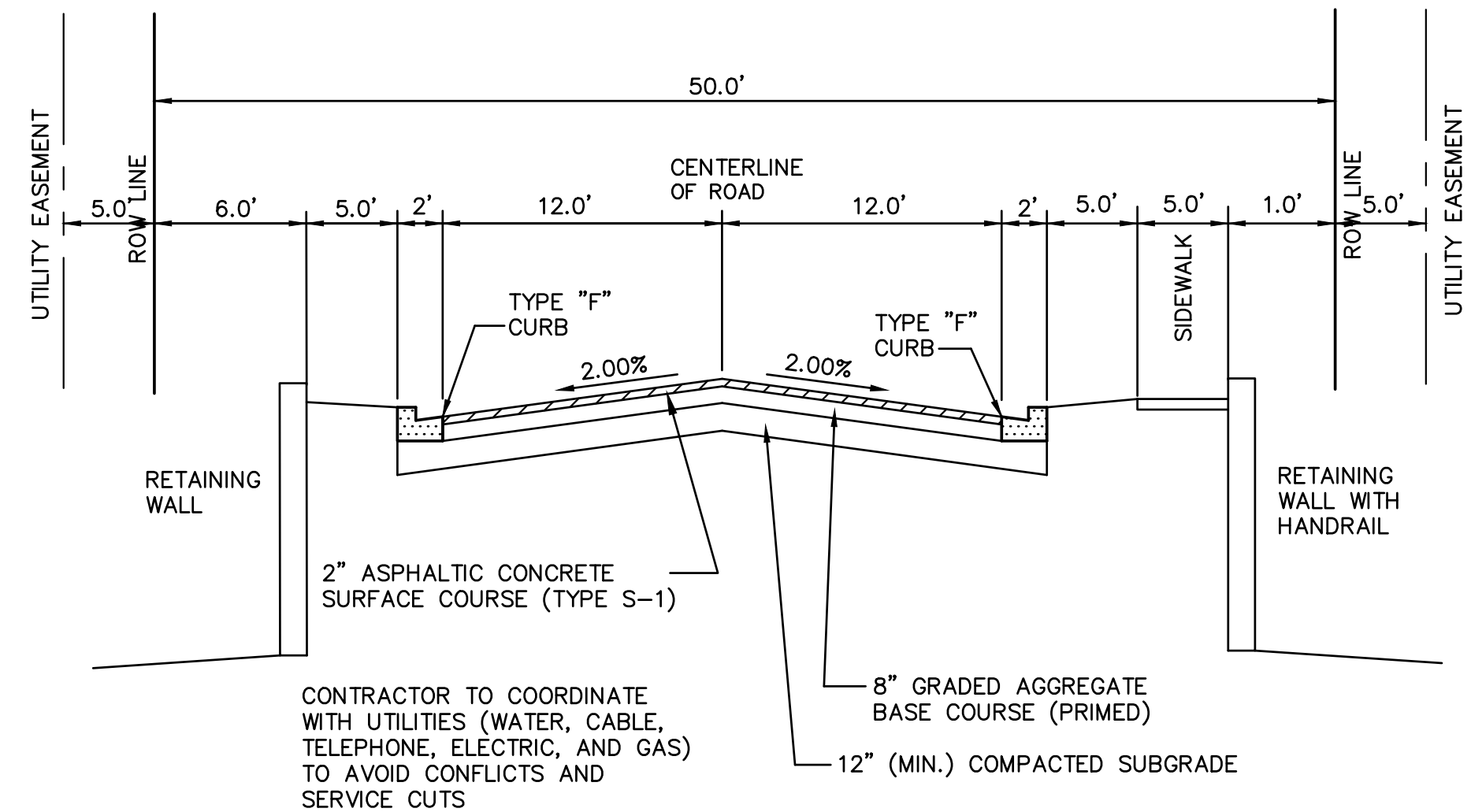
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WOODWARD WAY
HORIZ. 1" = 50'
VERT. 1" = 10'
SPEED LIMIT 25 MPH



TYPICAL ROADWAY CROSS-SECTION
(N.T.S.)



TYPICAL ROADWAY CROSS-SECTION
(N.T.S.)

WOODWARD WAY
STA. 12+50 TO 16+70

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BAY SPRINGS PH III

SECTIONS AND PROFILES (1 OF 3)

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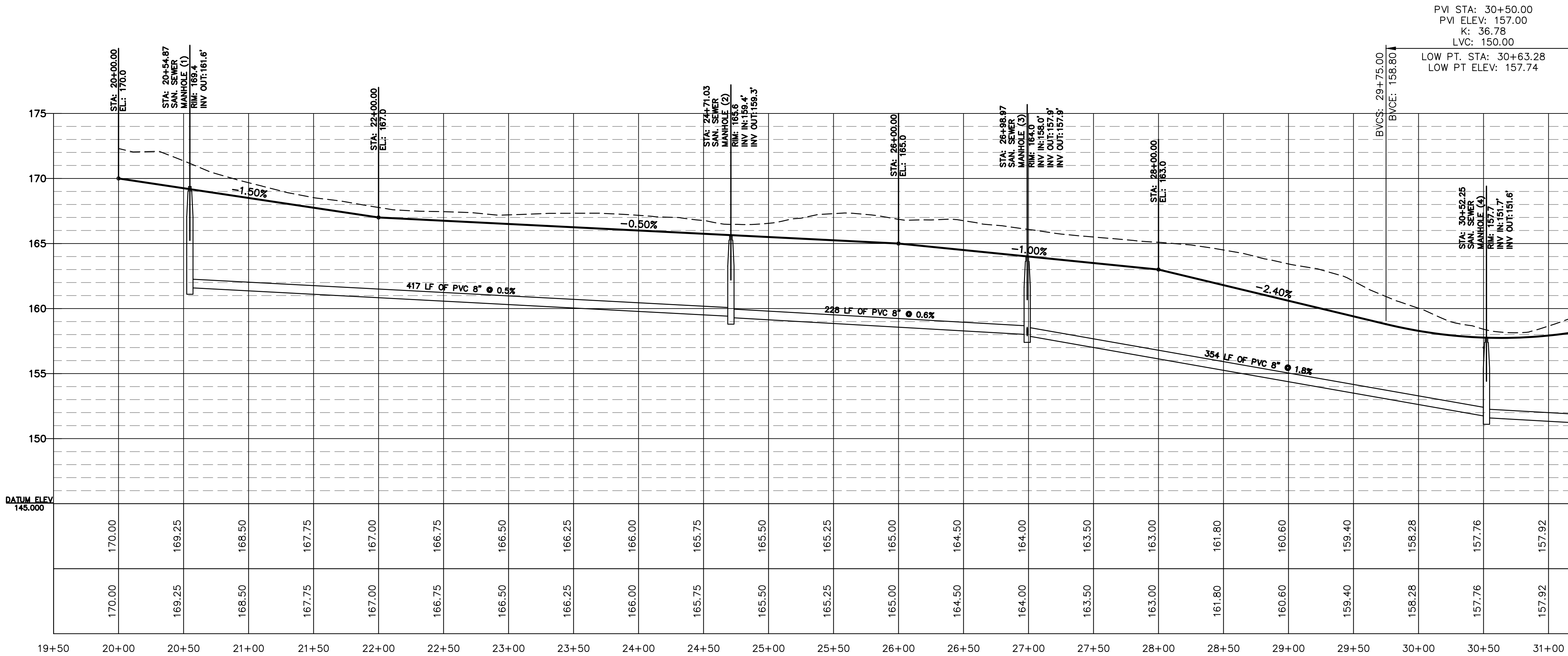
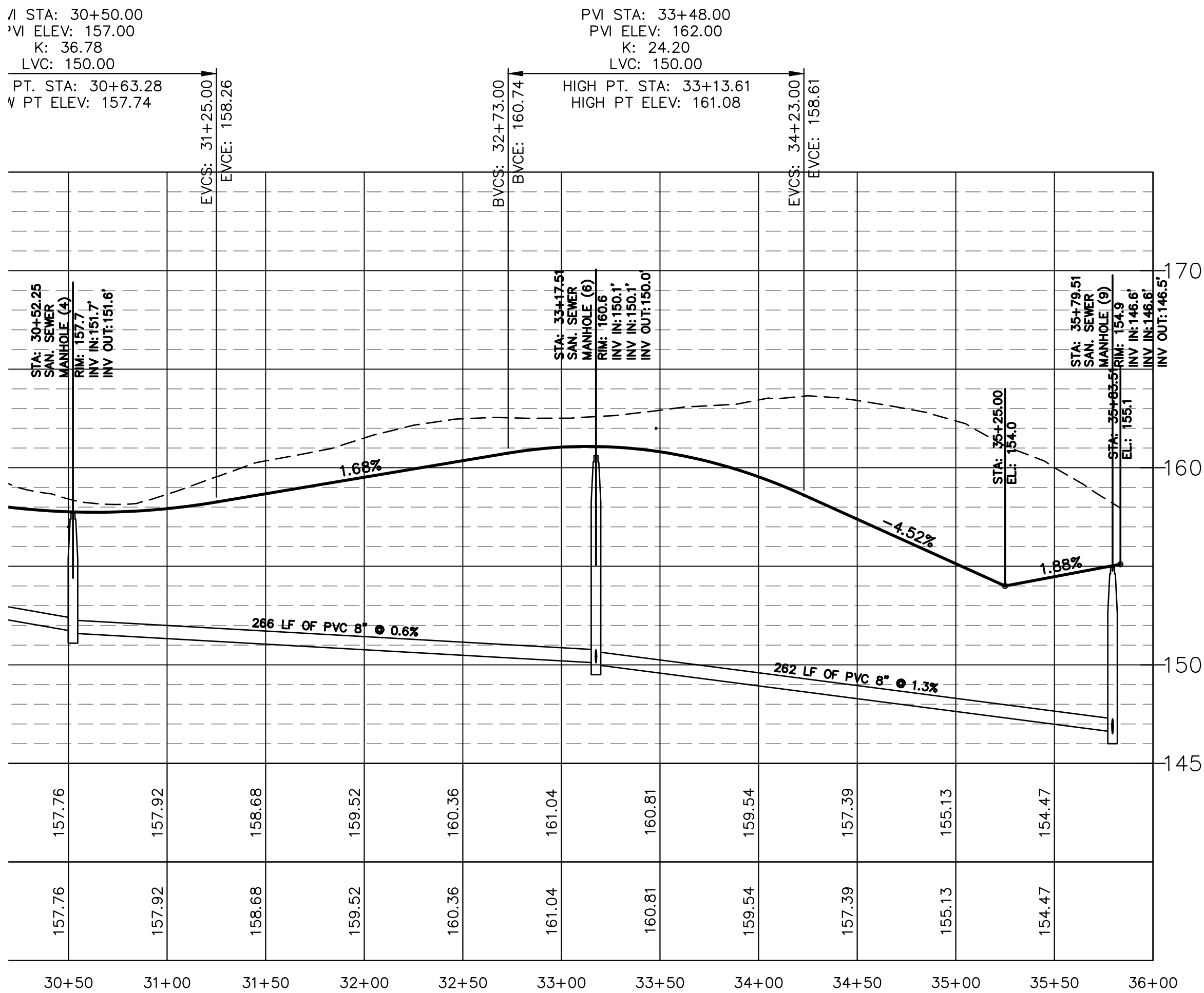
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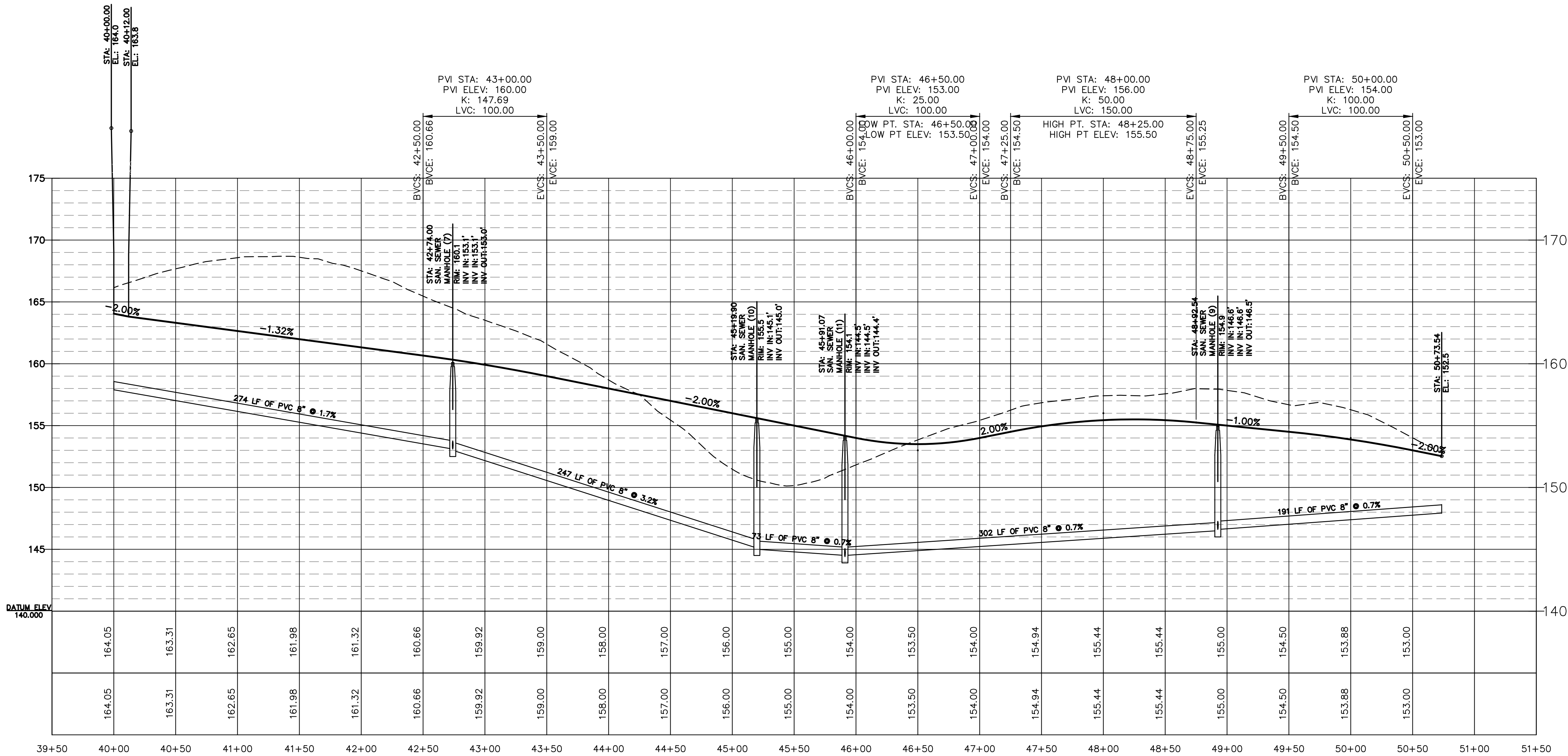
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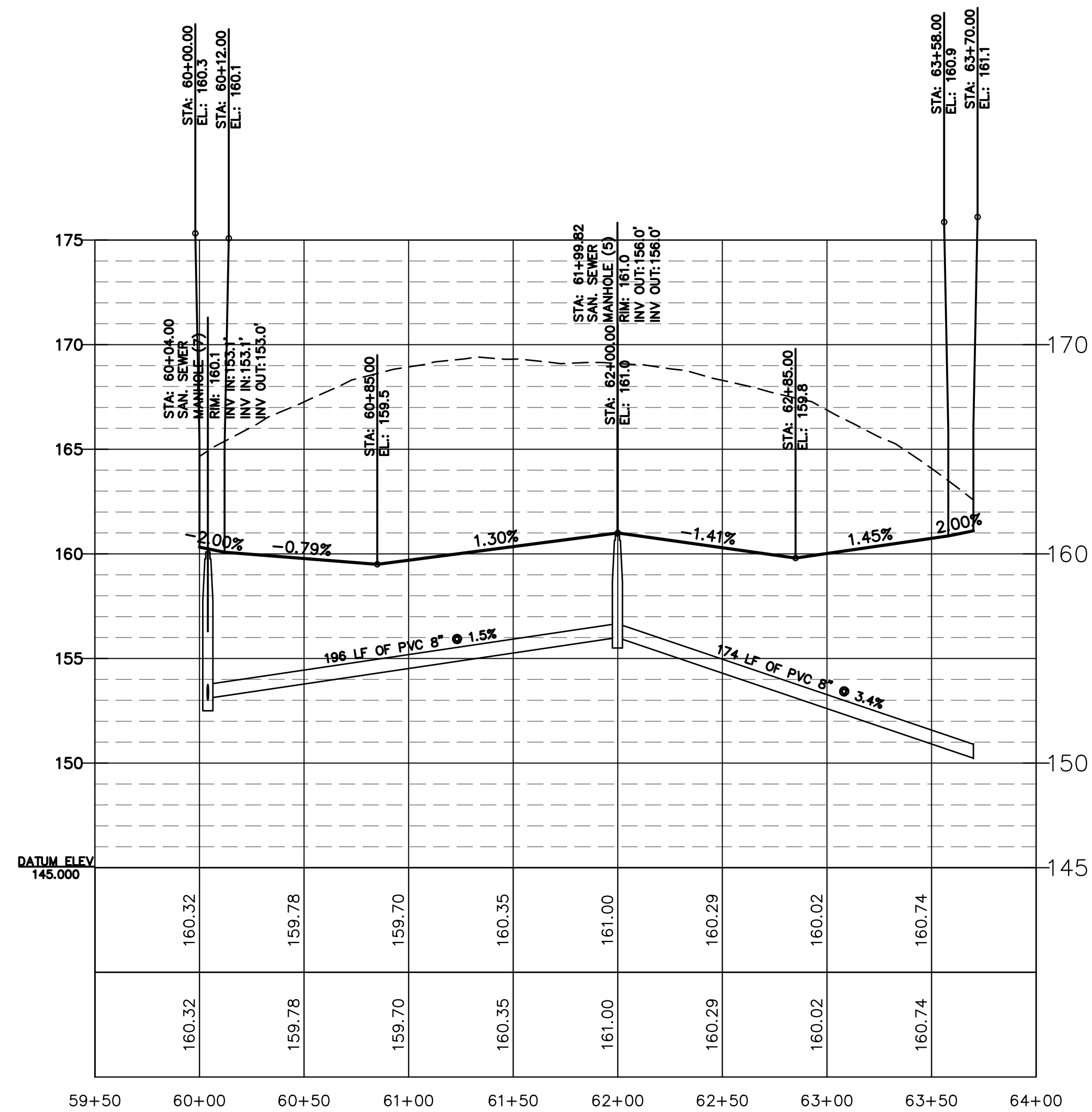
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GREENDALE DRIVE
HORIZ. 1" = 50'
VERT. 1" = 10'
SPEED LIMIT 25 MPH



PARKDALE LANE
HORIZ. 1" = 50'
VERT. 1" = 10'
SPEED LIMIT 25 MPH



CLAREMONT STREET
HORIZ. 1" = 50'
VERT. 1" = 10'
SPEED LIMIT 25 MPH

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SECTIONS AND PROFILES (3 OF 3)
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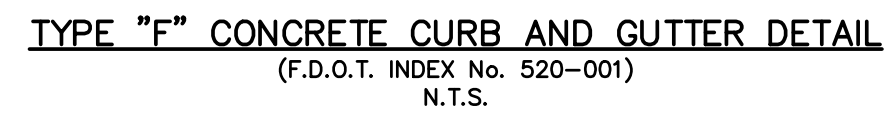
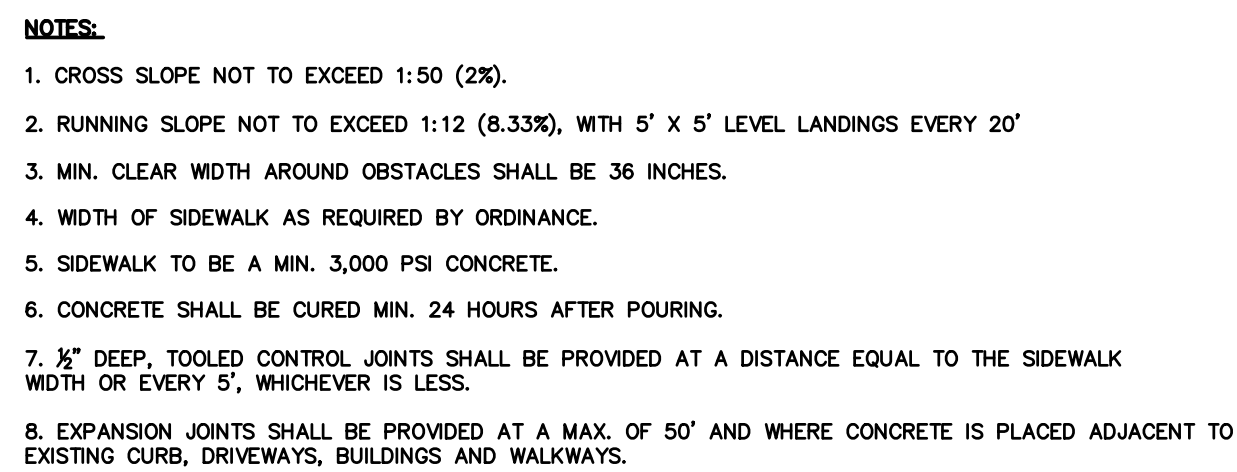
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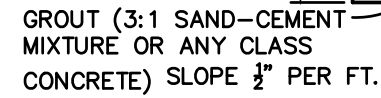
STANDARD SIDEWALK



MIAMI CURB DETAIL
N.T.S.



RIP-RAP DETAIL
N.T.S.



TYPE "V" GUTTER INLET DETAIL
(F.D.O.T. INDEX No. 221)
N.T.S.

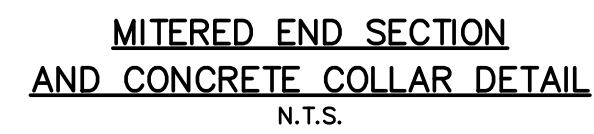
RECOMMENDED PIPE SIZES:
2'-0" WALL - 18" PIPE
3'-1" WALL - 24" PIPE



SECTION A-A



NON-TRAVERSABLE SLOT DETAIL
N.T.S.



SEE GRADING AND/OR
DRAINAGE PLAN FOR NO.,
SIZE AND ORIENTATION
OF PIPES.



GENERAL NOTES:

1. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS. THE EROSION CONTROL SYSTEM DESCRIBED WITHIN MINIMUM ACCEPTABLE STANDARDS FOR THIS PROJECT. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDENT UPON THE STAGE OF CONSTRUCTION, THE SEVERITY OF THE RAINFALL EVENT AND/OR AS DEEMED NECESSARY AS A RESULT OF ON-SITE INSPECTIONS BY THE OWNER, THEIR REPRESENTATIVES OR THE JURISDICTIONAL AUTHORITIES. THESE ADDITIONAL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER. IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO ENSURE THAT THE STORMWATER DISCHARGE FROM THE SITE DOES NOT EXCEED THE TOLERANCES ESTABLISHED BY ANY OF THE JURISDICTIONAL AUTHORITIES.

SITE DESCRIPTION:

LOCATION: MEDCREST DRIVE, CRESTVIEW, FLORIDA

A. SITE CONDITIONS & ACTIVITIES NARRATIVE

- A.1. CURRENTLY THE PROPERTY IS VACANT COVERED WITH NATURAL VEGETATION.
- A.2. SITE OPERATOR (CONTRACTOR) SHALL PREPARE A CONSTRUCTION SCHEDULE THAT INCLUDES THE DATE GRADING WILL BEGIN AND THE EXPECTED DATE OF STABILIZATION AND SHALL INCLUDE THE CONSTRUCTION SCHEDULE AS PART OF THE STORMWATER POLLUTION PREVENT (SWPP) PLAN
- B. SEQUENCE OF IMPLEMENTATION OF CONTROLS
- B.1. INSTALLING OF CONTROL MEASURES
- B.2. CLEARING, GRUBBING AND EXCAVATION.
- B.3. CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE BUILDING, SITE DEVELOPMENT, AND INFRASTRUCTURE NECESSARY TO SERVE THE PROPOSED SITE.
- B.4. FINAL STABILIZATION.
- C. ESTIMATE OF TOTAL PROJECT AREA AND AREA TO BE DISTURBED
- C.1. THE TOTAL SITE AREA IS ± 48.2 ACRES
- C.2. THE AREA TO BE DISTURBED IS ± 20.9 ACRES.
- D. THE USDA SOIL CONSERVATION SERVICE SOIL SURVEY OF WALTON COUNTY LISTS KINGSTON-JOHNSON-BIBB, BONNEAU-NORFOLK-ANGIE, NORFOLK AND FLORALA AS THE PREDOMINANT SOIL TYPES FOR THE PROJECT AREA.
- E. PROJECT DRAINS TO WETLAND AND BAY BRANCH.
- F. MS4 OPERATOR NAME (IF ANY): N/A
- G. CALCULATIONS REFER TO ENGINEER'S STORMWATER MANAGEMENT PLAN.

WIND EROSION CONTROL:

1. BARE EARTH AREAS SHALL BE WATERED DURING CONSTRUCTION AS NECESSARY TO MINIMIZE THE TRANSPORT OF FUGITIVE DUST. IT MAY BE NECESSARY TO LIMIT CONSTRUCTION VEHICLE SPEED IF BARE EARTH HAS NOT BEEN EFFECTIVELY WATERED. IN NO CASE SHALL FUGITIVE DUST BE ALLOWED TO LEAVE THE SITE UNDER CONSTRUCTION.
2. AS REQUIRED AFTER COMPLETION OF CONSTRUCTION, BAR EARTH AREAS SHALL BE VEGETATED.
3. AT ANY TIME BOTH DURING AND AFTER SITE CONSTRUCTION THAT WATERING AND/OR VEGETATION ARE NOT EFFECTIVE IN CONTROLLING WIND EROSION AND/OR TRANSPORT OF FUGITIVE DUST, OTHER METHODS AS ARE NECESSARY FOR SUCH CONTROL SHALL BE EMPLOYED. THESE METHODS MAY INCLUDE ERECTION OF DUST CONTROL FENCES. IF REQUIRED, DUST CONTROL FENCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAIL FOR A SILT FENCE EXCEPT THE MINIMUM HEIGHT SHALL BE FOUR (4) FEET.

IN ADDITION TO THOSE RESPONSIBILITIES OUTLINED WITHIN THE CONSTRUCTION PLANS AND DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING MEASURES:

1. PROJECT SCHEDULE WITH EROSION AND SEDIMENT CONTROL INSTALLATIONS AND MAINTENANCE TIED TO SPECIFIC DATES OR CONSTRUCTION ACTIVITIES.
2. ALTERATIONS TO THE DESIGN EROSION AND SEDIMENT CONTROLS DUE TO DIFFERENCE BETWEEN THE DESIGN PLANS AND ANTICIPATED CONSTRUCTION PHASING AND THE CONTRACTOR'S CONSTRUCTION METHODS.
3. NAME AND PHONE NUMBERS OF CONTRACTOR'S REPRESENTATIVE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL INSTALLATION AND MAINTENANCE ON A 24 HOUR BASIS.
4. THE CONTRACTOR WILL FURNISH, INSTALL, MAINTAIN AND SUBSEQUENTLY REMOVE, ALL NECESSARY EROSION CONTROL. THE CONTRACTOR WILL FURNISH AND INSTALL ALL NECESSARY PERMANENT EROSION CONTROLS.
5. THE DEVELOPMENT OF THE APPLICABLE BMPs TO ENSURE THE CONTROL OF OFF-SITE TRACKING/SPILLAGE, SANITARY WASTE, FERTILIZERS & PESTICIDES, SOLID WASTE DISPOSAL, AND NON-STORMWATER DISCHARGES & HAZARDOUS WASTE. WHEN THE CONTRACTOR ENCOUNTERS A SPILL, CONSTRUCTION WILL STOP AND WORK WILL NOT RESUME UNTIL DIRECTED BY THE APPROPRIATE AGENCY. DISPOSITION OF HAZARDOUS WASTE WILL BE MADE IN ACCORDANCE WITH ANY REQUIREMENTS AND REGULATIONS OF ANY LOCAL, STATE, OR FEDERAL, AGENCY HAVING JURISDICTION.

THE CONTRACTOR IS ADVISED THAT THE CONTRACT DRAWING ONLY INDICATE EROSION, SEDIMENT, AND TURBIDITY CONTROLS AT LOCATIONS DETERMINED IN THE DESIGN PROCESS. HOWEVER, THE CONTRACTOR IS REQUIRED TO PROVIDE ANY ADDITIONAL CONTROLS NECESSARY TO PREVENT THE POSSIBILITY OF SILTING ANY ADJACENT LOWLAND PARCEL OR RECEIVING WATER.

MAINTENANCE:

MAINTENANCE OF EROSION CONTROL OF DEVICES IS OF PARAMOUNT IMPORTANCE TO THE PROPERTY OWNER/USER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL POLLUTION PREVENTION CONTROLS. DAILY REVIEW SHALL BE MADE BY THE CONTRACTOR TO DETERMINE IF CONSTRUCTION ACTIVITIES SHAVE ALTERED THE EFFECTIVENESS OF EROSION, SEDIMENTATION, TURBIDITY, AND POLLUTION CONTROL MEASURES. CORRECTIVE ACTION SHALL BE PERFORMED IMMEDIATELY. THE CONTRACTOR WILL COMPLETE A REPORT DETAILING MEASURES THAT ARE NOT ACHIEVING PERMIT COMPLIANCE AND THE CORRECTIVE ACTION THAT IS TAKEN UNLESS OTHERWISE SPECIFIED. ACCUMULATED SEDIMENTS SHOULD BE REMOVED BEFORE THEY REACH ONE-HALF OF THE CAPACITY OF THE CONTROL DEVICE.

SEQUENCE OF CONSTRUCTION

A. PHASE I

- A.1. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
- A.2. CONSTRUCT SILT FENCES ON SITE.
- A.3. PREPARE TEMPORARY PARKING AND STORAGE AREA. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILERS, PARKING, LAY DOWN, PORTA POTTY, WHEEL WASH, CONCRETE WASHOUT, MASONS AREA, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC. DENOTE THEM ON THE SITE MAPS IMMEDIATELY AND NOTE AND CHANGES IN LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.
- A.4. CONSTRUCT THE SEDIMENTATION AND SEDIMENT TRAP BASINS.
- A.5. CLEAR AND RUB THE SITE.
- A.6. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES.
- A.7. BEGIN GRADING THE SITE.

B. PHASE II

- B.1. TEMPORARILY SEED DENUDEED AREAS
- B.2. INSTALL UTILITIES, UNDER DRAINS, STORM SEWERS, CURB AND GUTTERS.
- B.3. INSTALL RIP RAP AROUND OUTLET STRUCTURES.
- B.4. INSTALL INLET PROTECTION AROUND ALL STORM SEWER STRUCTURES.
- B.5. PREPARE SITE PARKING.
- B.6. PAVE SITE.
- B.7. INSTALL INLET PROTECTION DEVICES.
- B.8. COMPLETE GRADING AND INSTALL PERMANENT SEEDING AND PLANTING.
- B.9. SOD ALL DISTURBED AREAS WITH GRADES GREATER THAN 5 TO 1.
- B.10. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES (ONLY IF SITE IS STABILIZED.)

EROSION AND SEDIMENT CONTROLS:

EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS FIRST STEP IN CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. THE EROSION CONTROL SYSTEM DESCRIBED WITHIN THE CONSTRUCTION DOCUMENTS SHOULD BE CONSIDERED TO REPRESENT THE MINIMUM ACCEPTABLE STANDARDS FOR THIS PROJECT. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDENT UPON THE STAGE OF CONSTRUCTION, THE SEVERITY OF THE RAINFALL EVENT AND/OR AS DEEMED NECESSARY AS A RESULT OF ON-SITE INSPECTIONS BY THE OWNER, THEIR REPRESENTATIVES OR THE JURISDICTIONAL AUTHORITIES. THESE ADDITIONAL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER. IT IS NOTED THAT THE MEASURES IDENTIFIED ON THIS PLAN SHOULD BE ONLY THE SUGGESTED BEST MANAGEMENT PRACTICES (BMPs). THE CONTRACTOR SHALL PROVIDE POLLUTION PREVENT ND EROSION CONTROL MEASURES AS SPECIFIED IN FDOT INDEXES #100 THROUGH #102 AND AS NECESSARY FOR EACH SPECIFIC APPLICATION. IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO ENSURE THAT THE STORMWATER DISCHARGE FROM THE SITE DOES NOT EXCEED THE TOLERANCES ESTABLISHED BY ANY OF THE JURISDICTIONAL AUTHORITIES.

A. GENERAL EROSION CONTROL

- A.1. CLEARING AND GRUBBING OPERATIONS SHALL BE CONTROLLED SO AS TO MINIMIZE UNPROTECTED ERODABLE AREAS EXPOSED TO WEATHER. GENERAL EROSION CONTROL BMPs SHALL BE EMPLOYED TO MINIMIZE SOIL EROSION AND OFF-SITE SEDIMENTATION WHILE THE VARIOUS TECHNIQUES REQUIRED WILL BE SITE AND PLAN SPECIFIC. THEY SHOULD BE EMPLOYED PRIOR TO ANY CONSTRUCTION ACTIVITY.
- A.2. EXCAVATION MATERIAL WILL NOT BE DEPOSITED IN LOCATIONS WHERE IT COULD BE WASHED AWAY BY HIGHWATER OR STORMWATER RUNOFF. STOCKPILED MATERIAL SHALL BE COVERED OR ENCIRCLED WITH SEDIMENT CONTAINMENT DEVICES.
- A.3. STABILIZATION MEASURES SHALL BE INITIATED FOR EROSION AND SEDIMENT CONTROL ON DISTURBED AREAS AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. CLEARED SITE DEVELOPMENT AREAS WHICH WILL REMAIN AT ROUGH GRADE FOR 14 DAYS OR MORE SHOULD BE STABILIZED IMMEDIATELY BY COVERING WITH ADEQUATE AMOUNTS OF HAY, OVER-SEEDING AND PERIODICALLY WATERED BY SUFFICIENTLY TO STABILIZE THE TEMPORARY GROUNDCOVER OR BY THE USE OF AN APPROPRIATE ALTERNATIVE BMP.
- A.4. ALL GRASS SLOPES CONSTRUCTED STEEPER THAN 4H-1V SHALL BE SODDED IMMEDIATELY AFTER FINAL GRADE IS ESTABLISHED.
- A.5. WHERE REQUIRED TO PREVENT EROSION FROM SHEET FLOW ACROSS BARE GROUND FROM ENTERING A LAKE OR SWALE, A TEMPORARY SEDIMENT SUMP SHALL BE CONSTRUCTED. THE TEMPORARY SEDIMENT SUMP SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED ON THE GROUND DRAINING TO THE SUMP.
- A.6. PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES OR ANY DISTURBED LAND AREAS SHALL BE COMPLETED IMMEDIATELY AFTER FINAL GRADING. WHEN IT IS NOT POSSIBLE TO PERMANENTLY PROTECT A DISTURBED AREA IMMEDIATELY AFTER GRADING OPERATIONS, TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED. ALL TEMPORARY PROTECTION SHALL BE MAINTAINED UNTIL PERMANENT MEASURES ARE IN PLACE AND ESTABLISHED.

B. PROTECTION OF SURFACE WATERS

- B.1. WHERE PRACTICAL, STORMWATER SHALL BE CONVEYED BY SWALES. SWALES SHALL BE CONSTRUCTED AS SHOWN ON PLANS.
- B.2. EROSIONS CONTROL MEASURES SHALL BE EMPLOYED TO MINIMIZE TURBIDITY OF SURFACE WATERS LOCATED DOWNSTREAM OF ANY CONSTRUCTION ACTIVITY.
- B.2.1. NEW AND EXISTING STORMWATER INLETS AND OUTFALL STRUCTURES SHALL BE PROTECTED DURING CONSTRUCTION.
- B.2.2. NEW AND EXISTING STORMWATER INLETS AND OUTFALL STRUCTURES SHALL BE PROTECTED DURING CONSTRUCTION.
- B.3.2. PERIMETER EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL FINAL SITE STABILIZATION HAS BEEN ESTABLISHED.
- B.4. HEAVY CONSTRUCTION EQUIPMENT PARKING AND MAINTENANCE AREAS SHALL BE DESIGNED TO PREVENT OIL, GREASE, AND LUBRICANTS FROM ENTERING SITE DRAINAGE FEATURES INCLUDING STORMWATER COLLECTION AND TREATMENT SYSTEMS. CONTRACTORS SHALL PROVIDE BROAD DIKES OR SILT SORENS AROUND, AND SEDIMENT SUMPS WITHIN, SUCH AREAS AS REQUIRED TO CONTAIN SPILLS OF OIL, GREASE, LUBRICANTS, OR OTHER CONTAMINANTS. CONTRACTORS SHALL HAVE AVAILABLE, AND SHALL USE, ABSORBENT FILTER PADS TO CLEAN UP SPILLS IMMEDIATELY AFTER ANY OCCURRENCE.

REFERENCES:

1. THE CONSTRUCTION PLANS AND SPECIFICATIONS FOR THIS PROJECT, CHOCTAW ENGINEERING, INC PROJECT NO. 2020-150-E, AS PREPARED BY CHOCTAW ENGINEERING, INC., AND REFERENCED AND MADE A PART OF THIS PLAN.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FILE "NOTICE OF INTENT O USE GENERIC PERMIT FOR STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITIES" (DEP FROM 62-621.300(4)(B) OR LATEST VERSION) TO FDPD VIA WEBSITE ELECTRONIC SUBMITTAL OR TO THE FOLLOWING ADDRESS:

NPDES STORMWATER NOTICES CENTER, MS #3585
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

TREE PROTECTION:

CRITICAL ROOT AREAS FOR TREES SHOWN TO BE PRESERVED SHALL NOT BE DISTURBED. CONTRACTOR SHALL PAY CLOSE ATTENTION WHEN CLEARING AND/OR GRADING THE SITE TO ENSURE THAT WHEN EXISTING ROOTS ARE ENCOUNTERED THEY ARE CUT EVENLY WITH CLEAN SHARP PRUNING TOOLS. CONTRACTOR SHALL BE RESPONSIBLE FOR MINIMIZING THE DAMAGE OF THE EXISTING ROOT SYSTEMS.

STORMWATER MANAGEMENT

THE STORMWATER RUNOFF FROM THE PROJECT AREA WILL BE COLLECTED ON SITE PRIOR TO A CONTROLLED DISCHARGE TO WETLANDS LOCATED ALONG THE WESTERN PORTION OF THE PROPERTY.

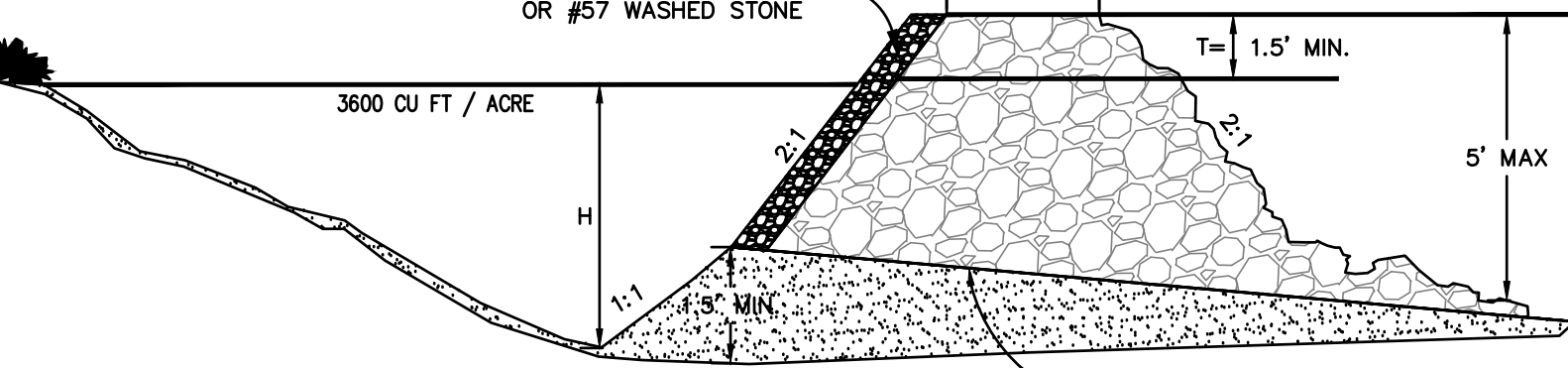
APPROVED STATE AND LOCAL PLANS OR PERMITS:

THE FOLLOWING PERMITS ARE REQUIRED FOR THE CONSTRUCTION OF THE STORMWATER FACILITIES FOR THIS PROJECT.

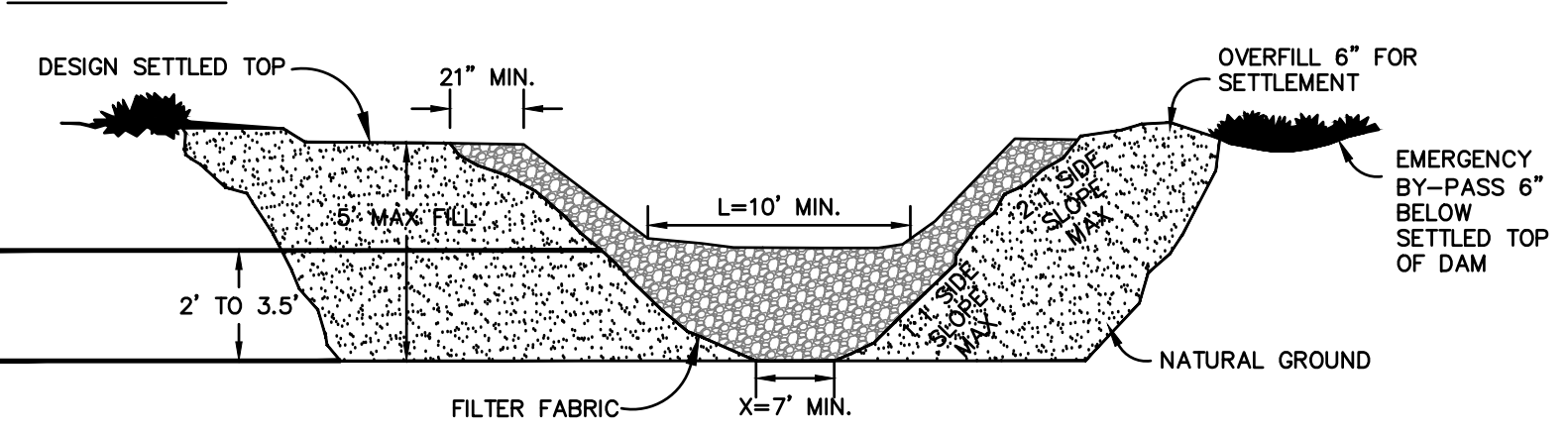
1. CITY OF DEFUNIAK SPRINGS CONSTRUCTION PERMIT
2. NWFWD ERP
3. NPDES GENERIC PERMIT FOR STORMWATER DISCHARGE

TEMPORARY SEDIMENT TRAP DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	< 5 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MIN. VOLUME REQUIRED	3600 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	435 (SQ. FT. PER QFS Q10)

CROSS-SECTION

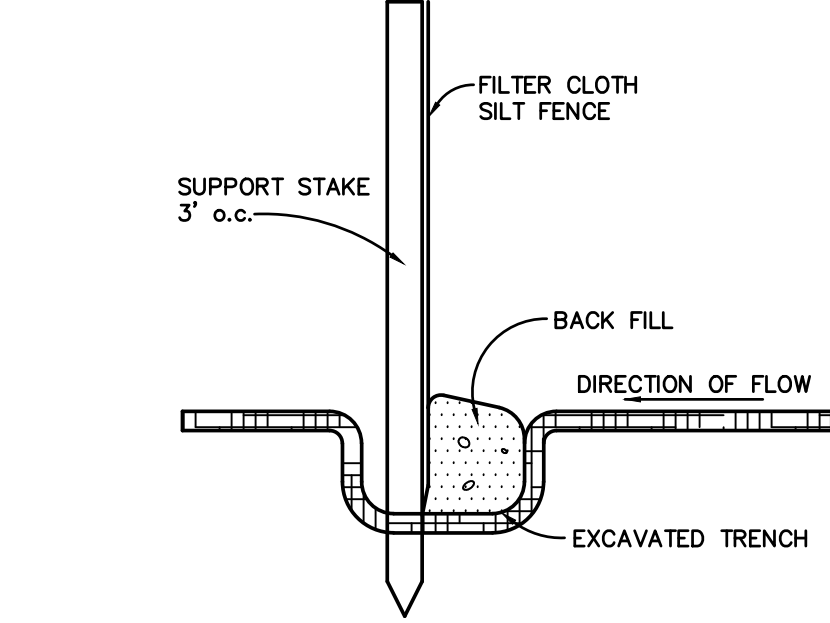


PLAN VIEW



TEMPORARY SEDIMENT TRAP

N.T.S.



SILT FENCE DETAIL

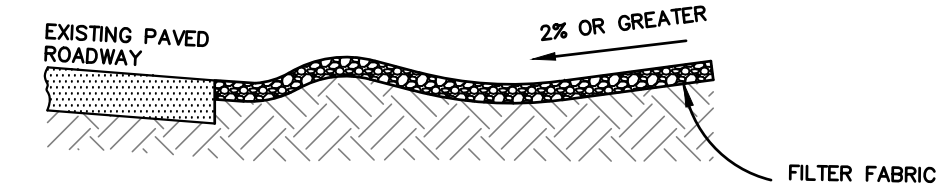
N.T.S.

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.

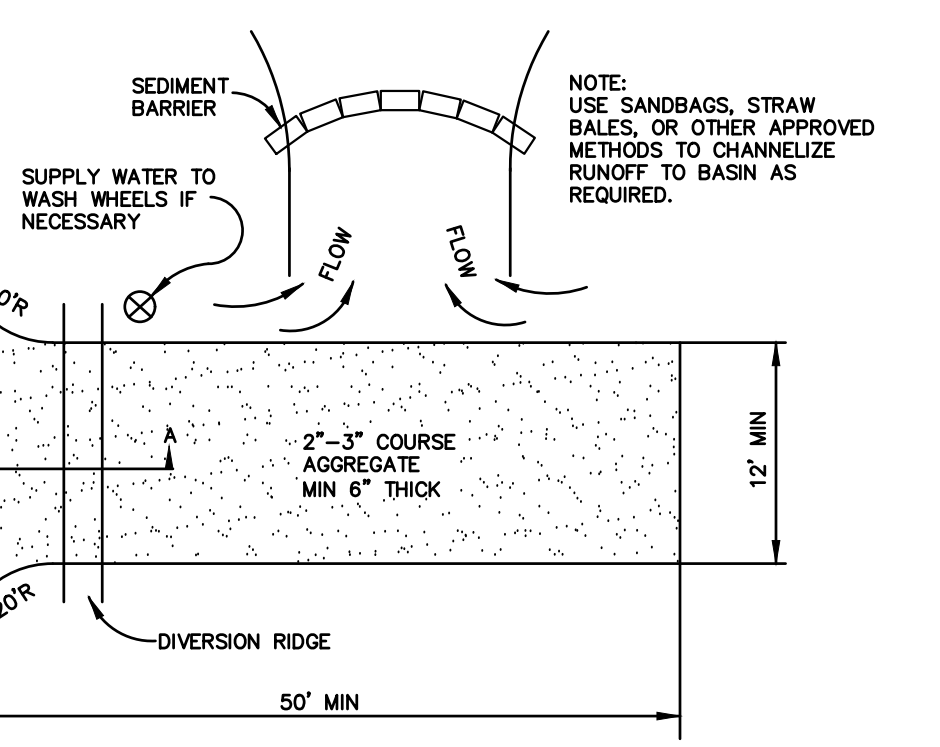
DIVERSION RIDGE REQUIRED

WHERE GRADE EXCEEDS 2%



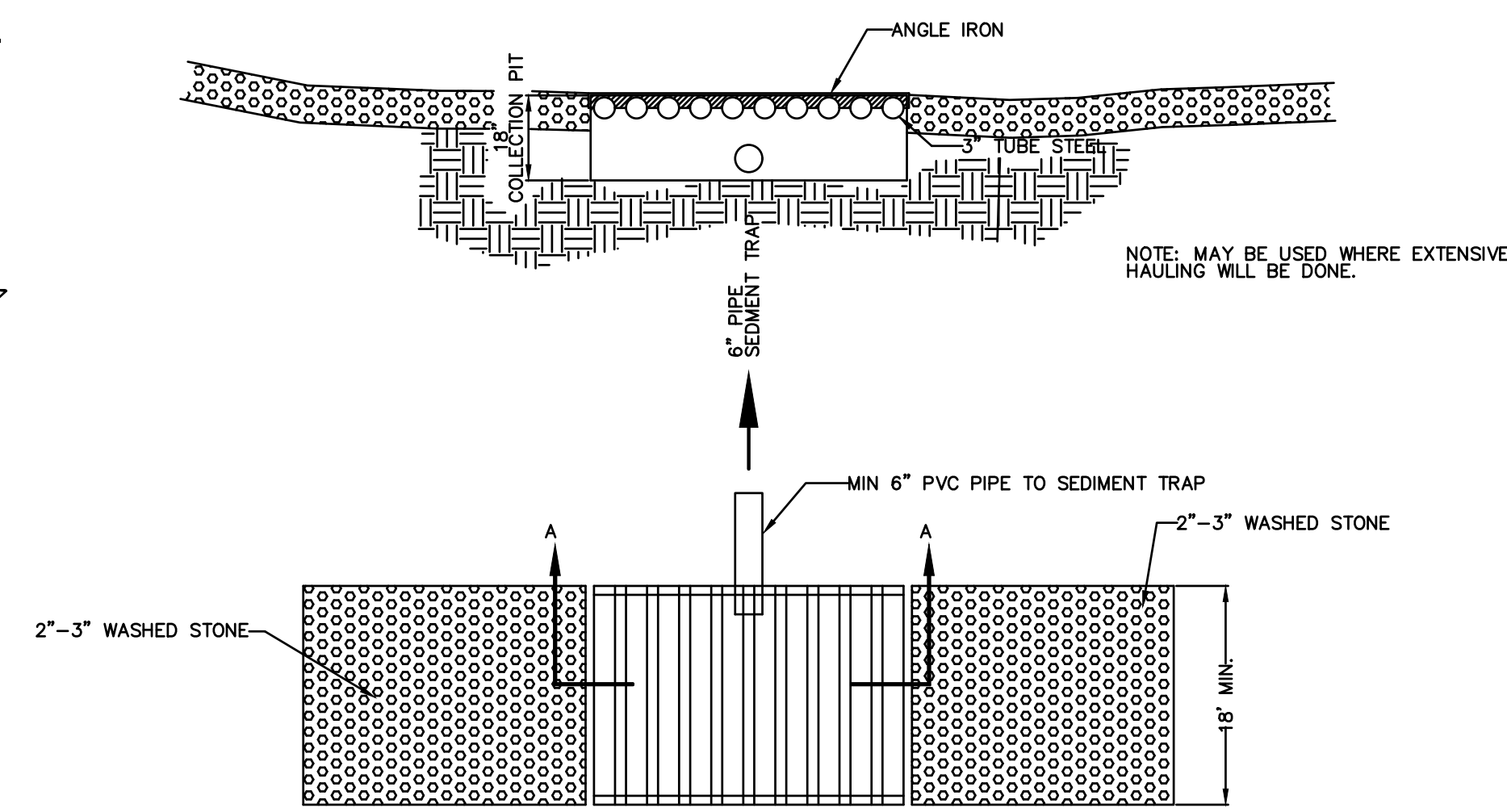
SECTION A-A

N.T.S.



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR, AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

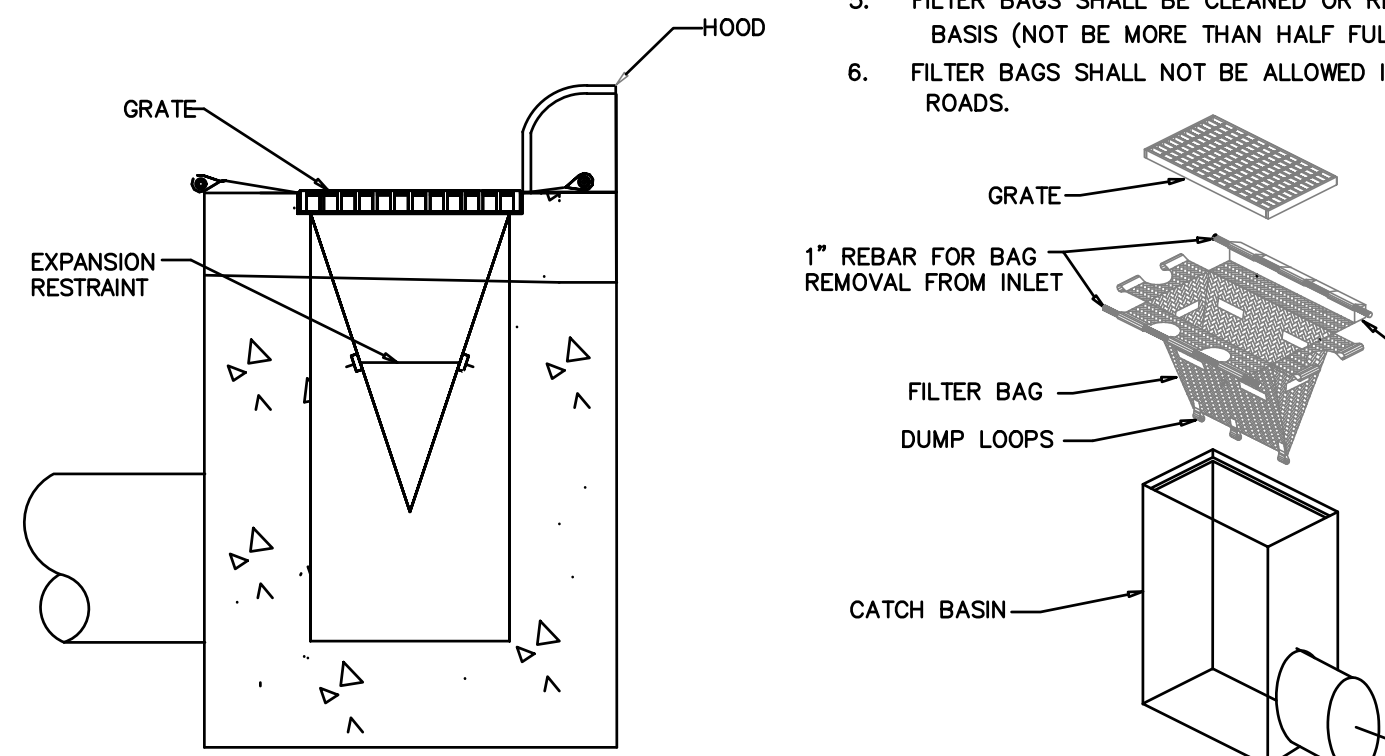


CONSTRUCTION ENTRANCE TIRE WASH

N.T.S.

NOTES

1. INLET MAINTENANCE SHALL BE DOCUMENTED IN PROJECT LOG BOOK.
2. FILTER TYPES SHALL BE APPROVED BY THE INSPECTOR PRIOR TO INSTALLATION.
3. FILTER BAGS MAY BE REMOVED WHEN SITE IS STABILIZED AT THE DIRECTION OF THE ENGINEER.
4. FILTER BAGS SHALL BE REMOVED PRIOR TO STREET ACCEPTANCE.
5. FILTER BAGS SHALL BE CLEANED OR REPLACED ON A REGULAR BASIS (NOT BE MORE THAN HALF FULL AT ANY TIME).
6. FILTER BAGS SHALL NOT BE ALLOWED IN EXISTING TOWN OR NCDOT ROADS.

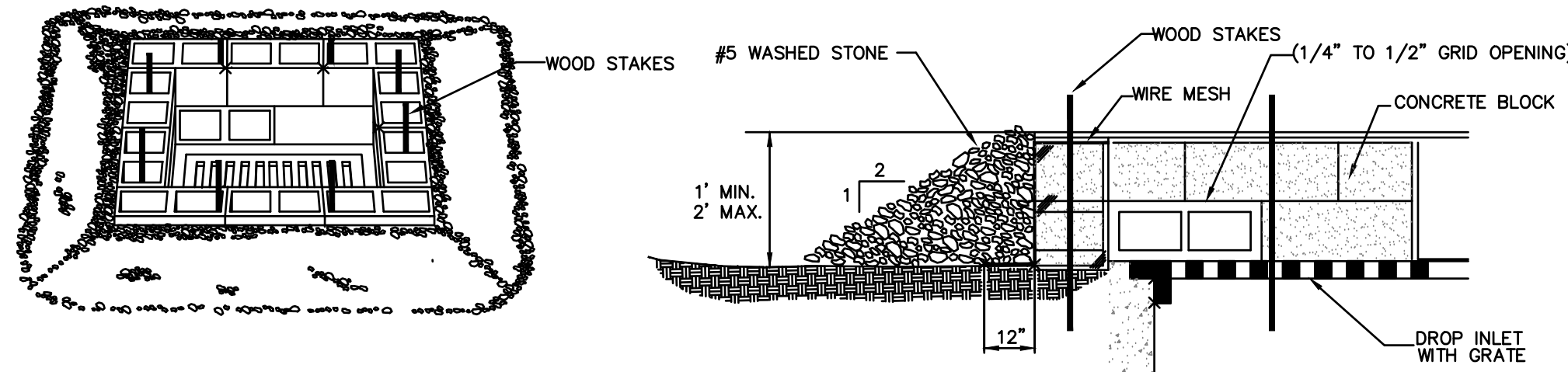


SECTION

INSTALLATION

CATCH BASIN INLET PROTECTION

N.T.S.



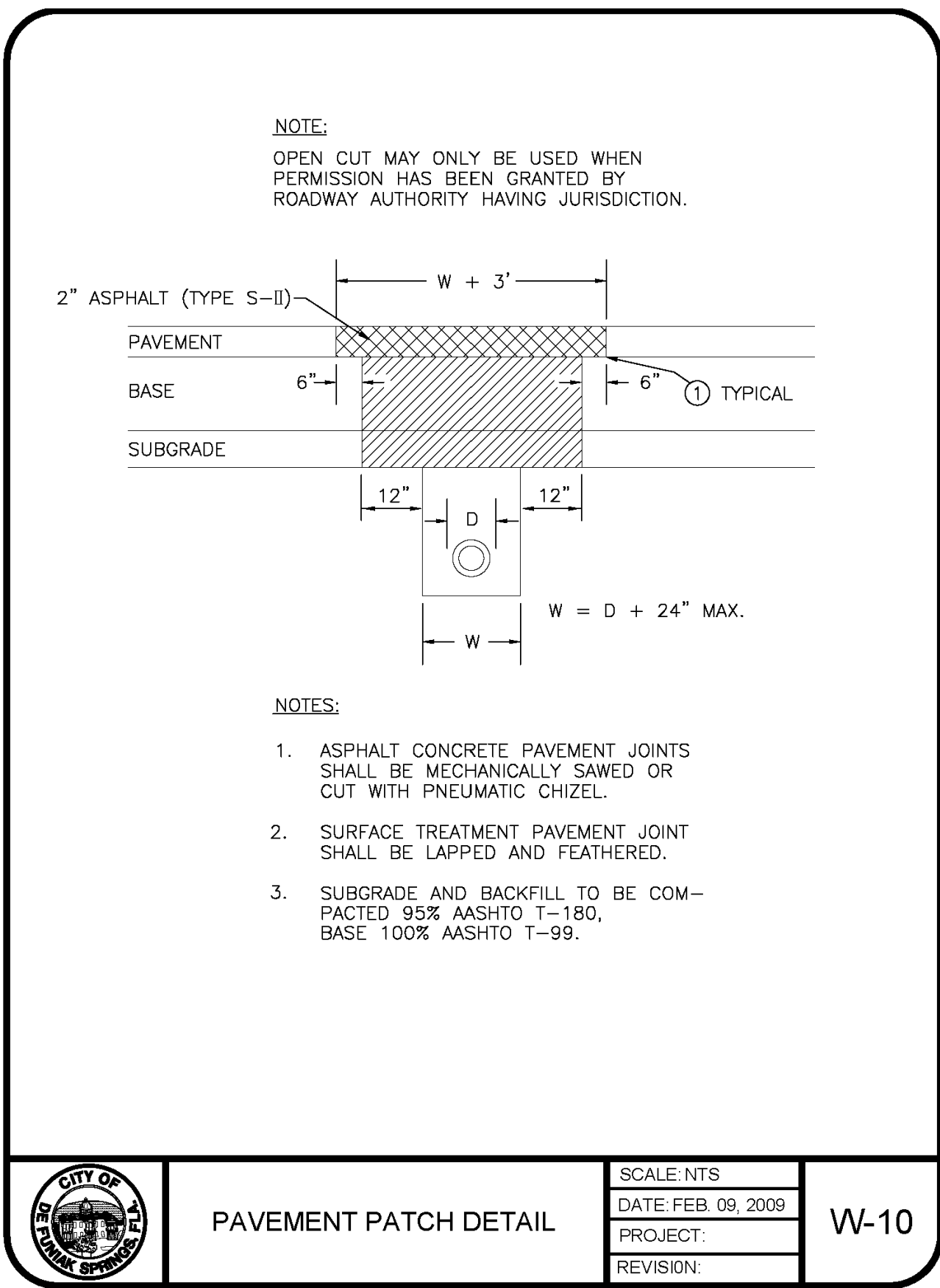
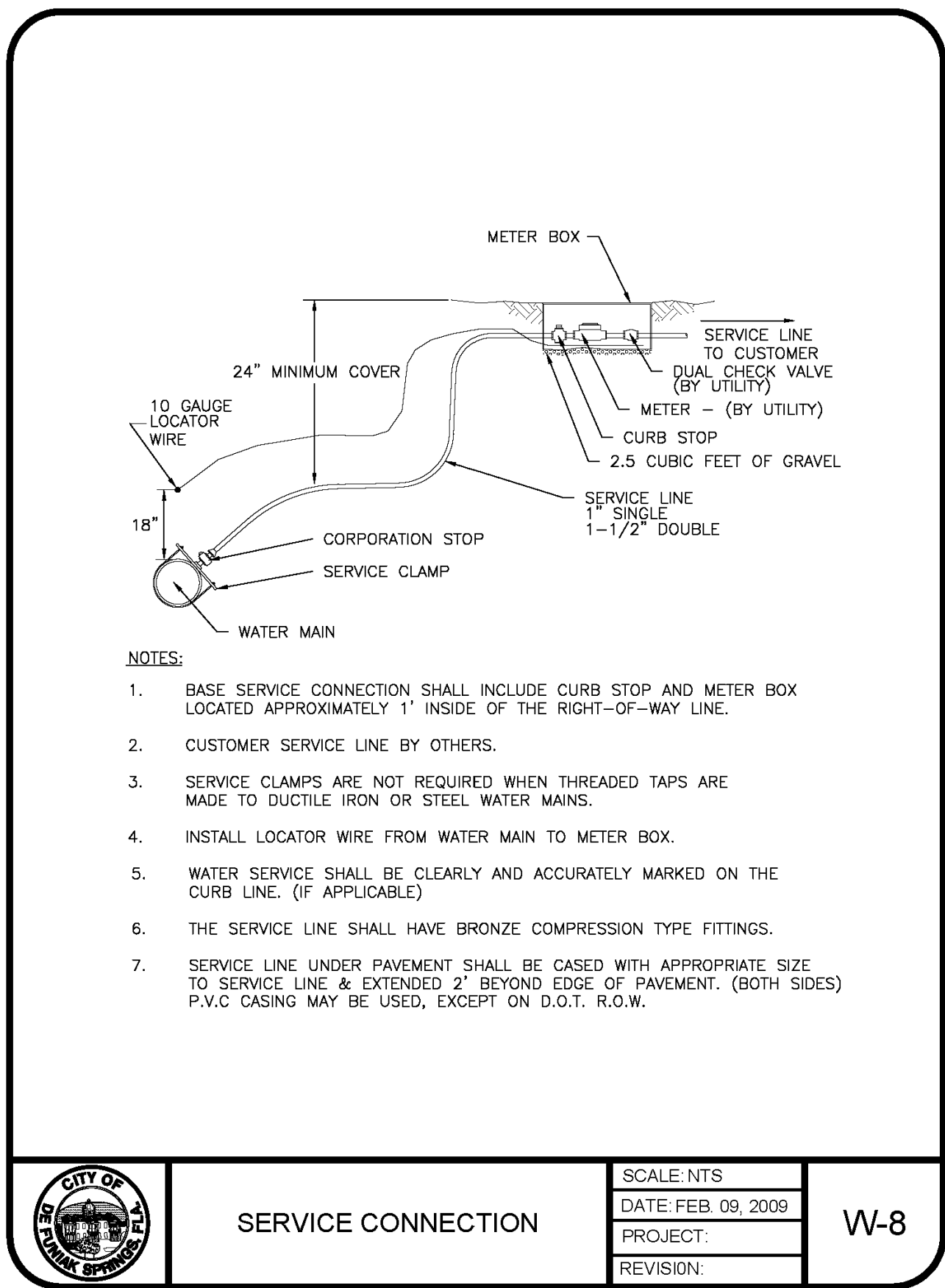
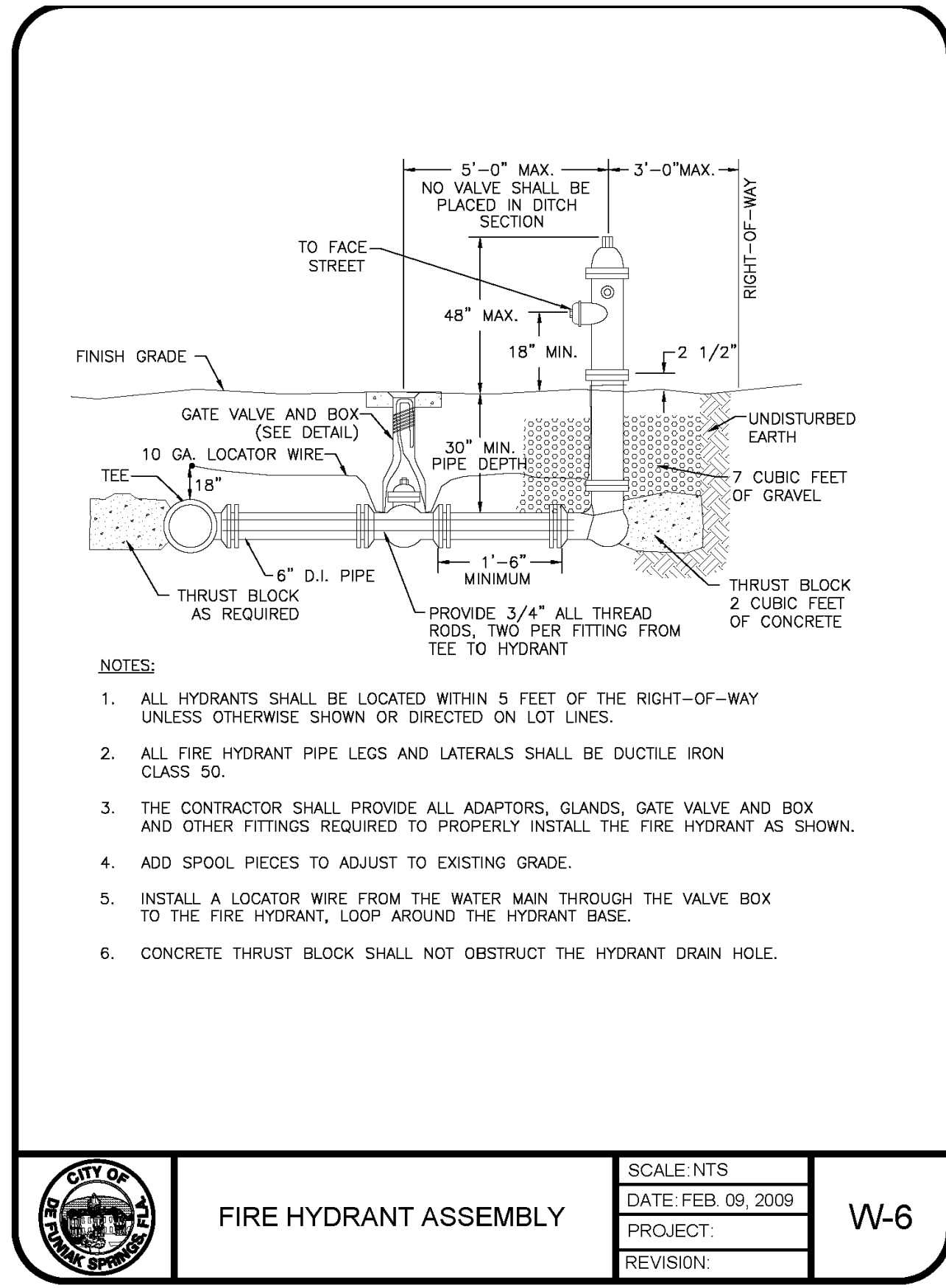
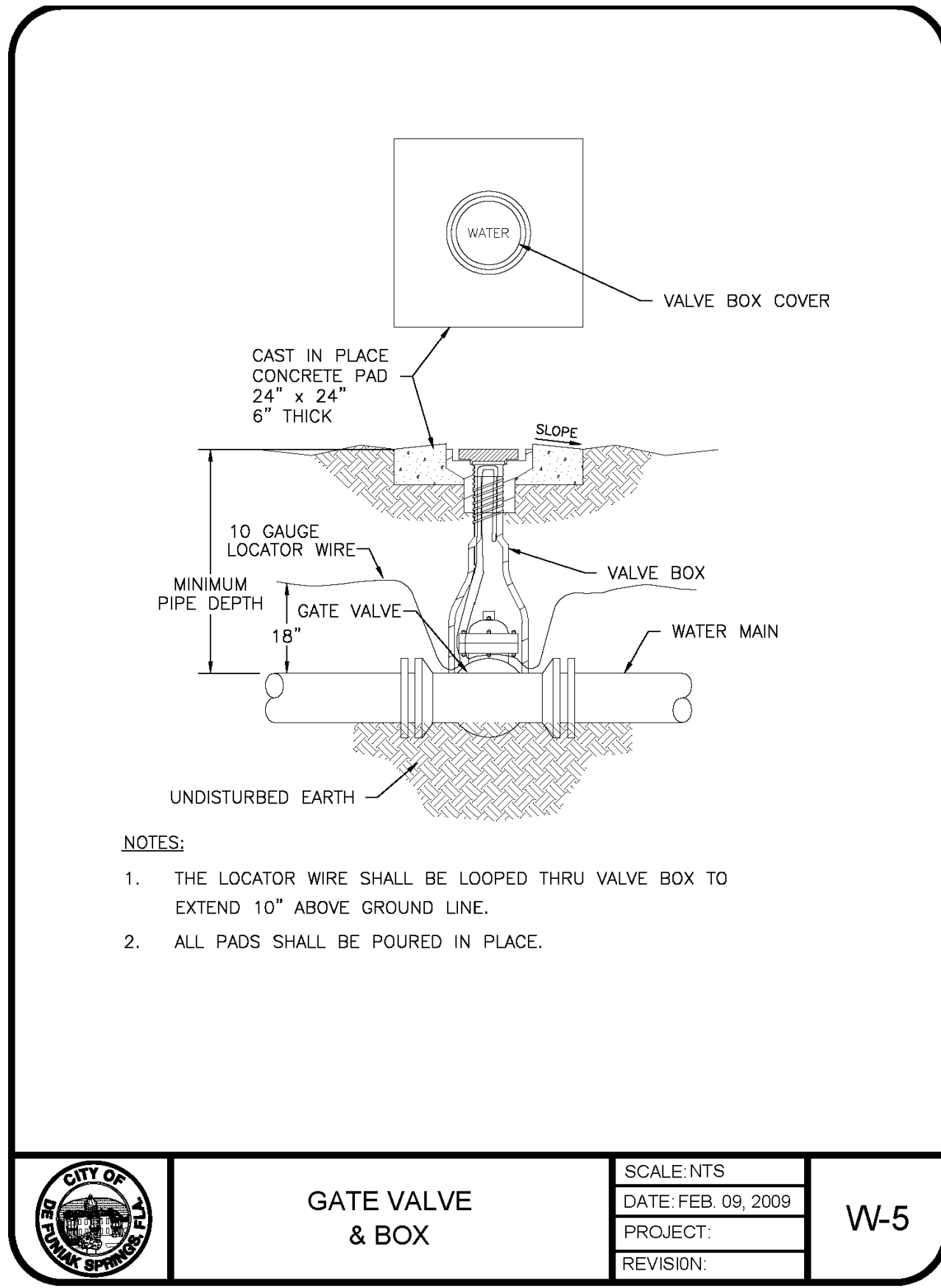
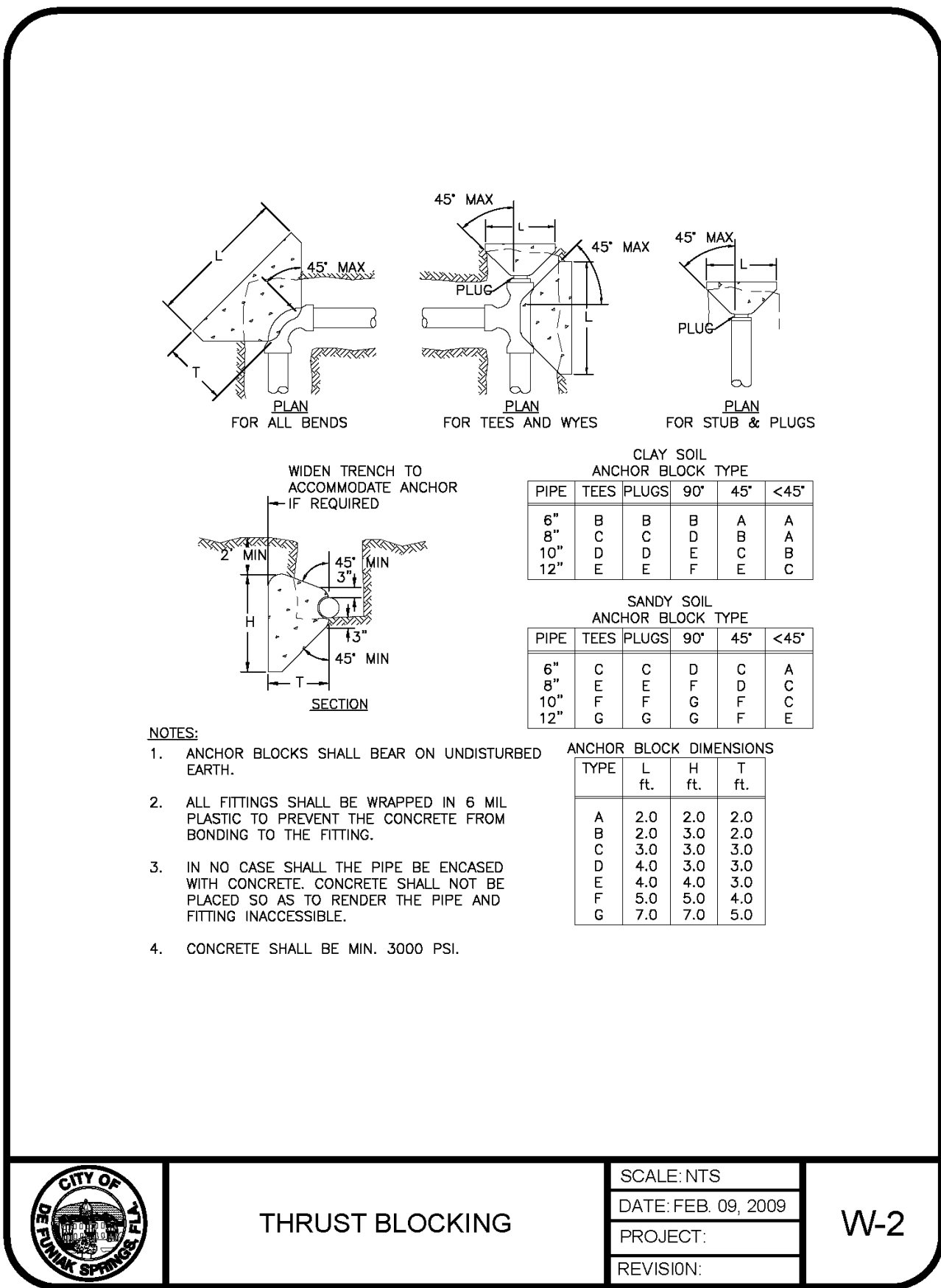
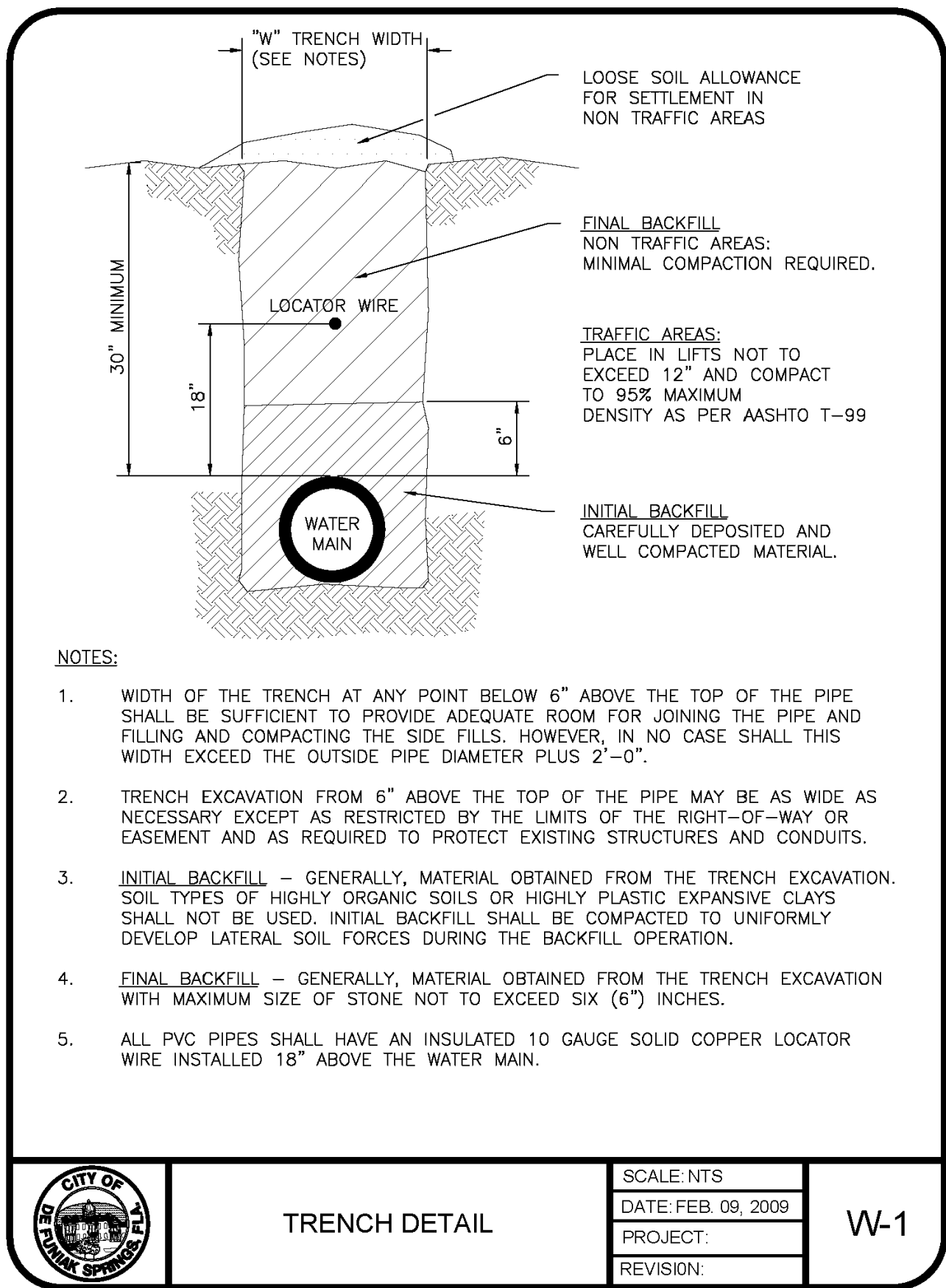
SPECIFIC APPLICATION:

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.

BLOCK AND GRAVEL INLET PROTECTION

N.T.S.

Revisions:

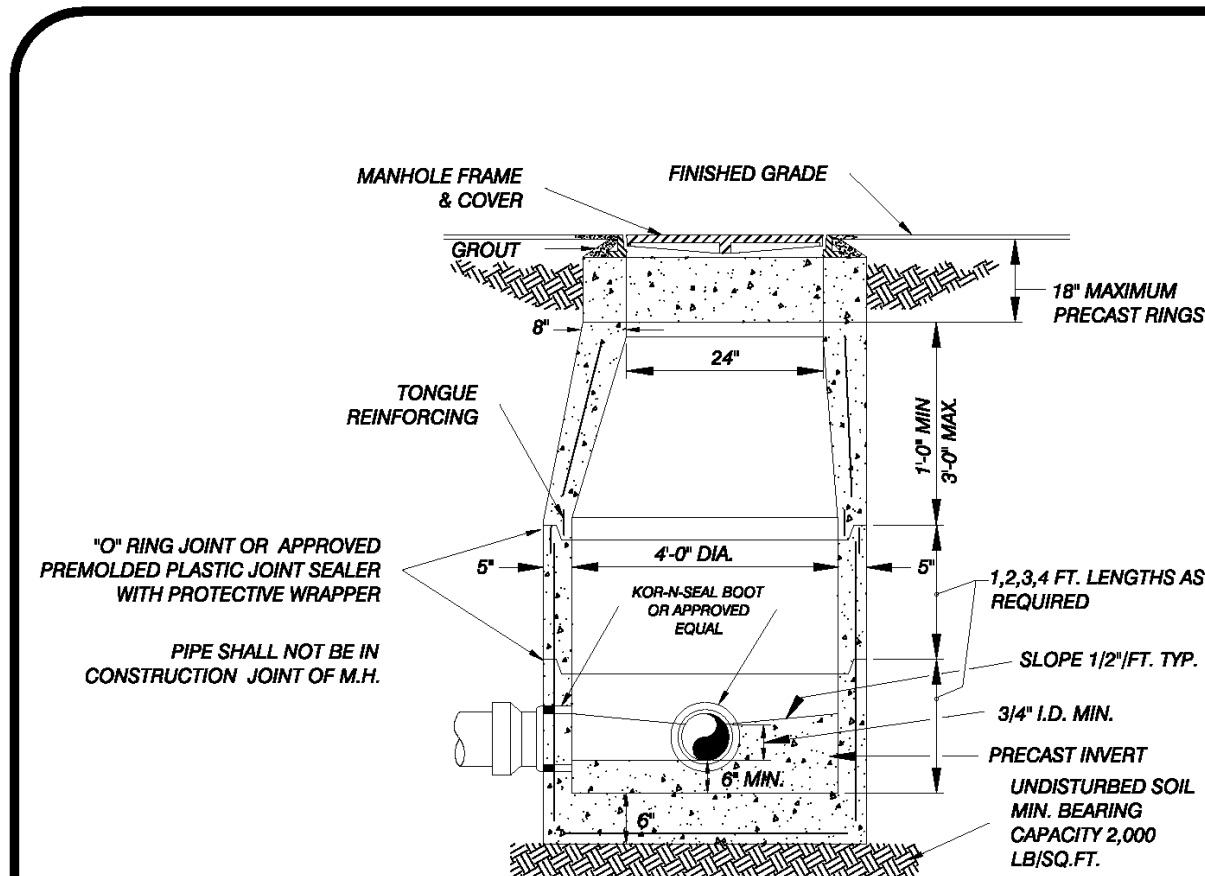


GENERAL NOTES:

- PRECAST CONCRETE WET WELL AND VALVE VAULT SHALL BE COATED WITH KOP-COAT COAL TAR EPOXY 300-M INSIDE AND OUT. (TWO COATS, 9 MILS EACH)
- BASE AND FIRST RISER UNIT TO BE CAST MONOLITHIC.
- VALVE VAULT SHALL BE SIZED TO PERMIT EASY REMOVAL OF CHECK VALVE SPINDLES WITH MINIMUM CLEARANCES AS SHOWN FOR 6" DIAMETER PIPE AND SMALLER CLEARANCES SHALL INCREASE AS REQUIRED FOR LARGER PIPE SIZES SIZE OF HATCH ON VALVE VAULT IS FOR 4" PIPE AND SHALL INCREASE ACCORDINGLY WITH LARGER PIPE SIZES.
- ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH LINK SEALS AND NON-SHRINK GROUT.
- THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN WET WELL
- WET WELL AND VALVE VAULT COVERS SHALL BE ALUMINUM WITH 316 S.S. HARDWARE SIZE AS RECOMMENDED BY PUMP MANUFACTURER AND APPROVED BY THE CITY OF DEFUNIAK SPRINGS
- ALL PRESSURE PIPING SHALL HAVE LOCATOR WIRE AND DETECTION TAPE INSTALLED IN THE TRENCH 18" DIRECTLY ABOVE TOP OF PIPE. LOCATOR WIRE SHALL BE 10 GAUGE INSULATED COPPER WIRE. LOOP TO WITHIN 3" OF TOP OF VALVE BOXES. LOCATOR TAPE SHALL BE DETACHABLE METALLIC TAPE 2" WIDE, COLOR GREEN LEGEND "CAUTION BURIED SEWER LINE BELOW. DO NOT WRAP WIRE AROUND PIPE. WIRE SHALL BE CONNECTED FOR CONTINUOUS CIRCUIT CONNECTION.
- ALL HARDWARE IN WET WELL AND VALVE BOX TO BE STAINLESS STEEL
- ALL ENCLOSURES SHALL BE NEMA 3R OR BETTER EXCEPT CONTROL PANEL WHICH SHALL BE NEMA 4X.
- ALL MECHANICAL JOINT FITTINGS ON PRESSURE PIPE SHALL HAVE BOTH "MEGALUG" TYPE JOINT RESTRAINING GLANDS AND THRUST BLOCKS.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND MEETING THE REQUIREMENTS OF CITY OF DEFUNIAK SPRINGS TECHNICAL GUIDE AND SPECIFICATIONS LATEST EDITION.
- ANY LOCATION WHERE PRESSURE PIPELINES CURVATURE EXCEEDS MANUFACTURES' SPECIFICATIONS; APPROPRIATE MECHANICAL JOINT FITTINGS SHALL BE USED.
- ALL TIE IN TO EXISTING PRESSURIZED PIPELINES SHALL BE BY TAPPING SLEEVE (3 INCH TAP AND LARGER) (OR TAPPING SADDLE, 2 INCH TAP AND SMALLER) AND VALVE.

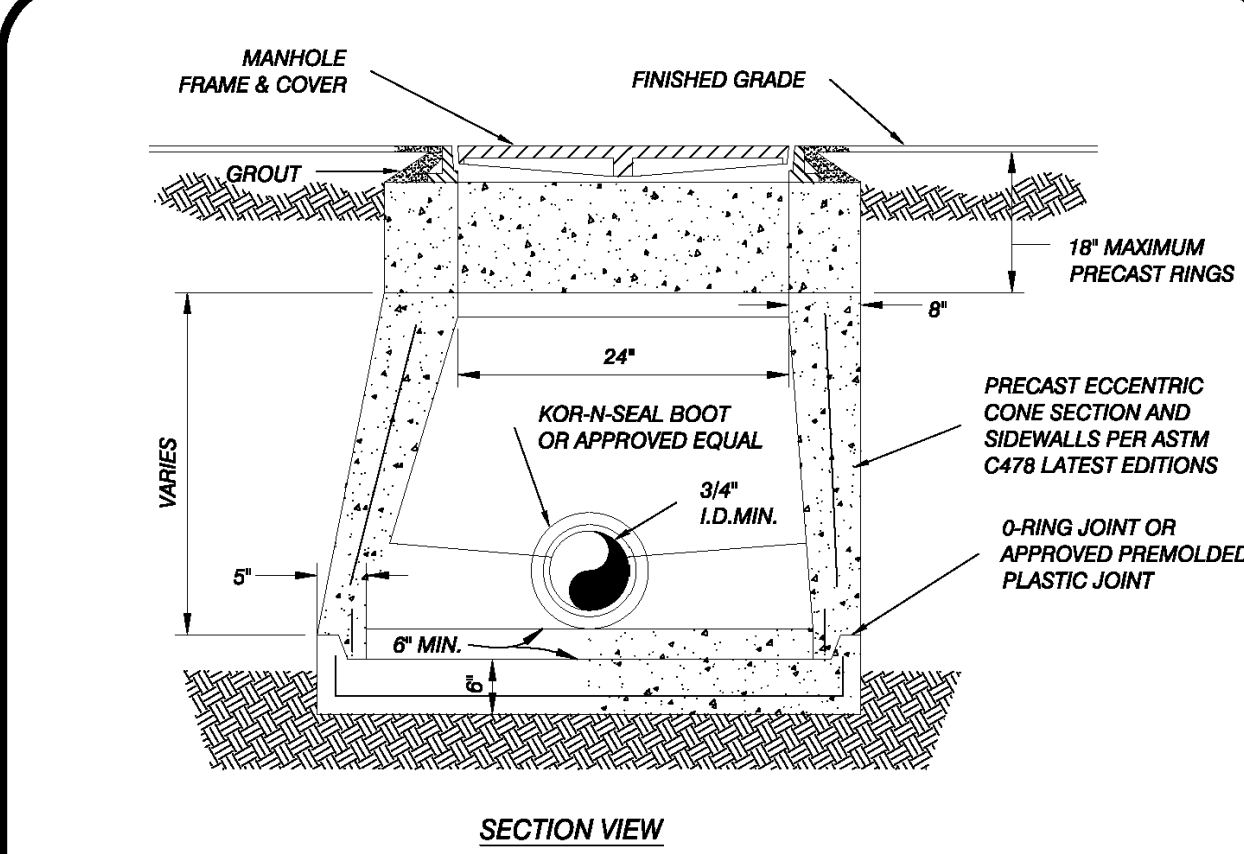
POTABLE WATER NOTES:

- CONTRACTOR SHALL COORDINATE INSTALLATION OF POTABLE WATER MAINS WITH ALL OTHER UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
- HYDROSTATIC TESTS, LEAKAGE TESTS, DISINFECTION, AND BACTERIOLOGICAL TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE WRITTEN CONSTRUCTION SPECIFICATION OF CITY OF DEFUNIAK SPRINGS AND ALL APPLICABLE FDEP AND AWWA REQUIREMENTS.
- NO POTABLE WATER MAIN CONSTRUCTION SHALL COMMENCE UNTIL SHOP DRAWINGS HAVE BEEN APPROVED AND A PRECONSTRUCTION CONFERENCE HELD WITH CITY OF DEFUNIAK SPRINGS STAFF.
- PROVIDE LOCKS, IN ACCORDANCE WITH THE WRITTEN CONSTRUCTION SPECIFICATIONS OF CITY OF DEFUNIAK SPRINGS, ON ALL CURB STOPS.
- CONTRACTOR SHALL NOTIFY CITY OF DEFUNIAK SPRINGS 72 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. DEFUNIAK SPRINGS REPRESENTATIVES MUST WITNESS ALL TIES OF AND TESTS OF NEW LINES.
- SERVICES INSTALLED UNDER ASPHALT TO BE INSTALLED IN 2" SCH. 40 PVC CASING EXTENDING 4'-0" BEYOND BACK OF CURB.
- CONTRACTOR SHALL INSTALL NO.10 INSULATED COPPER LOCATOR WIRE 18" DIRECTLY ABOVE TOP OF ALL PVC PIPE, ABOVE SERVICE LINES, AND LOOP TO MIN. 10" ABOVE TOP OF VALVE BOXES. WIRE SHALL BE CONNECTED FOR A CONTINUOUS CIRCUIT CONNECTION. DO NOT WRAP AROUND PIPING.
- IT IS REQUIRED THAT ALL NEW AND RELOCATED WATER SERVICES AND PLUMBING SHALL BE IN CONFORMANCE WITH STATE AND FEDERAL REGULATIONS PERTAINING TO THE CONTROL OF LEAD AND COPPER.
- THE LOCATION OF ALL WATER SERVICE STUBS ARE TO BE MARKED BY THE LETTER "W" SCRIBED A MINIMUM OF 2" HIGH AND 1/4 DEEP IN CURB. IF NO CURBING IS INSTALLED A 3" SQUARE STEEL TAG INSCRIBED WITH A 2" LETTER "W" IS TO BE ATTACHED TO THE STREET PAVEMENT.
- A 4" WATER BALL MARKER, AS MANUFACTURED BY 3M PART NO. 1403, SHALL BE PLACED AT ALL INLINE VALVES ALONG WATERMAIN AND AT ALL METER BOX LOCATIONS.
- ALL MECHANICAL JOINTS SHALL USE MEGA-LUG RESTRAINT TYPE RETAINING GLANDS.
- MINIMUM SEPARATION BETWEEN WATER OR SEWER AND ELECTRICAL CONDUITS OR ELECTRICAL LINES SHALL BE 72" MINIMUM HORIZONTAL & 18" VERTICAL WITH ELECTRICAL BEING BELOW THE WATER AND SEWER LINES. IN CASES WHERE 18" VERTICAL SEPARATION CAN NOT BE MET, 96" OF HORIZONTAL SEPARATION SHALL BE REQUIRED.
- ALL MECHANICAL JOINT FITTINGS ON PRESSURE PIPE SHALL HAVE BOTH 'MEGALUG' TYPE JOINT RESTRAINING GLANDS AND THRUST BLOCKS.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND MEETING THE REQUIREMENTS OF CITY OF DEFUNIAK SPRINGS TECHNICAL GUIDE AND SPECIFICATIONS LATEST EDITION.
- ANY LOCATION WHERE PRESSURE PIPELINES CURVATURE EXCEEDS MANUFACTURES' SPECIFICATIONS; APPROPRIATE MECHANICAL JOINT FITTINGS SHALL BE USED.
- ALL 2-INCH VALVES SHALL BE BALL TYPE- 2-INCH GATE VALVES SHALL NOT BE USED.
- ALL TIE IN TO EXISTING PRESSURIZED PIPELINES SHALL BE BY TAPPING SLEEVE (3 INCH TAP AND LARGER) (OR TAPPING SADDLE, 2 INCH TAP AND SMALLER) AND VALVE.



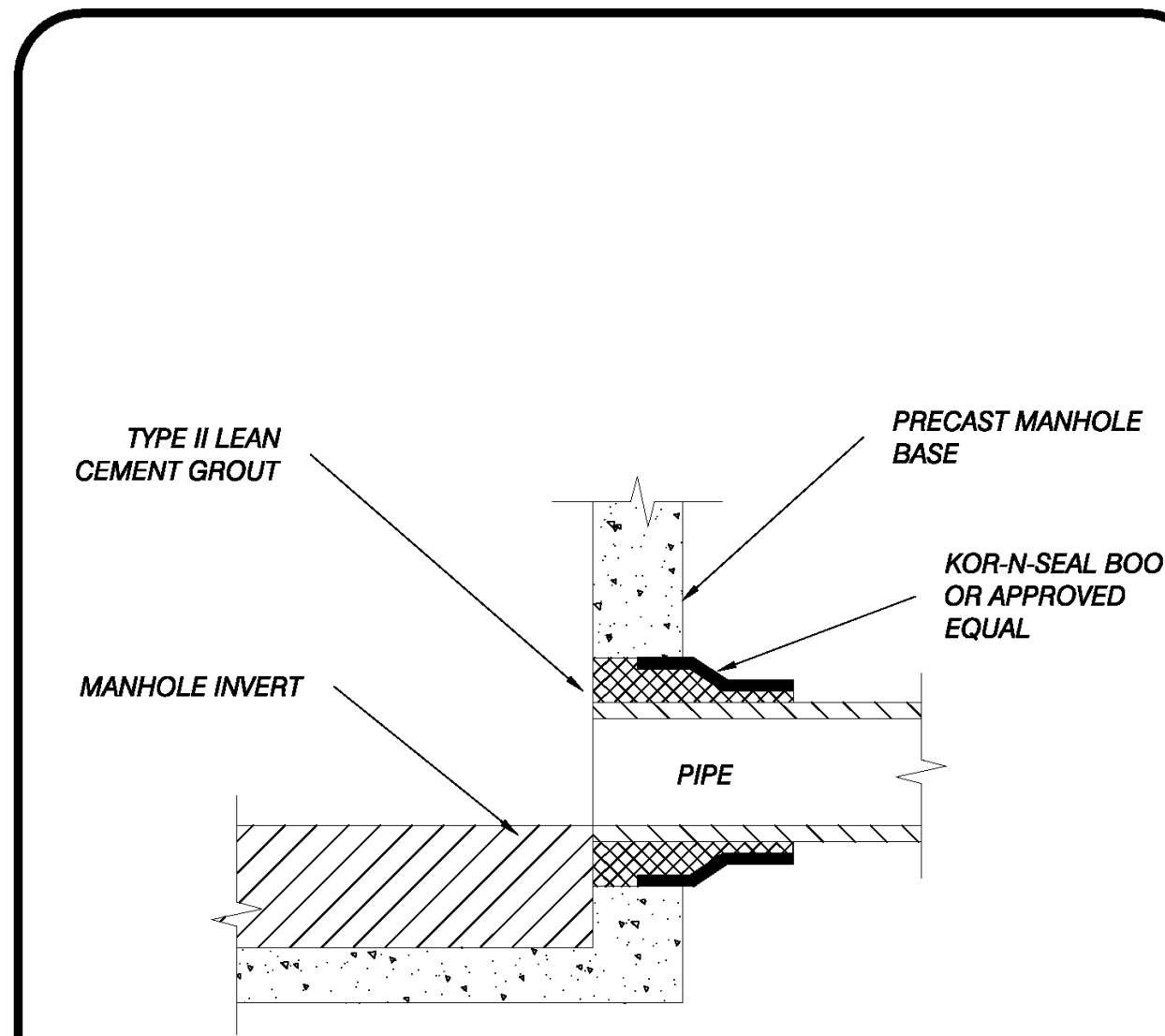
- NOTES**
1. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH LATEST EDITION OF ASTM C 478 WITH 4,000 LB. CONCRETE, TYPE II CEMENT.
 2. PROVIDE PRECAST CONCRETE MANHOLES WITH A KYPEX ADDITIVE, OR EQUAL, TO THE CONCRETE MIX.
 3. PROVIDE NEOPRENE COATED MANHOLE STEPS WITH SELF CLEANING TRACTION CLEATS 12\"/>
 4. PROVIDE MANHOLE BASE, CAST MONOLITHICALLY WITH BOTTOM AND FIRST RISER.

	SANITARY SEWER STANDARD MANHOLE	SCALE: NTS	S-3
		DATE: FEB. 10, 2009	
		PROJECT:	
		REVISION:	

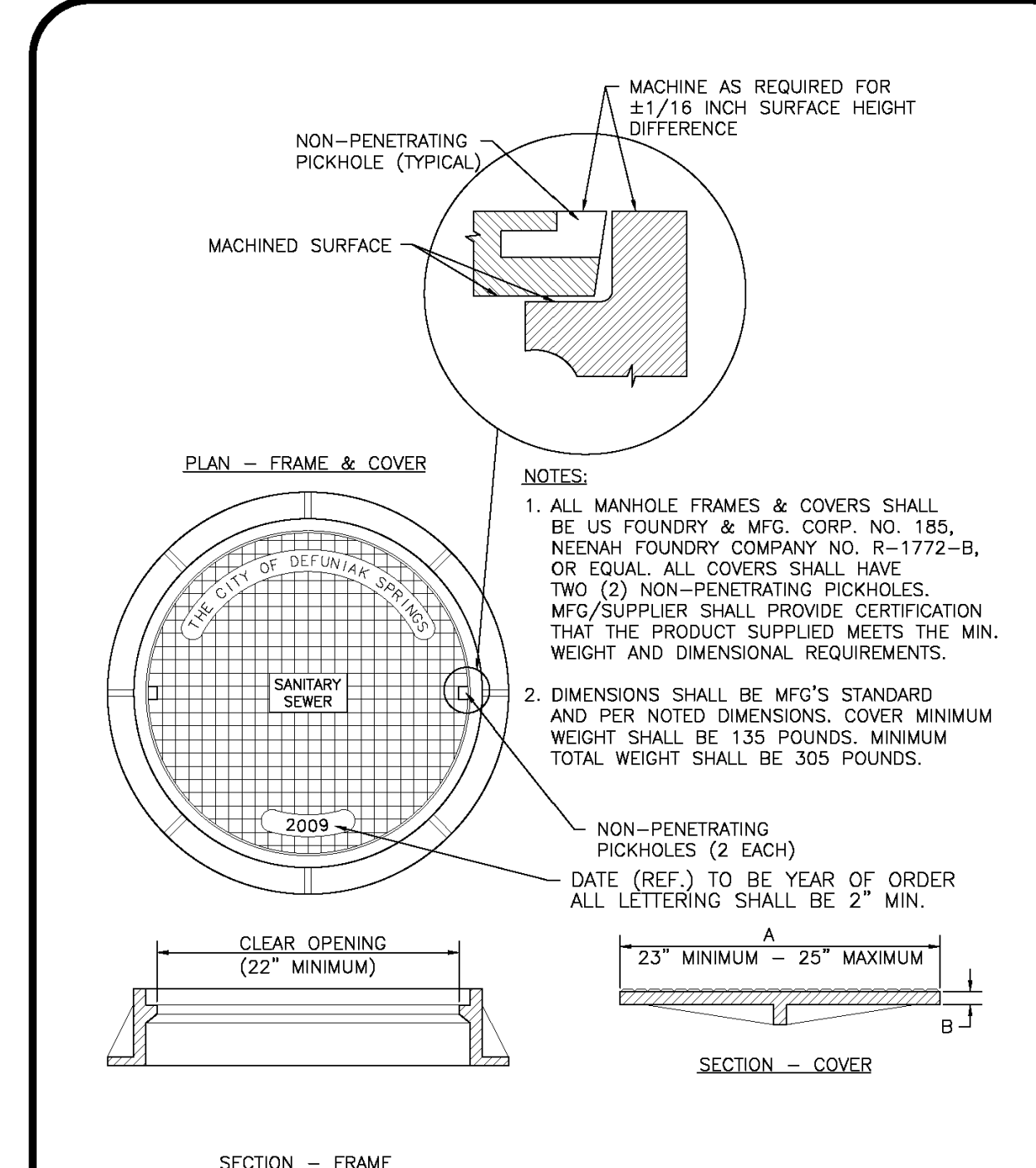


- NOTES:**
1. PRECAST MANHOLE SECTIONS TO BE MANUFACTURED IN ACCORDANCE WITH LATEST EDITIONS OF ASTM C-478 WITH 4,000 LB. CONCRETE, TYPE II CEMENT.
 2. THE INTERIOR AND EXTERIOR OF MANHOLE SHALL BE GIVEN TWO COATS OF FABERITTE BITUMINOUS WATERPROOFING MATERIAL, DO NOT COAT JOINT OR PIPE OPENING SURFACES.

	SANITARY SEWER SHALLOW DEPTH MANHOLE	SCALE: NTS	S-4
		DATE: FEB. 10, 2009	
		PROJECT:	
		REVISION:	

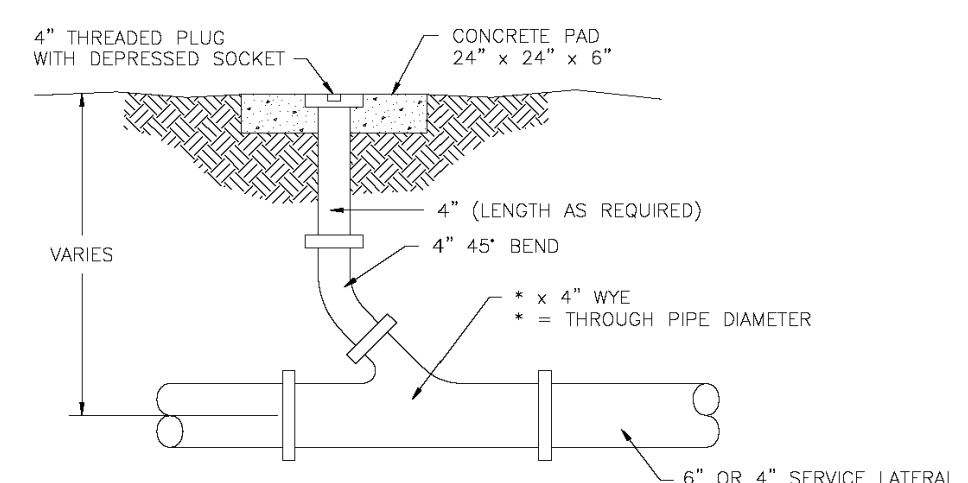


	PRECAST MANHOLE PIPE CONNECTIONS	SCALE: NTS	S-5
		DATE: FEB. 10, 2009	
		PROJECT:	
		REVISION:	

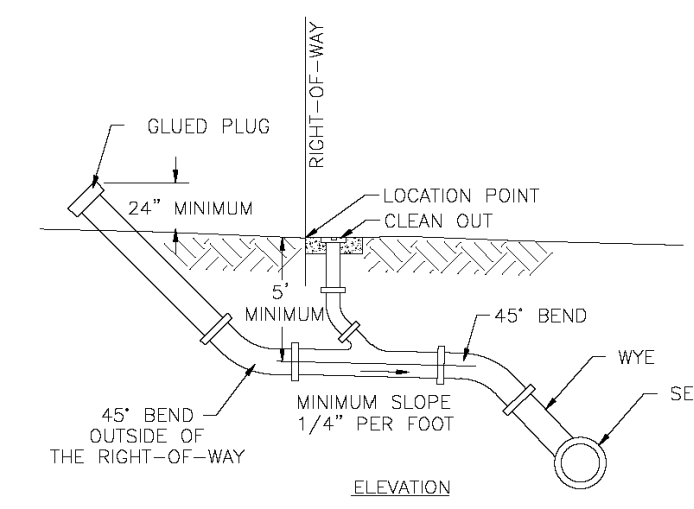


- NOTES:**
1. ALL MANHOLE FRAMES & COVERS SHALL BE US FOUNDRY & MFG. CORP. NO. 185, NEEVAH FOUNDRY COMPANY NO. R-1772-B, OR EQUAL. ALL COVERS SHALL HAVE TWO (2) NON-PENETRATING PICKHOLES. MFG/SUPPLIER SHALL PROVIDE CERTIFICATION THAT THE PRODUCT SUPPLIED MEETS THE MIN. WEIGHT AND DIMENSIONAL REQUIREMENTS.
 2. DIMENSIONS SHALL BE MFG'S STANDARD AND PER NOTED DIMENSIONS. COVER MINIMUM WEIGHT SHALL BE 135 POUNDS. MINIMUM TOTAL WEIGHT SHALL BE 305 POUNDS.

	TYPICAL MANHOLE FRAME & COVER	SCALE: NTS	S-11
		DATE: FEB. 10, 2009	
		PROJECT:	
		REVISION:	

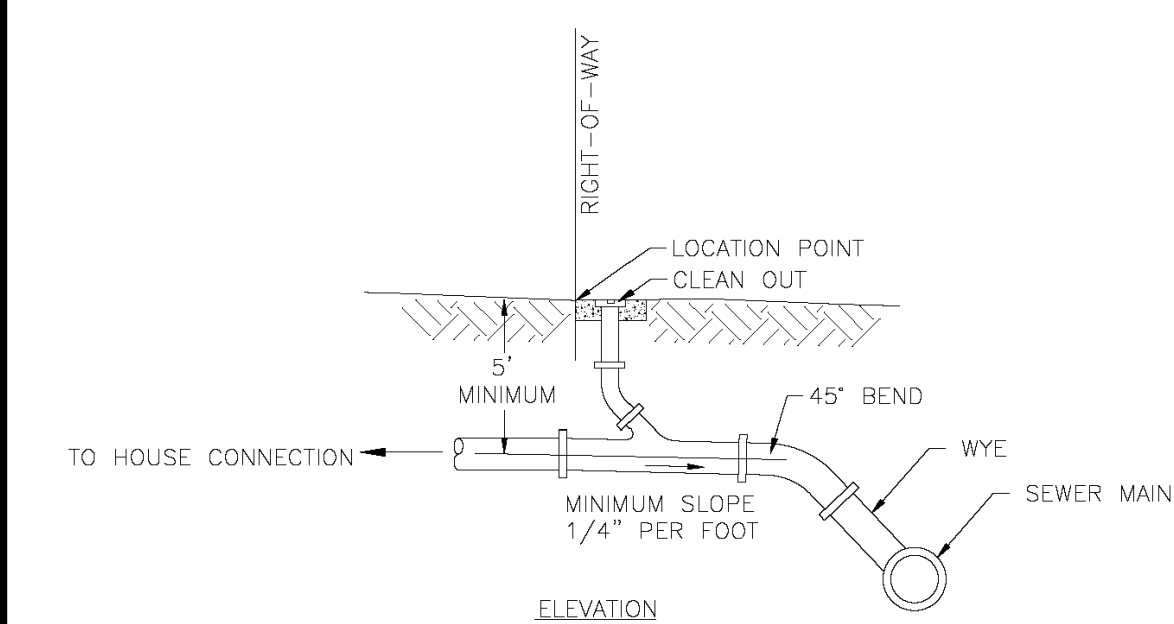


SEWER LATERAL CLEAN-OUT DETAIL
Not to scale



SEWER LATERAL CONNECTION
Not to scale

	SEWER SERVICE (1)	SCALE: NTS	S-12
		DATE: FEB. 10, 2009	
		PROJECT:	
		REVISION:	

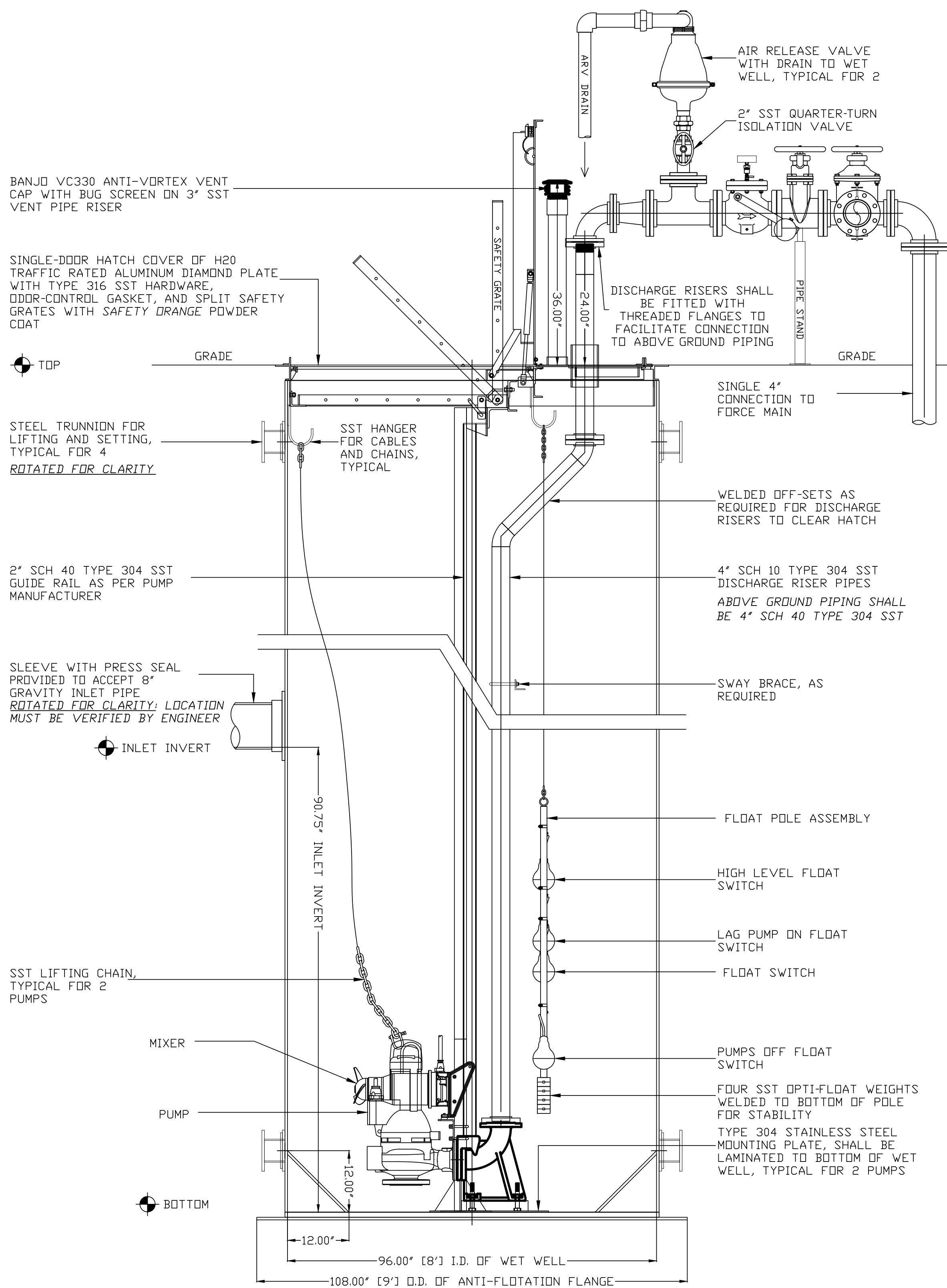


**SEWER LATERAL-
CONNECTION**
Not to scale

	SEWER SERVICE (2)	SCALE: NTS	S-13
		DATE: FEB. 10, 2009	
		PROJECT:	
		REVISION:	

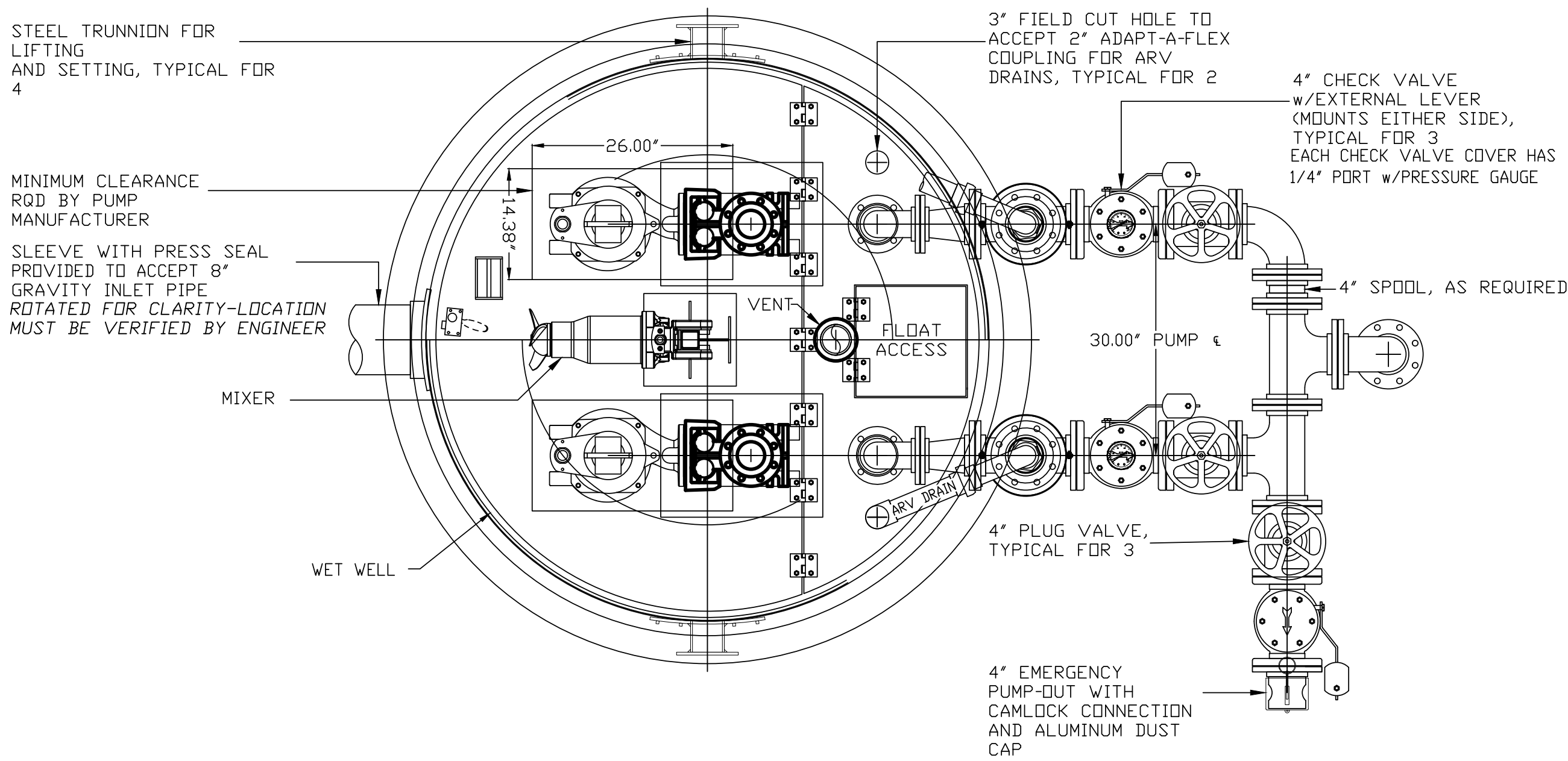
SANITARY SEWER NOTES:

1. CONTRACTOR SHALL COORDINATE INSTALLATION OF SANITARY SEWERS WITH ALL OTHER UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
2. TELEVISION INSPECTION IS REQUIRED FOR ALL GRAVITY SEWERS. A FULL REPORT SHALL BE GIVEN TO THE CF1Y OF DEFUNIAK SPRINGS UPON COMPLETION. COST OF TELEVISION INSPECTION SHALL BE DONE BY THE CONTRACTOR.
3. NO SANITARY SEWER CONSTRUCTION SHALL COMMENCE UNTIL SHOP DRAWING SUBMITTALS HAVE BEEN APPROVED.
4. A PRE CONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY DEFUNIAK SPRINGS 72 HRS PRIOR TO COMMENCEMENT OF CONSTRUCTION. DEFUNIAK SPRINGS REPRESENTATIVES MUST WITNESS ALL TIES TO EXISTING LINES AND TESTS OF NEW LINES.
5. THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS IN ACCORDANCE WITH CITY OF DEFUNIAK SPRINGS TECHNICAL GUIDE.
6. ALL GRAVITY SEWER SHALL BE VISUALLY INSPECTED (I.E. LAMPED) BY DEFUNIAK SPRINGS REPRESENTATIVES PRIOR TO FINAL ACCEPTANCE.
7. ALL MECHANICAL JOINT CONNECTIONS SHALL BE RESTRAINED USING MEGA-LUG TYPE RESTRAINT'S OR APPROVED EQUAL
8. MIN.SERVICE SLOPE: 4" = 1/4" PER FOOT, 8" = 1/8" PER FOOT.
9. USE 4" SERVICES FOR ALL SINGLE-FAMILY HOME CONNECTIONS. USE 6" SERVICES FOR MULTI FAMILY AND COMMERCIAL CONNECTIONS.
10. LOCATIONS OF SERVICE STUB TO BE MARKED BY THE LETTER "S" SCRIBED A MINIMUM OF 2" HIGH & 1/4" DEEP IN CURB
11. IF NO CURBING IS INSTALLED A "3" SQUARE STEEL TAG INSCRIBED WITH A 2" LEITER "S" IS TO BE ATTACHED TO STREET PAVEMENT.
12. EXTEND SERVICE CONNECTION A SUFFICIENT DISTANCE BEYOND CLEAN-OUT TO ALLOW FOR FUTURE CONNECTION TO THE STUB OUT WITHOUT UNDERMINING THE CLEAN-OUT ASSEMBLY
13. USE HYDRAULIC CEMENT GROUT TO SEAL INTERIOR AND EXTERIOR OF ALL PRECAST MANHOLE JOINTS.
14. ALL GRAVITY SEWER AND SEWER SERVICES SHALL HAVE CONCRETE ENCASEMENT WHERE COVER IS LESS THAN 30 INCHES UNDER PAVEMENT OR LESS THAN 18 INCHES IN GREEN AREAS.
15. AT ALL HIGH POINTS CRESTED DURING FORCE MAIN CONSTRUCTION, COMBINATIONS AIR RELEASE VALVES SHALL BE INSTALLED.
16. EXTERNAL DROP TYPE MANHOLES ARE REQUIRED WHERE MANHOLE INVERT ELEVATIONS VARY BY OVER TWO FEET.
17. MANHOLE TOPS IN GREEN AREAS SHALL BE ELEVATED TO PROHIBIT STORMWATER ENTRY.
18. SEWER SERVICES SHALL BE CONSTRUCTED AT THE LOWER SIDE OF LOTS.
19. ALL CONSTRUCTION MUST BE IN ACCORDANCE WITH CITY OF DEFUNIAK SPRINGS TECHNICAL GUIDE AND SPECIFICATIONS, LATEST EDITION.



PUMPING STATION DATA	
Designation	BAY SPRINGS PH III
Pump Type	GRUNDFOS
Pump Model	SL1.30.A30.100
Impeller	250
voltage (3 PHASE)	230/460V V
h.p.	10
r.p.m.	1750
delivery, gpm	340
TDH, feet	58.08
Top elev.	150.0
Influent	144.0
High level alarm elev.	140.5
Lag pump on elev.	139.5
Lead pump on elev.	138.5
Both pumps off elev.	137.0
Bottom elev.	135.0
Force main dia.	6 INCH
Wet Well dia.	8 FOOT

NOTE: VERIFY VOLTAGE WITH ELECTRIC COMPANY PRIOR TO CONSTRUCTION.

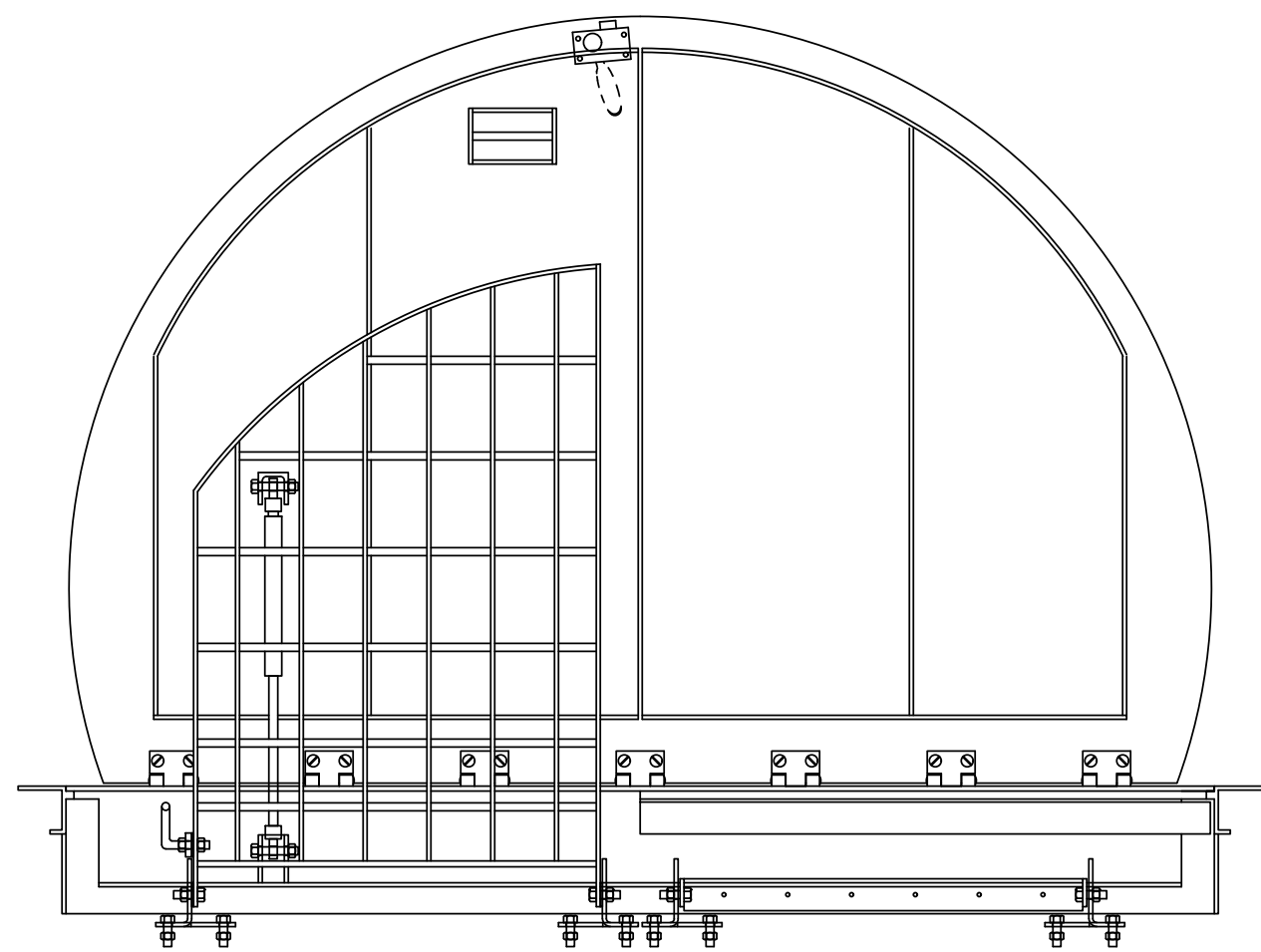


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CERTIFICATE OF AUTHORIZATION No. 1582

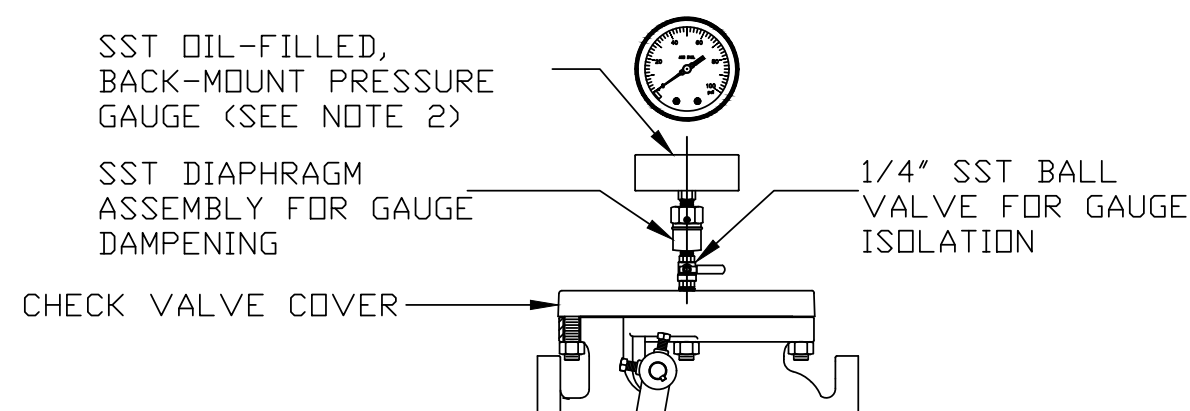
BAY SPRINGS PH III
LIFT STATION DETAILS (1 OF 2)
Not valid unless bearing Engineer's embossed seal.
MARK C. SENER, P.E.
FL REG. NO. 48831

Job No.:	2020-150-E
Date:	15 SEPT 2024
Flt. Vol.:	N/A
Scale:	N/A
Disk No.:	20150E-MISC
Designed:	MCS
Drawn:	KMB
Checked:	MCS
Sheet	



HATCH DETAIL

SHOWN ROTATED WITH COVER AND LEFT SIDE SAFETY GRATE OPEN
GRATING SHALL HAVE SAFETY ORANGE POWDER COAT FINISH



PRESSURE GAUGE DETAIL

NOTES:

1. THE PUMPS MUST HAVE A 5-YEAR 100% REPAIR PARTS AND LABOR WARRANTY AS PROVIDED BY PUMP MANUFACTURER.
2. PRESSURE GAUGE TO BE SIZED TO READ NO MORE THAN 1-1/2 TIMES THE MAXIMUM PRESSURE PUMP PROVIDES AT DEAD HEAD.
3. FLOAT POLE ASSEMBLY CONSISTS OF A 1" SST PIPE WITH SST LIFTING CHAIN MOUNTED TO WELDED EYE. CHAIN SHALL BE LONG ENOUGH TO POSITION FLOATS AT THE REQUIRED DEPTH. FIBER OPTIC "OPTI-FLOATS" ARE WEIGHTLESS AND MOUNT TO POLE WITH PIPE CLAMPS. ONE SST WEIGHT FOR EACH FLOAT IS WELDED TO BOTTOM OF FLOAT POLE FOR STABILITY.

CONTROL PANEL MUST MEET
CURRENT FLDEP STANDARDS

PHANTOM UHF ANTENNA FOR
CRYSTAL BALL TELEMETRY UNIT

NEMA 12/3R DOUBLE-DOOR ENCLOSURE
FABRICATED FROM 0.125 ALUMINUM

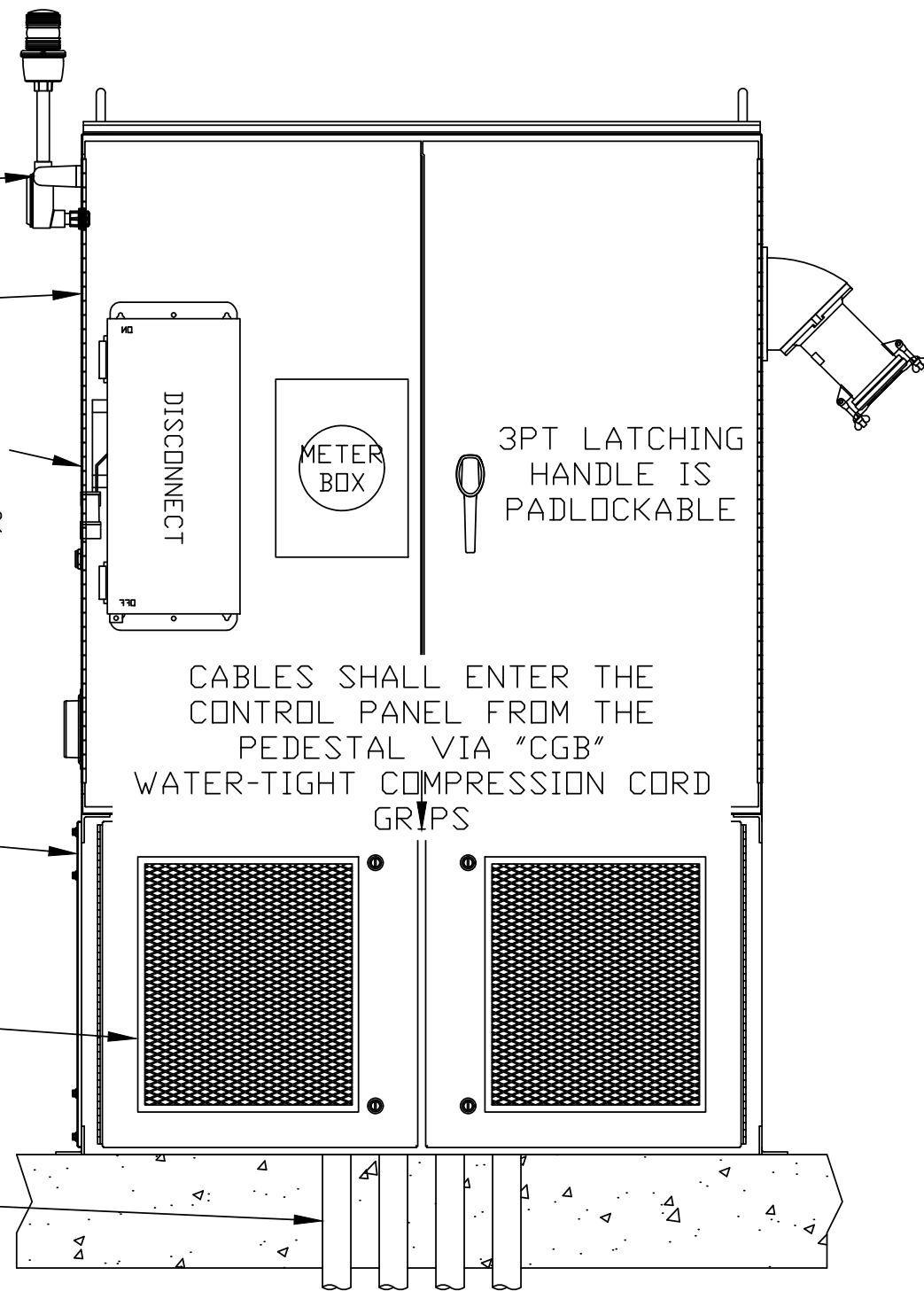
ALUMINUM UNISTRUT & MOUNTING PLATE
IS PROVIDED ON THE BACK OF THE
ENCLOSURE: DISCONNECT AND POWER
METER BOX SHALL BE PROVIDED AND
INSTALLED BY ELECTRICAL CONTRACTOR

THE ENCLOSURE, REAR MOUNTING
PLATE, UNISTRUT, DISCONNECT,
METER BOX, AND VENTILATED
PEDESTAL SHALL BE PAINTED
WITH WHITE EXTERIOR FINISH

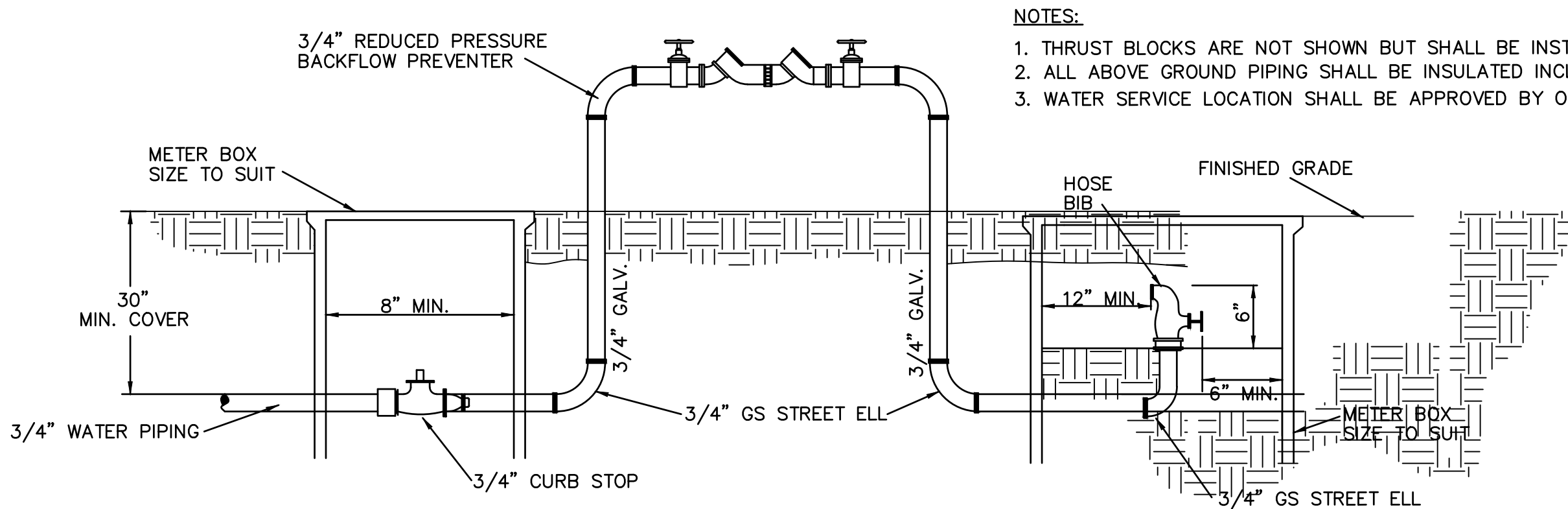
VENTILATED PEDESTAL
FABRICATED FROM 0.250 ALUMINUM
ANGLE AND 0.125 ALUMINUM PLATE

HINGED EXPANDED METAL ACCESS
DOORS w/ BUG SCREENS AND
1/4-TURN LATCHES

CONDUITS FROM WET WELL
SHALL BE ROUTED THROUGH
THE PEDESTAL AND INTO THE
CONTROL ENCLOSURE



CONTROL PANEL DETAIL



LIFT STATION WATER SERVICE ASSEMBLY

N.T.S.

NOTES:

1. THRUST BLOCKS ARE NOT SHOWN BUT SHALL BE INSTALLED.
2. ALL ABOVE GROUND PIPING SHALL BE INSULATED INCLUDING BFP.
3. WATER SERVICE LOCATION SHALL BE APPROVED BY OCWS.

BAY SPRINGS PH III
LIFT STATION DETAILS (2 OF 2)

Not valid unless bearing Engineer's embossed seal.

MARK C. SENER, P.E.
FL REG. NO. 48831

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Revisions:

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CERTIFICATE OF AUTHORIZATION No. 1582

LIFT STATION SPECIFICATIONS

These specifications applies to all sewage lift stations within the wastewater collection system designed to pump raw wastewater. Types of stations included are submersible pump type lift stations. Lift stations shall include wetwell, valve box, pumps control panel, electrical service, control system, guide rails and all appurtenances or other items required to provide a fully operational system.

The installation shall comply with all local, state, and federal laws and ordinances applicable to electrical installation and with the regulations of the latest edition of the published National Electrical Code where such regulations do not conflict with those laws and ordinances. The contractor shall obtain all permits, and after completion of the work, shall furnish the Engineer a certificate of final inspection and approval from the applicable local inspection departments.

VALVE HOUSING BOX

The exterior of the valve housing box shall be water proofed by the manufacturer with two coats of Kopper's Bitumastic 300-M pr approved equal type sealant to prevent ground water infiltration.

The interior of the valve housing box shall have a smooth plastered finish, bottom section to be sloped to one corner.

There shall be a minimum of 18 inches clearance on all sides of valves and fittings.

The check valves shall be a full body cast iron valve with external lever and spring as manufactured by Empire Specialty Co. Inc., or approved equal. Cast Iron Body, renewable Buna N Seal, and AWWA C115 Flanged connection. The shaft, center pin, disc arm set screw, seat screws and disc arm key shall be stainless steel.

All exposed hardware shall be of corrosion resistant, stainless steel.

The Access Hatches shall be aluminum double-door type, rated at 300 lb/sq. ft. A minimum of 3' x 3' overall, mounted and centered on the box as shown on the drawings. Doors shall be of skid-proof design.

All valve housing boxes shall be a solid cast in place or precast concrete box with bottom grouting of box bottom not permitted.

The gate valves shall be AWWA C509 Compression Resilient Seated, Flanged Cast Iron Body with epoxy coated interior, and manual hand wheel actuator.

An emergency by-pass gate valve with an Ever-tite Quick Coupling, Part "F", Female x Male iron pipe adaptor with male thread, 4" aluminum, shall be used, and installed within the valve box proceeding the in-line check and gate valve. The coupling should be located in a manner that it is accessible when the access hatch is open, with no obstructions so that a 4" suction hose can be easily attached for emergency operations.

WET WELL

There shall be stainless steel pull chains fastened with stainless steel clamps to the lift rings on each pump. The stainless steel chain shall be of adequate strength to permit raising and lowering of the pumps.

The entire internal discharge riser pipes shall be scheduled 80 P.V.C. joined with schedule 80 P.V.C. cement, or welded 304 stainless steel.

A double door aluminum access frame and cover, rated at 300 lb/sq. ft., complete with hinged and flush locking mechanism, 316 S.S. upper guide holder and level sensor(s) cable holder shall be furnished and installed on the pump station wet well. Frame shall be securely placed, mounted above the pumps. Frame shall be provided with sliding nut rails to attach the accessories required. Lower guide bar holders shall be integral with the discharge connection. Guide bars shall be of at least 316 stainless steel pipe. Doors shall be of skid proof design.

All lift eyes within the interior and exterior of wet well shall be cut off flush with the existing surface, and sealed with a Bitumastic type sealant.

Steps will not be allowed inside the wet well.

Schedule 80 PVC with a flange on each end shall be used from the exterior of the wet well into the valve box.

The discharge piping shall be intermediately supported inside the wet well by the use of a stainless steel uni-strut bolted to the well wall, and stainless steel u-bolts and clamps secured to the discharge pipe and strut.

All fasteners inside wet well shall be 316 stainless steel and coated with Never Sieze or equal.

Hatch to wet well shall be as a minimum 4' x 4' in size or larger, as specified on plans.

All wet wells shall have an approved interior lining system.

Wet Well shall be 6' diameter or larger or 6' x 6' square or larger as specified on plans.

A guide system for pump removal shall be installed inside the wet well for each pump. The entire guide system shall be manufactured of a minimum 316 stainless steel and in accordance with the pump manufacture guidelines. All pipes for rail type guides shall have as a minimum, two (2) inches in diameter. The guide system shall not support any portion of the weight of the pump. The lower guide bracket shall be incorporated and tightly secured to the discharge connection elbow with 316 stainless steel fasteners. The entire guide system shall conform to Underwriters Laboratory (U. L.) requirements, for use in Class I, Division I, Group D environments.

Influent piping shall be C-900 or C-905 PVC Pipe and be turned down to a level 6 inches below the lowest water level.

A ALTERNATE WET WELL/VALVE BOX

Stand alone Fiberglass Structures may be used for Wet Well and Valve Pit. The FRP structures must meet and or exceed ASTM-D3753 standards. The structures must be Third Party Tested and Certified to meet the ASTM-D3753 standards. A copy of this certification must be provided with Submittal Data. Manufacturers that do not have this Third Party Certification included with the submittal data will not be approved. The structures must have labels that have serial numbers visible and states the manufacturer, date of manufacture, depth, diameter, and that structure meets ASTM- D3753 standards. If the Manufacturer is contacted they must be able to state purchaser, diameter, depth, and date that the wet well was purchased simply by providing the serial numbers. Manufacturers that do not maintain files that track serial numbers will not be accepted as warranties will not be verifiable. The fiberglass structures must have a standard 10 Year structural warranty. The fiberglass structures must have a printed 10 Year warranty label gel coated next to ASTM and serial number label. Copy of this warranty must be included with the submittal data. Approved Manufacturer is L.F. Manufacturing, Giddings, Texas.

Wet wells/Valve Pits shall have 12" risers with "Drop In" Aluminum Hatch Cover.

Upon completion the wet well and valve pit shall have an 8" concrete slab poured over top. On wet wells 8' in diameter or larger an extra hatch cover shall be provided on opposite side of wet well to allow installation of future equipment.

The wet well shall include guide rail systems with SST components and fiberglass I- Beams or dual SST pipe for slide rails. The base elbow and sealing flange shall be constructed of Cast Iron.

Valve pit shall include two (2) epoxy coated swing check valves with outside lever and spring, three (3) full port SST plug valves (By American), Emergency pump out connection with dust cap and all the necessary gaskets, straight pipe, brackets, elbows, tees, and fittings. Minimum valves and pipe size shall be 4". All piping will be Sch. 40 SST for corrosion resistance and strength. Where piping passes through a wall sleeves shall be used with rubber link seals to make a watertight penetration. The sleeves must be large enough for flange of pipe being used to pass freely through (Example: 4" pipe would require a 10" sleeve to allow 9-1/2" O.D. diameter of 4" flange). The link seals are used so that the rubber acts as vibration isolator while pump is running.

All piping in wet well and valve pit shall be welded Flange X Flange Sch. 40 SST.

Hardware used for connections must be SST bolts with Brass nuts.

Discharge piping in wet well must have "air release" valves (Waterman type, or equal).

Oil filled pressure gauges rated for 1-1/2 times specified pumping pressures with 3/4" SST ball valves must be provided for each discharge. Gauges must be located between check and plug valve so that static head can be observed when pump is off, TDH can be observed while pumps are running, and plug valves can be shut to observe "dead head" pressure.

The Emergency Pump Out Connection Dust Cap must be tapped with 3/4" pet cock so as to bleed off any accumulated pressure that may build up prior to removing cap.

PLATES, SHEETS, AND SHAPES
Aluminum Plates, Sheets and Shapes

All aluminum plates and shapes shall be of type AA 5052 alloy conforming to applicable requirements of ASTM Designation B 209-67, (latest revision).

Aluminum extended shapes shall be 6061 or 6062 alloy conforming to ASTM B 221-67, (latest revision).

All surfaces in contact with concrete shall be coated with Bitumastic (Kopper's 50 or equal).

Stainless Steel Plates, Sheets, and Shapes

All stainless steel plates and sheets shall be type 316 alloy conforming to the applicable requirements of ASTM Designation A-182, (latest revision).

Stainless Steel pipe shall be schedule 5, Type 316 alloy conforming to the applicable requirements of ASTM-312, (latest revision).

Fastenings

Fasteners insofar as practical shall be concealed. Where exposed, fastening shall be of 316 stainless steel, where not indicated otherwise and countersunk wherever possible. All fastenings coming into contact with aluminum and /or submerged shall be of stainless steel.

All hardware used to assemble ductile iron fittings shall be stainless steel. Threads shall be coated with antiseize compound.

All threaded fasteners to include threaded rods shall be coated with anti-seize compound.

SUBMERSIBLE PUMPING EQUIPMENT
Pumps

Pumps shall be submersible, heavy duty, recessed impeller type or an approved equal by the City of Milton Public Works.

The pumps shall be capable of handling raw, unscreened sewage. The discharge connection elbow shall be permanently installed in the wet well along with the discharge piping. The pumps shall be automatically connected to the discharge connection elbow when lowered into place, and shall be easily removed for inspection or service. There shall be no need for personnel to enter pump well. Sealing of the pumping unit to the discharge connection elbow shall be accomplished by the simple linear downward force of the pump. A sliding guide bracket shall be an integral part of the pump unit. The entire weight of the pump unit shall be guided by no less than two guide bars and pressed tightly against the discharge connection elbow with metal-to-metal contact by gravity only. Sealing of the discharge interface by means of a diaphragm, O-ring, or other devices will not be acceptable. No portion of the pump shall bear directly on the floor of the wet well. The pump, with its appurtenances and cable, shall be capable of continuous submergence underwater, without loss of water-tight integrity to a depth of 65 ft. Totally submersible design, with all electrical parts housed in an air-filled cast-iron, water tight enclosure. Thrust and radial bearings shall be of the ball type, the motor shafting shall be stainless steel and designed for extremely difficult sewage pumping service. The motors (less than 20 hp) shall be designed to operate on 3-phase, 60-cycle, 240/volt alternating current, and motors (greater than or equal to 20 hp) shall be designed to operate on 3-phase, 60-cycle, 480 volt alternating current, and each shall be non-overloading at all points on the pump curve.

Manufacturing

Design HP of 25 or less: The duplex submersible pumps shall be as manufactured by EMU, Fairbanks-Morse, Hydromatic, or KSB. Submittal data must be reviewed and approved by City of Milton Public Works prior to final approval and purchase.

Submittal Data

The contractor shall provide three (3) copies of the following submittal data for each item of pumping equipment:

Certified Dimensional Print

Typical Performance Curve

Pictorial and Schematic Wiring Prints

Parts Listed and Instructional Prints

Pump Components and Warranty

Pump Characteristics
Pumps shall furnish the following:

Each pump shall be capable of handling raw unscreened sewage or other similar solids-laden fluids without clogging.

The impeller shall be made of erosion-resistant cast iron and shall be of the non-clogging, dynamically balanced type capable of passing a minimum of a three (3") inch solid.

Each impeller and volute shall have wear rings, minimum of 400bhn hardness, installed, except where vortex impeller deign is used.

The pump discharge connection shall be a minimum of four (4") inch in diameter. The volute shall be made of Class 35B or higher, gray cast iron, with smooth internal surfaces and all passageways free of any obstructions. The volute shall also have a centerline discharge, unless otherwise approved by the City.

Controls

Automatic control of the duplex submersible pumps shall be by means of a system of float switches or compressed air. The switch shall by capable of starting and stopping the pumps at an adjustable differential, starting the lead pump first and then the lag pump if wet well level continues to rise, running both pumps simultaneously and automatic alternation of the lead and lag pumps. The control shall be housed in a Stainless Steel NEMA Standard 250, Type 4x enclosure with a pad lock hasp and handle. The enclosure shall include:

Dead front enclosure made of stainless steel.

Two (2) motor starters of adequate size.

120-Volt, 20-Amp duplex receptacle.

Four (4) circuit breakers, one for each pump, one for the receptacle and one for the control circuitry.

Two (2) HOA (hand-off automatic) switches.

Three (3) pole overload relay with one (1) heater per pole for each pump.

Pump alternating circuit.

120 Volt AC Control Voltage.

Two (2) run lights (green), run light shall be clearly labeled.

Two (2) moisture detection relays and yellow warning lights.

Two (2) 0 to 99,999.9 hour elapsed time meters.

Phase Failure relay required (plug-in type, 8-pin).

A minimum of 12" x 12" shall be vacant on inside of sub panel for additional equipment.

A high level float switch will be provided and wired to a terminal strip in the panel.

A 110-Volt exterior flood light, 175 wattage rating, with a remote switch installed inside the main control panel, shall be mounted adjacent to and overhead of the panel and wet well.

A motor over-temp circuitry shall be installed, so that if the motor reaches an over-temp condition, the control voltage to thot motor is interrupted. This shall illuminate a red warning light in the panel.

The controller shall be completely assembled, tested and ready for operation prior to final acceptance inspection.

Alternate Control Systems

Alternate control systems and arrangements will be considered provided all functional characteristics are met.

ELECTRICAL
General

All electrical equipment shall be installed in accordance with the N.E.C. Code, as last revised. All materials used shall be new and unused, of the highest quality, and of proper type for the use intended. Where applicable, all material shall carry the approval of the Underwriters' Laboratory. Substitutes, which tend to lower the quality of the work, will not be permitted. The project is to result in a complete and operable Lift Station. Any items not specified, but normally included in such installations shall be furnished and installed regardless of omissions from specifications. However, specified omissions are not affected by this requirement. The electrical service and starting gear shall be mounted on a suitably sized panel frame constructed of aluminum 4" x 4" x 1/4" angle. All details of service characteristics shall be verified with the local utility.

Materials

Conduit and conduit fittings shall be P.V.C. Electrical connectors and couplings shall be of the approved plastic water-tight type

Wire and cable shall be properly sized to carry the anticipated loading Insulation, unless otherwise noted, shall be typed RHW neoprene jacket for all sizes.

Conduit into wet well shall be large enough for easy removal of pump leads and/or float leads but as a minimum 2" diameter. There shall be one conduit for each pump, plus one for float switch cables if used.

Installations

All conduit runs, whether or not terminated in boxes, shall be capped or plugged to prevent the entrance of foreign objects before wires are pulled.

Conduit projecting into the wet well shall be plugged to a depth no more than 2" from the control panel with non-hardening compound, after the wires are pulled to prevent corrosive gases from reaching the control panel. Compound should be easily removed for removal\replacement of wiring.

Outlets, switches, boxes, etc., shall be rigidly secured and located properly with respect to easy accessibility.

No electrical splices allowed except in control panel.

All work shall be tested and subject to final approval of the engineer.

Stand-by Facilities

A double throw safety switch suitable sized to carry the operating current of the station with attached emergency generator receptacle shall be installed between the main disconnect and the controller. The unit shall be housed in a NEMA 3R stainless steel enclosure. The receptacle shall be a Crouse-Hinds, rated for 100- Amp minimum, larger as required. A 45 degree angle adapter is recommended to allow for easier generator connection, and to prevent water intrusion.

Lightning Arrestor

The lightning arrestor for the main service entrance shall be Joshlin or approved equal.

11.5.5.6 Main Disconnect

The main disconnect safety switch shall be a fused, enclosed service entrance, weather-proof enclosure, 4 wire S/N, 240/480 Volt AC of sufficient size to carry all pumps operating simultaneously.

GENERAL REQUIREMENTS
As-Built Records

A complete set of As-Built records shall be kept by the Contractor. These records shall show all items of construction and equipment which differ in size, shape or location from those shown on the contract drawings, also any additional work, existing features or utilities revealed by construction work which are not shown on the contract drawings. These reports shall be kept up-to-date daily. They may be kept on a marked set of contract drawings to be furnished by the contractor for this purpose, or in any other form, which is approved prior to the beginning of the work. They shall be available at all times during construction for reference by the Engineer and Owner, and shall be delivered to the Engineer upon completion of the work.

Nameplate

Each piece of mechanical equipment and motors shall be provided with a substantial nameplate of non-corrodible metal securely fastened in place, and clearly and permanently inscribed with the manufacturer's name, model, or type designation, serial number, rated capacity, electrical or other power characteristics, and other appropriate nameplate data. Spare nameplates shall be provided for each lift station and placed inside each control panel (one nameplate for each model pump).

Lubricants

All the equipment shall be delivered fully lubricated with oil and/or grease insofar as possible. If any point cannot be so serviced, it shall be clearly marked to the effect that it is not lubricated and requires servicing prior to operation. An adequate supply of the proper lubricant, with the instructions for its application shall be supplied with the equipment for each point not lubricated prior to shipment. The Contractor shall also provide the Owner with a sufficient amount of proper lubricants for one complete change of lubricant for all equipment furnished.

Operating Manuals and Parts Listed

The Contractor shall furnish three (3) complete, bound sets of literature giving the following information to the Okaloosa County Water and Sewer Engineering Department.

Clear and Concise instruction for operations, adjustment and lubrication and other of the equipment. These instructions shall include a complete lubrication chart.

A list of all parts of the equipment, with catalog number and other data necessary for ordering replacement parts.

Such instructions and parts listed shall have been prepared specifically for the model and type of equipment furnished and shall not refer to other models and types of similar equipment

Complete sets of electrical schematic(s), (as built) one of which shall be encapsulated in plastic and permanently mounted to the inside of the liftstation door.

Force Main (Thermoplastic piping)

A #14 copper insulated tracer wire shall be laid over the full length of the force main.

Water Service

A 3/4" Potable water service with backflow preventor shall be made available at Lift Station Site.

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CERTIFICATE OF AUTHORIZATION No. 1592

Revisions:

BAY SPRINGS PH III

LIFT STATION SPECIFICATIONS

Not valid unless bearing Engineer's embossed seal.

MARK C. SNER, P.E.
FL REG. NO. 48831

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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 area.

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:

Need for access to the project site for construction equipment.
Essential grade changes.
Surface water drainage and utility installation.
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 project site on a daily basis and dispose of off-site in an approved area.

SPECIFICATION: EXCAVATION, EMBANKMENT AND SUBGRADE:

EXCAVATION, EMBANKMENT AND SUBGRADE 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.

LIMEROCK BASE COURSE: Shall be constructed in accordance with Section 230 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 sieve
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 limerock base course shall be placed in accordance with Section 200. The base course shall be compacted to not less 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 operations. 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 specification 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.

SPECIFICATION: ASPHALT CONCRETE PAVING

SCOPE: This section includes materials and work required for installation of flexible asphaltic concrete pavement for parking and drive areas shown on the plans excluding any work in the FDOT right-of-way.

APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications shall be the most current issue and are referred to in the text by the basic designation only. The following are minimum requirements and shall govern except that all local, state, and/or federal codes and ordinances shall govern when their requirements are in excess hereof. All asphalt construction shall be in accordance with applicable sections of the "Florida Department of Transportation Specifications for Road and Bridge Construction" unless modified herein:

Section 901 Course Aggregate
Section 902 Fine Aggregate
Section 916 Bituminous Materials
Section 917 Mineral Filler
Section 334 Superpave Asphalt Concrete
Section 337 Asphalt Concrete Friction Course

CONTINUED ON NEXT COLUMN

SUBMITTALS:

- A. Asphalt Design Mix:
1. Before any asphalt surface is constructed, submit two copies of each of the actual design mix to the Engineer and Owner.
2. Written approval of the asphaltic concrete design mix must be obtained from the Engineer and Owner prior to commencing asphalt pavement construction.
- B. Material Certificates: Furnish copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds specified requirements.
- C. Asphalt extraction tests.
- D. Aggregate gradation tests.

JOB CONDITIONS:

A. Weather limitations: Apply prime and tack coats when ambient temperature is above 40 degrees, and when temperature has not been below 35 degrees for 12 hours prior to application. Do not apply when base is wet or contains excess moisture.

MATERIALS:

- A. Mineral Filler: Limerock dust, portland cement, or other inert material complying with section 917 of the Florida DOT Specifications.
- B. Asphalt Cement: Hot mix asphalt shall contain Superpave PG binder grade PG 67-22 and comply with section 916 of the Florida DOT Specifications.
- C. Course Aggregate: Comply with section 901 of the Florida DOT Specifications.
- D. Fine Aggregate: Comply with section 902 of the Florida DOT Specifications.
- E. Prime Coat and Tack Coat: For prime coat, use Cut-back Asphalt Grade RC-70 or RC-250 meeting the requirements of section 916-3. For tack coat, use RA-500 meeting the requirements of 916-2 and comply with the requirements in Section 300 and 916 of the Florida DOT Specifications.
- F. Asphaltic Concrete Design Mixes:
1. Asphalt shall conform to the requirements for Superpave Asphalt Concrete as indicated in Section 334 of the Florida DOT Specifications.
2. Mix shall be within sieve analysis and bitumen range given in Section 334 of the Florida DOT Specifications.
3. Once design mix has been accepted by Engineer and Owner, sieve analysis tolerances indicated in Table 334-3 are allowable during construction. If sieve analysis analysis values fall outside these tolerances, design mix must be resubmitted for acceptance.
4. Provide asphalt-aggregate mixture as recommended by local or state paving authorities to suit project conditions. Use locally available materials and gradations which meet Florida DOT Specifications and exhibit satisfactory record on previous installations.

BASE COURSE PREPARATION:

- A. Prior to construction of the base course, the top 12 inches of subgrade shall be compacted to a minimum soil density of 98% of the Modified Proctor Test Density (ASTM 1557). The subgrade shall be sterilized by a borate or chlorate sterilant containing not less than 25% sodium chlorate and shall be mixed thoroughly with water at the rate of 1-1/2 lbs. of sterilant per gallon of water. The sterilant shall be applied evenly at the rate of 0.2 gallons per square yard to subgrades that are less than 12" below original grades. If prepared base course will not be immediately covered with asphalt on the same day and wind-blown seeds will contaminate the base course surface, the sterilants shall be applied to the base course contaminate the base course.
- B. Remove loose material from compacted base material surface immediately before applying prime coat.
- C. Proof roll prepared base material surface to ensure unstable areas have been corrected and are ready to receive paving.
- D. Prime Coat:
1. Apply bituminous prime coat to base material surfaces where asphaltic concrete paving will be constructed.
2. Apply bituminous prime coat in accordance with Section 300 of Florida DOT Specifications.
3. Apply at minimum rate of not less than 0.15 gal./sq. yd. over compacted base material. Apply material to penetrate and seal, but not flood, surface.
4. Cure and dry as long as necessary to attain penetration and evaporation of volatile.
- E. Tack Coat:
1. Tack coat shall be applied in accordance with Section 300 of Florida DOT Specifications. Apply to contact surfaces of previously constructed asphalt or portland cement and concrete and surfaces abutting or projecting into asphalt concrete pavement.
2. Apply tack coat to full depth asphalt base course and sand asphalt base course. Apply emulsified asphalt tack coat between each lift or layer of full depth asphalt and sand asphalt bases and on surface of such bases where asphaltic concrete paving will be constructed.
3. Distribute at rate of 0.02 gal/s.y. on new asphalt, and 0.08 gal/s.y. on milled asphalt.
4. Allow to dry until at proper condition to receive paving.

PLACING ASPHALT MIX:

- A. Place asphalt concrete mixture on prepared surface, spread, and strike off. Spread mixture at the following minimum temperatures:
1. When ambient temperature is between 40 degrees F and 50 degrees F: 285 degrees F.
2. When ambient temperature is between 50 degrees F and 60 degrees F: 280 degrees F.
3. When ambient temperature is higher than 60 degrees F: 275 degrees F.
- B. Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness.
- C. Paver Placing:
1. Place in strips not less than 10'-0" wide, unless otherwise acceptable to the Contracting Officer.
2. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
- D. Joints:
1. Construct joints between old and new pavements as detailed in the plans.
2. Joints between successive days' work shall be constructed to ensure continuous bond between adjoining work.
3. Construct joints to have same texture, density, and smoothness as other sections of asphalt concrete course.
4. Clean contact surfaces and apply tack coat.

COMPACTION:

- A. Each lift of asphalt shall be compacted to a minimum of 98% of the Marshall test ASTM D1559).
- B. Begin rolling when mixture will bear roller weight without excessive displacement.
- C. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

CONTINUED ON NEXT COLUMN

D. Breakdown Rolling:

1. Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge.
2. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.

E. Second Rolling:

1. Follow breakdown rolling as soon as possible, while mixture is hot.
2. Continue second rolling until mixture has been thoroughly compacted.

F. Finish Rolling:

1. Perform finish rolling while mixture is still warm enough for removal of roller marks.
2. Continue rolling until roller marks are eliminated and course has attained maximum density.

G. Patching:

1. Remove and replace paving areas mixed with foreign materials and defective areas.
2. Cut out such areas and fill with fresh, hot asphalt concrete.
3. Compact by rolling to maximum surface density and smoothness.

H. Protection:

1. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- I. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

FIELD QUALITY CONTROL:

- A. An Independent Testing Laboratory, selected and paid by the contractor shall be retained to perform construction testing of in-place asphalt courses for Asphalt Extraction, Aggregate gradation, Marshall Stability, thickness and surface smoothness.
- B. Thickness: In-place compacted thickness shall not be less than thickness specified on the drawings.
- C. Surface Smoothness: Testing shall be performed on the finished surface of each asphalt concrete course for smoothness, using 10'-0" straightedge applied parallel with, and at right angles to centerline of paved area. The variation of the surface from the edge of the straight edge between any two contact points shall not exceed 1/4". Check surface areas at intervals necessary to eliminate ponding areas. Repair or remove and replace unacceptable paving as directed by the Contracting Officer.
- D. Asphalt content, Aggregate gradation, and Marshall Stability shall be as specified in Section 334 of the Florida DOT Specifications.

SPECIFICATION: PORTLAND CEMENT CONCRETE PAVING

SCOPE: This section includes sidewalks, curbs, and miscellaneous concrete pavement.

APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications shall be the most current issue and are referred to in the text by the basic designation only. The following are minimum requirements and shall govern except that all local, state, and/or federal codes and ordinances shall govern when their requirements are in excess hereof. All concrete construction shall be in accordance with applicable sections of the "Florida Department of Transportation Specifications for Road and Bridge Construction" unless modified herein:

Section 346 Portland Cement Concrete
Section 350 Cement Concrete Pavement
Section 520 Concrete Gutter, Curb Elements and Traffic Separator
Section 931 Metal Accessory Materials for Concrete Pavement and Concrete Structures

SUBMITTALS:

- A. Material Certifications: Furnish copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

MATERIALS:

A. Forms:

1. Steel, wood, or other suitable material of size and strength to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.
2. Use flexible spring steel forms or laminated boards to form radius bends as required.

B. Form Release Agent:

1. Coat forms with nonstaining type coating that will not discolor or deface surface of concrete.

C. Welded Wire Mesh:

1. Welded plain cold-drawn steel wire fabric. Furnish in flat sheets, not rolls, unless otherwise acceptable to Contracting Officer. Welded wire mesh shall be free from rust, dirt, foreign matter and shall not be stored directly on the ground. Wire fabric shall comply with Sections 931 of the Florida DOT Specifications.

D. Reinforcing Bars:

1. Deformed steel bars, ASTM A 615, Grade 40. Reinforcing bars shall be free from rust, dirt, foreign matter and shall not be stored directly on the ground. Deformed steel bars shall comply with Section 931 of the Florida DOT Specifications.

E. Concrete Materials:

1. Comply with requirements of Sections 346 and 350 of the Florida DOT Specifications for concrete materials, admixture, bonding materials, curing materials, and others as required.

F. Joint Fillers:

1. Resilient premolded bituminous impregnated fiberboard units complying with ASTM D1751. Joint fillers shall comply with Section 932 of the Florida DOT Specifications.

MIXING:

- A. Design mix to produce normal weight concrete consisting of Portland cement, aggregate, water-reducing or high-range water reducing admixture (super-plasticizer), air-entraining admixture and water to produce following properties:

1. Compressive Strength: Minimum 3,000 psi for curb and walkways and 4,000 psi for pavement, at 28 days. In addition, concrete for pavement shall have a minimum modulus of rupture of 600 psi.
2. Slump Range: 3"-5".
3. Air Content: 3% to 6%.

PREPARATION:

A. Surface Preparation:

1. Remove loose material from compacted base material surface immediately before placing concrete.

B. Compact the

top 12 inches of subgrade to a minimum soil density of 98% for the Modified Proctor Test (ASTM D1557) to result in a minimum modulus of subgrade reaction (k) of 150 psi/in. Proof-roll prepared base material surface to check for unstable areas. The paving work shall begin after the unsuitable areas have been corrected and are ready to receive paving. Compaction testing for the base material shall be completed prior to the placement of the paving.

CONTINUED ON NEXT COLUMN

CONCRETE INSTALLATION:

A. Form Construction:

1. Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.
2. Check completed formwork for grade and alignment to following tolerances:
- A. Top of forms not more than 1/8" in 10'-0".
B. Vertical face on longitudinal axis, not more than 1/4" in 10'-0".

3. Clean forms after each use, and coat with form release agent as often as required to ensure separation from concrete without damage.

B. Reinforcement:

1. Locate, place, and support reinforcement to ensure compliance with plans.

C. Concrete Placement:

1. Comply with requirements of Sections 346, 350, and 520 of Florida DOT Specifications for mixing and placing concrete.
2. Do not place concrete until base material and forms have been checked for line and grade. Moisten base material if required to provide uniform dampened condition at time concrete is placed. Concrete shall not be placed around manholes or other structures until they are at the required finish elevation and alignment.
3. Place concrete using methods, which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices.
4. Deposit and spread concrete in continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2 hour place construction joint.

D. Curbs and Gutters:

1. Automatic machine may be used for curb and gutter placement at Contractor's option. Machine placement must produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified.

JOINT CONSTRUCTION:

- A. Construct expansion, weakened-plane (Contraction), and construction joints true-to-line with face perpendicular to surface of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

1. Weakened-Plane (Contraction) Joints:

- A. Provide weakened-plane (contraction) joints, sectioning concrete into areas at 15'-0" o.c. maximum each way.
B. Sidewalks shall have contraction joints at 5'-0" o.c.
C. Construct weakened-plane joints for depth equal to at least 1/4 concrete thickness.

2. Tooled Joints:

- A. Form weakened-plane joints in fresh concrete by grooving top portion with recommended cutting tool and finishing edges with jointer.

B. Construction Joints:

1. Plan concrete placement such that construction joints fall at expansion joints as detailed in the plans.

C. Expansion Joints:

1. Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks, and other fixed objects.
2. Locate expansion joints at 40'-0" o.c. maximum for each pavement lane or for curb.
3. Locate expansion joints at 50'-0" o.c. maximum for walkways.

D. Joint Fillers:

1. Extend joint fillers full-width and depth of joint, and not less than 1/2" or more than 1" below finished surface where joint sealer is indicated.
2. Furnish joint filler in one-piece lengths for full width being placed, wherever possible, where more than one length is required, lace or clip joint filler sections together.

E. Joint Sealants:

1. Exterior pavement joint sealants shall be composed of a non-priming, pourable, self-leveling type polyurethane sealant, such as grey shep-calk, or approved equal suitable for use in pavements and sidewalks.

CONCRETE FINISHING:

- A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Adjust floating to compact surface and produce uniform texture.

- B. After floating, test surface for trueness with 10'-0" straightedge (maximum deviation of 1/4 inch). Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide continuous smooth finish.

- C. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/2" radius. Eliminate tool marks on concrete surface.

- D. After completion of floating and troweling when excess moisture or surface sheen has disappeared, complete surface finishing as follows:

1. Curbs, Gutters, and Walks:
A. Broom finish by drawing fine-hair broom across concrete surface perpendicular to line of traffic. Repeat operation if required to provide fine line texture.
2. Inclined Slab Surfaces:
A. Provide coarse, nonslip finish by scoring surface with stiff-bristled broom perpendicular to line of traffic.
3. Paving:
A. Burlap finish by dragging seamless strip of damp burlap across concrete perpendicular to line of traffic. Repeat operation to provide gritty texture.

- E. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and joint up any minor honeycombed areas. Remove and replace areas or section with major defects, as directed.
- F. Protect and cure finished concrete paving in accordance with "Florida Department of Transportation Specifications for Road and Bridge Construction" section 350-13.

CLEANING AND ADJUSTING:

- A. Repair or replace broken or defective concrete as directed.

- B. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials.

- C. Sweep concrete pavement and wash free of stains, discolorations, dirt, and other foreign material just prior to final inspection.

NOTE: STORMWATER DRAINAGE SHALL BE CONTROLLED DURING ALL PHASES OF CONSTRUCTION.

CONTINUED ON NEXT SHEET

Revisions:

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-3034 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 Pipes:**
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 Moormann Corporation, Centralia, Illinois, or an approved equal (or superior) connection shall be provided.
- 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 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, catch basins 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 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.

CONTINUED ON NEXT COLUMN

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 sodding 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 Law.
 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 placed 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.
- D. **Seed:**
1. Seed shall be a blend of certified lawn grass seeds common to the site location. The seed shall meet the criteria 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 not 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 (tackifier) 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 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. **Unplasticized Polyvinyl Chloride (PVC):** polyvinyl chloride meeting or exceeding SDR-21 and having a minimum wall thickness shall be unplasticized

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"	.150"	.187"	.219"	.250"	.312"
providing a minimum SDR ratio of 35 and a minimum pipe stiffness" (F ^{3/4}) = 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 ring 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

CONTINUED ON NEXT COLUMN

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 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.

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 gases 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 frames. 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 bituminous 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 outgoing 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. **Unplasticized 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-25063 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.

CONTINUED ON NEXT COLUMN

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.

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 Specifications 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 swinging check valve with flanged ends. All working parts shall be spring-loaded to prevent slamming. The check valves shall be M&H Fig. 255F, American Darling 50 Line or approved equivalent.

b. Under Three-inches: Check valves under three-inches (3") shall be screw-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. Three 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 pumpier 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 based on the hydrant's pressure rating in accordance with National Fire Code NFPA-291 "Fire Flow Testing and Marking of Hydrants". After installation, South Walton 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 S. Walton Utility Co., 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 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.

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 some 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 backfills; 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.

16. **Reparing:** Pavement removal where required in the construction of this project shall be done by the Contractor in a workmanlike manner. Core 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. Preject 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 are 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 be 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.

CONTINUED ON NEXT COLUMN

CONTINUED ON NEXT COLUMN

CHOCTAW ENGINEERING, INC.
ENGINEERING • ENVIRONMENTAL • SURVEYING
112 TRUXTON AVENUE
FORT WALTON BEACH, FLORIDA 32547
PHONE: 850-862-6611
FAX: 850-863-8059
EMAIL: cei@choctaweng.com

CEI

CERTIFICATE OF AUTHORIZATION No. 1532

Revisions:

BAY SPRINGS PH III
SPECIFICATIONS (3 OF 3)
Not valid unless bearing Engineer's embossed seal.

MARK C. SNIER, P.E.
FL REG. NO. 48831

Job No.: 2020-150-E
Date: 15 SEPT 2024
Fld. Vol.: N/A
Scale: N/A
Disk No.: 20150E-MISC
Designed: MCS
Drawn: KMB
Checked: MCS
Sheet

25 of 25

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CONSTRUCTION PLANS FOR:

PROJECT NUMBER - SP1025

FEBRUARY 2025

PREPARED BY:
KNAUER NEVER ENGINEERING



KNAUERNEVER ENGINEERING, INC.
977 CB 203 NORTH

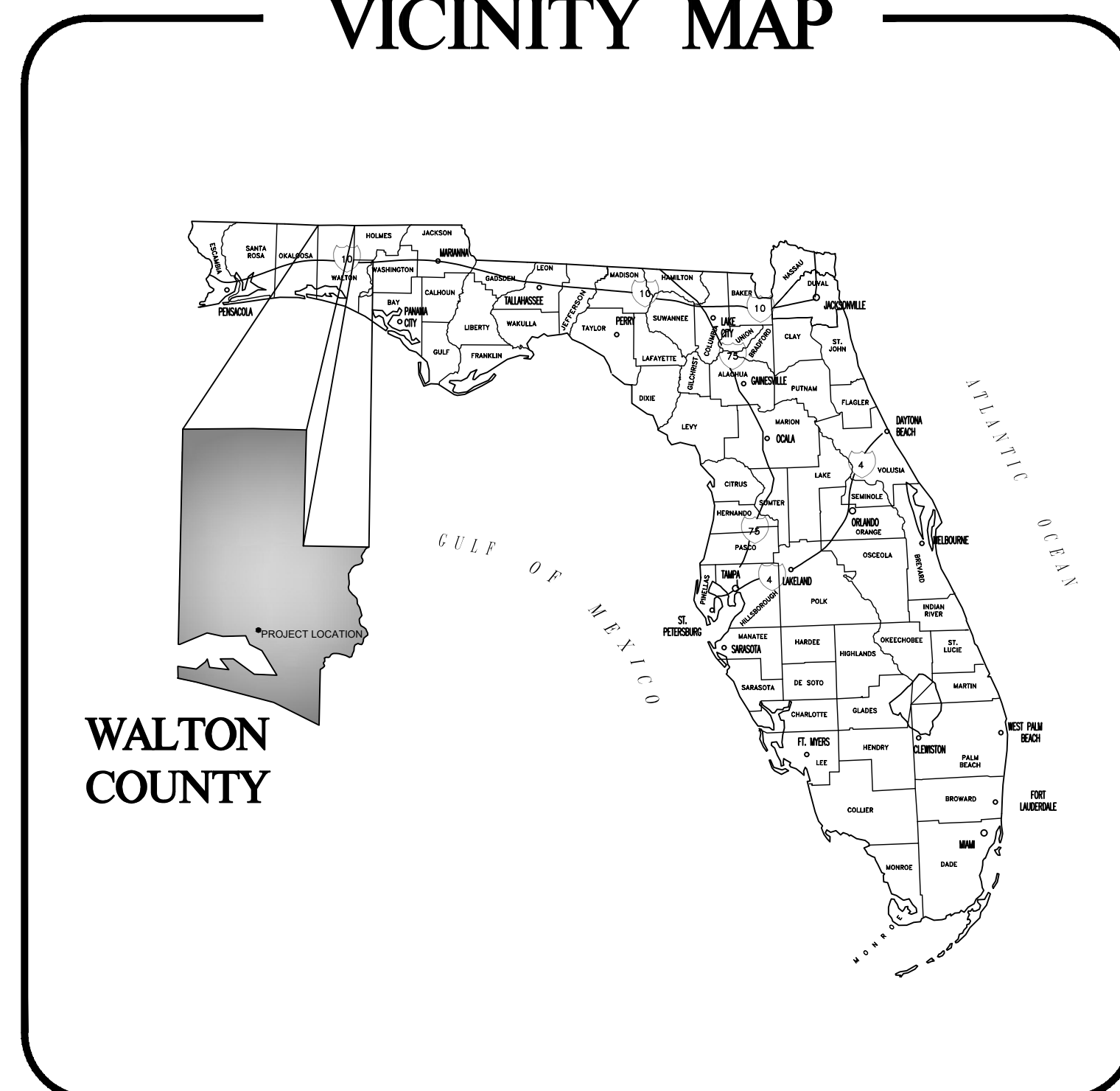
877 CR 393 NORTH
SANTA ROSA BEACH, FL 32459
PHONE: (850) 974-8815
cliff@knauernevereng.com

Clifford Digital
signed by
Clifford
No 5030
Knauer, P.
CFM
Date: 2025-03-11
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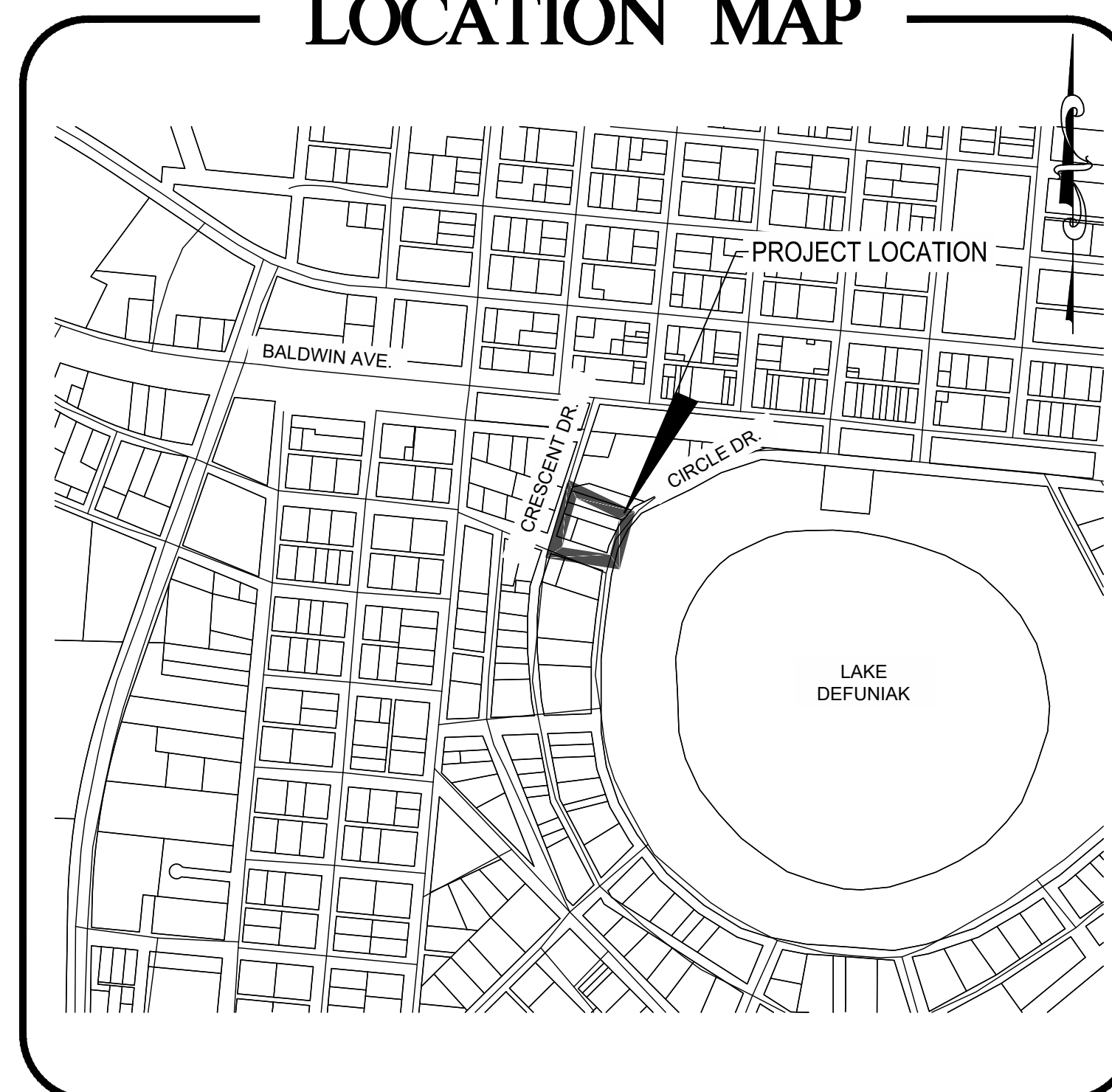
CLIFFORD L. KNAUER, P.E. 53930

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VICINITY MAP



LOCATION MAP



Sheet List Table	
Sheet Number	Sheet Title
GENERAL INFORMATION	
CVR	COVER SHEET
C1.1	GENERAL NOTES AND LEGEND
C1.2	STORMWATER POLLUTION PREVENTION AND PROTECTION PLAN
EXISTING SITE PLANS	
C2.1	EXISTING CONDITIONS
SITE PLANS	
C3.1	MASTER DEVELOPMENT PLAN
C3.2	GEOMETRY PLAN
PAVING AND DRAINAGE	
C4.1	PAVING AND DRAINAGE
PLAN AND PROFILES	
C5.1	PLAN AND PROFILE - DRIVEWAY
C5.2	PLAN AND PROFILE - PARALLEL PARKING
C5.3	PLAN AND PROFILE - PERIMETER SIDEWALK
C5.4	DRIVEWAY CROSS SECTIONS
C5.5	DRIVEWAY CROSS SECTIONS
C5.6	DRIVEWAY CROSS SECTIONS
C5.7	PARALLEL PARKING CROSS SECTIONS
LANDSCAPE PLAN	
C6.1	LANDSCAPE PLAN
CONSTRUCTION DETAILS	
C7.1	CONSTRUCTION DETAILS



CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

COVER SHEET

PROJECT NO.	SP1025
DATE	FEBRUARY 2025
DRAWN BY	BTW
APPROVED BY	BTW

DUE DILIGENCE

SHEET NO.

CVR

1 W. WILLOW MIST ROAD
INLET BEACH, FL 32461
PHONE: (850) 974-8815
cliff@knaurnevereng.com

Clifford L.
Knauer, P.E.
CFM No. 53930

Digitally signed by
Clifford L. Knauer, P.E.
CFM
Date: 2025.03.11 13:11:32
-05'00'

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CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

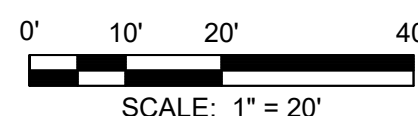
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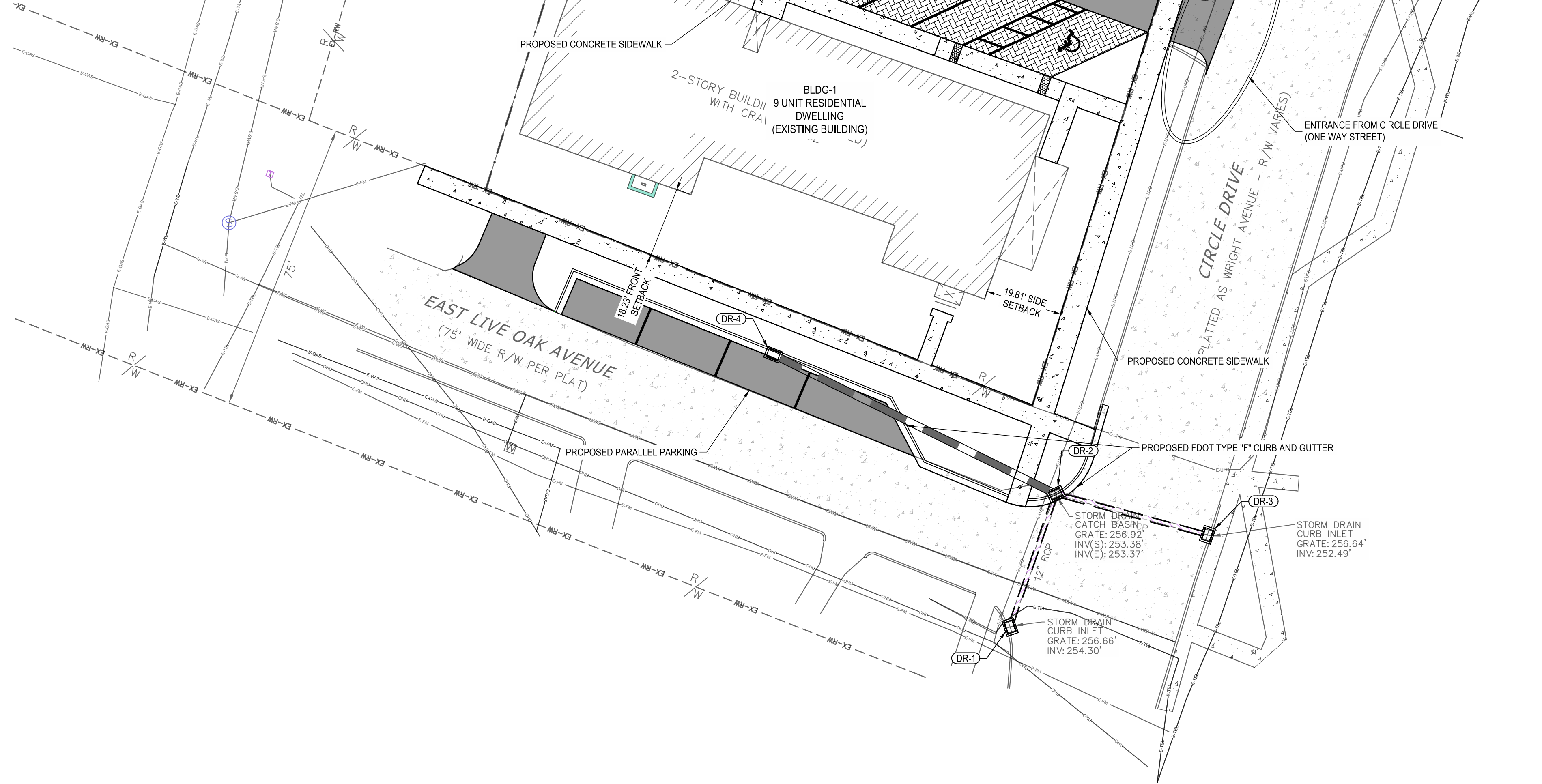
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DATE	FEBRUARY 2022
DRAWN BY	BTW
APPROVED BY	BTW

PROJECT STATUS	
DUE DILIGENCE	

SHEET NO

C2.1





SITE DATA SUMMARY

PARCEL ID: 25-3N-19-19070-000-6621 - 25-3N-19-19070-000-6640
FUTURE LAND USE: RESIDENTIAL
SITE AREA: 0.40 ACRES AND 0.35 ACRES
FLOOD ZONE: ZONE X
THIS PARCEL IS LOCATED IN FLOOD ZONE X PER FLOOD INSURANCE RATE MAP
NUMBER 12131C0657G DATED SEPTEMBER 29, 2010; WALTON COUNTY, FLORIDA

BUILDING SETBACKS

ALLOWED - UP TO 8 DWELLING UNITS/ACRES
PROVIDED - 6.5 DWELLING UNITS/ACRE

BLDG-1 (EXISTING HOSPITAL - 2 STORY)
FOOTPRINT: 6651 SF (GROUND FLOOR)
FINISHED FLOOR ELEV: 260.50
FRONT SETBACK: 23.32'
REAR SETBACK: 89.48'
SIDE SETBACK: 8.31'
PARKING REQUIRED: 1 SPACE / UNIT
PARKING PROVIDED: 1 UNIT / 1 SPACES

BLDG-2 (EXISTING STRUCTURE)
FOOTPRINT: 2860 SF (GROUND FLOOR)
FINISHED FLOOR ELEV: 260.50
FRONT SETBACK: 18.23'
REAR SETBACK: 15.07'
SIDE SETBACK: 19.81'
PARKING REQUIRED: 1 SPACE / UNIT
PARKING PROVIDED: 9 UNITS / 9 SPACE

BLDG-3 (EXISTING STRUCTURE)
FOOTPRINT: 640 SF (GROUND FLOOR)
FINISHED FLOOR ELEV: 260.50
FRONT SETBACK: 0.25'
REAR SETBACK: 1170.93'
SIDE SETBACK: 1.22'
PARKING REQUIRED: 1 SPACE / UNIT
PARKING PROVIDED: 2 UNITS / 2 SPACE

TOTAL SPACES PROVIDED: 12 SPACES

PARALLEL STREET PARKING: 4 SPACES



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Clifford L. Krauer, P.E.
CFM

CLIFFORD L. KNAUER, P.E. 53930

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CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEQUINAK SPRINGS
WALTON COUNTY, FLORIDA

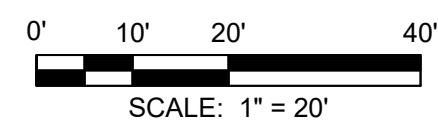
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PROJECT NO.	SP1025
DATE	FEBRUARY 2025
DRAWN BY	BTW
APPROVED BY	BTW

PROJECT STATUS
DUE DILIGENCE

SHEET NO.

C3.1



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L. Knauer, P.E., CFM
Date: 2025.03.14 13:12:15
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CLIFFORD L. KNAUER, P.E. 53930

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REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

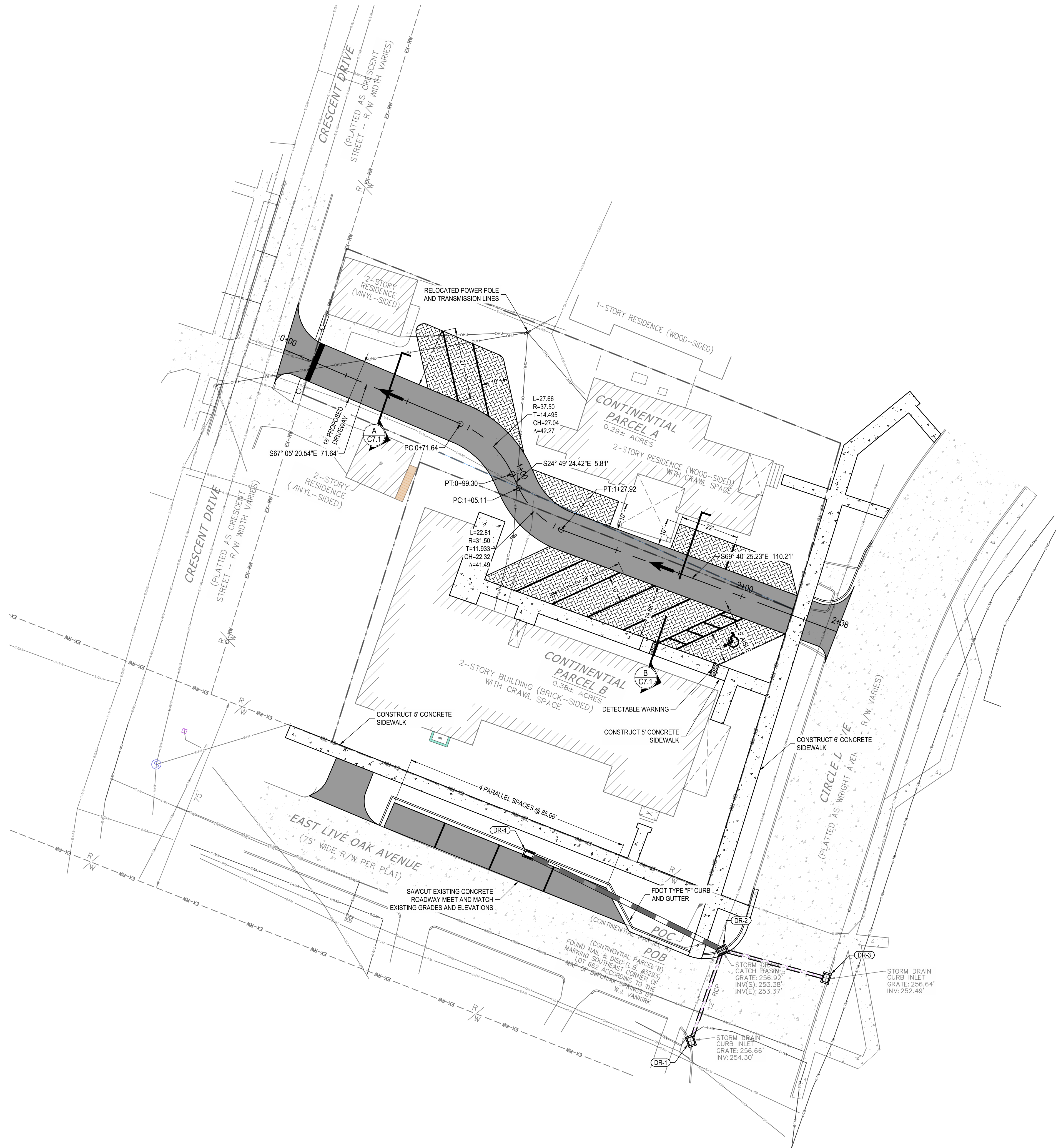
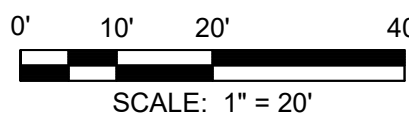
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PROJECT NO.	SP102
DATE	FEBRUARY 202
DRAWN BY	BTW
APPROVED BY	BTW

PROJECT STATUS DUE DILIGENCE

SHEET NO. _____

C3.2





221 W. WILLOW MIST ROAD
INLET BEACH, FL 32461
PHONE: (850) 974-8815
cliff@knaumevereng.com

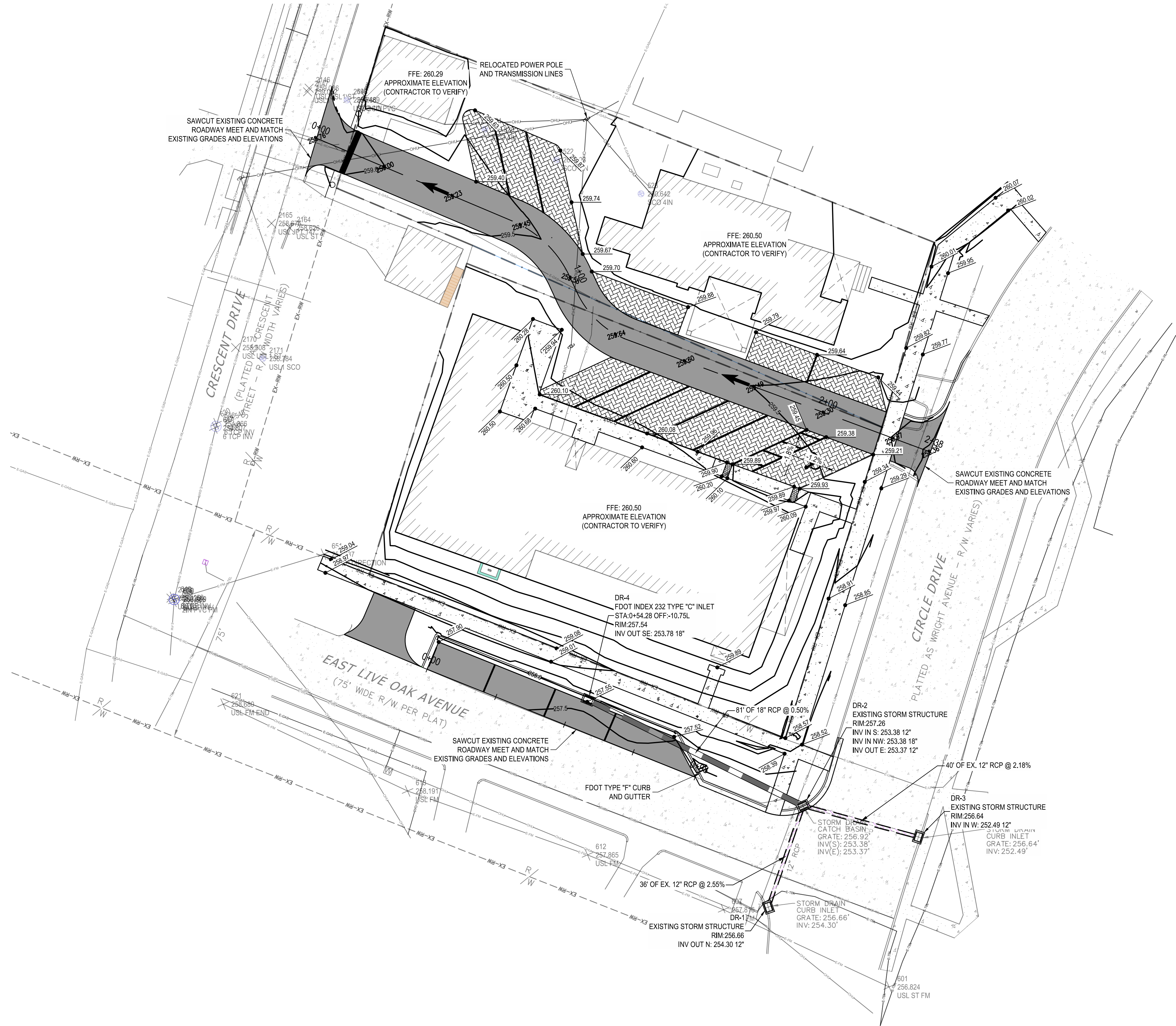
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CLIFFORD L. KNAUER, P.E. 53930

CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

PROJECT NO.	SP1025
DATE	FEBRUARY 2025
DRAWN BY	BTW
APPROVED BY	BTW

SHEET NO

C4.1



Digitally signed by Clifford L. Knauer, P.E., CFM
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CLIFFORD L. KNAUER, P.E. 5393

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REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEQUINAK SPRINGS
WALTON COUNTY, FLORIDA

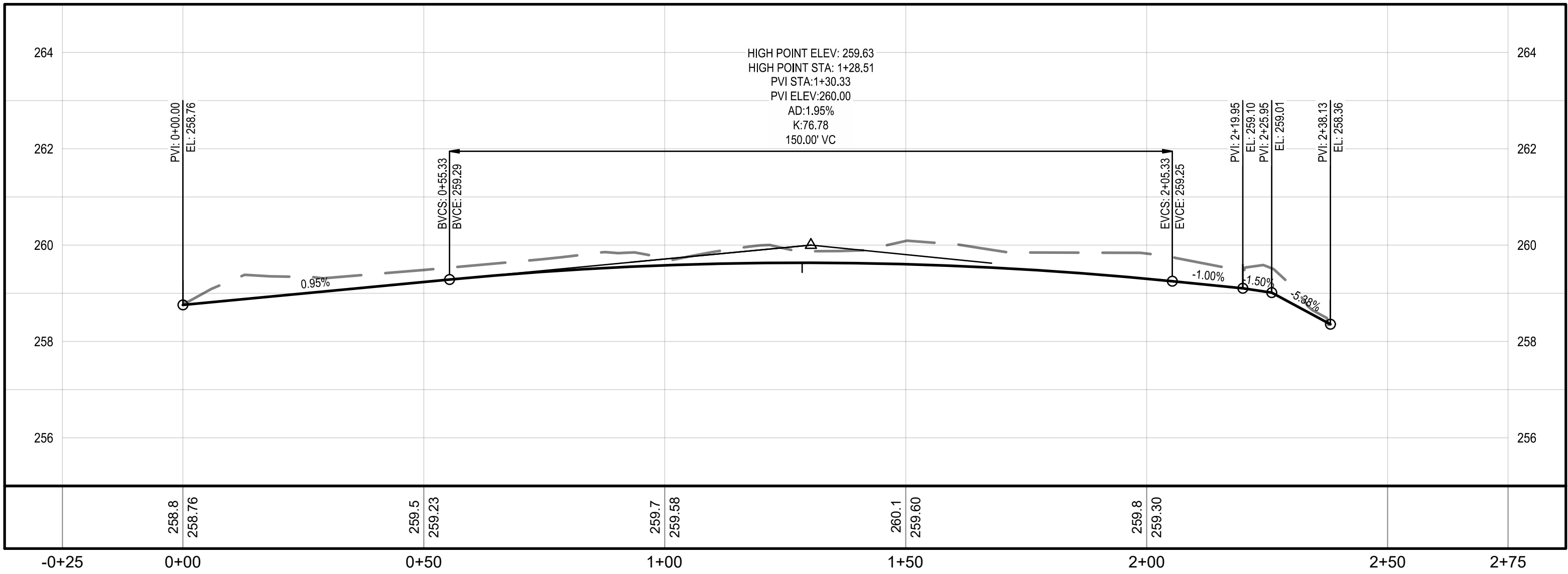
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APPROVED BY	BT

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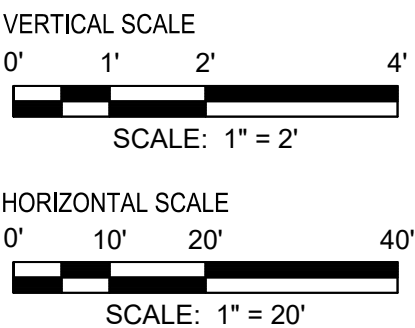
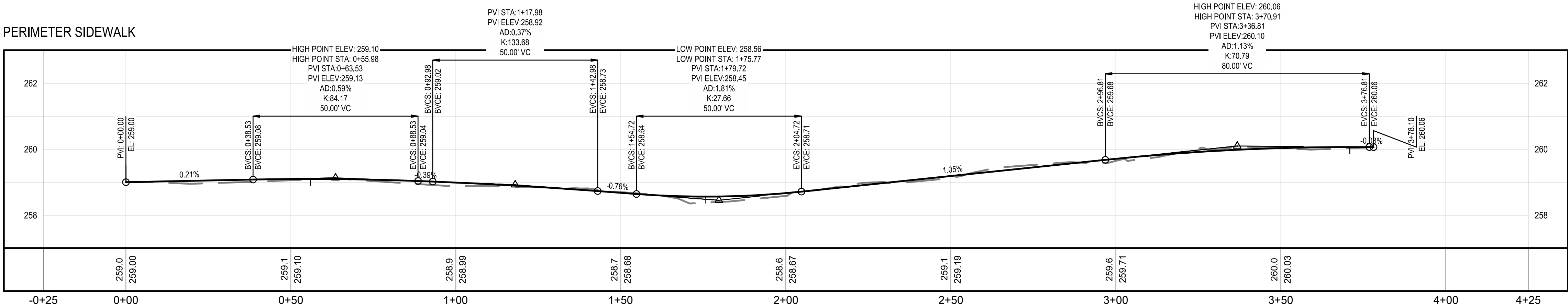
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SHEET NO. _____

C5.1



PERIMETER SIDEWALK



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CLIFFORD L. KNAUER, P.E. 5393

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CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

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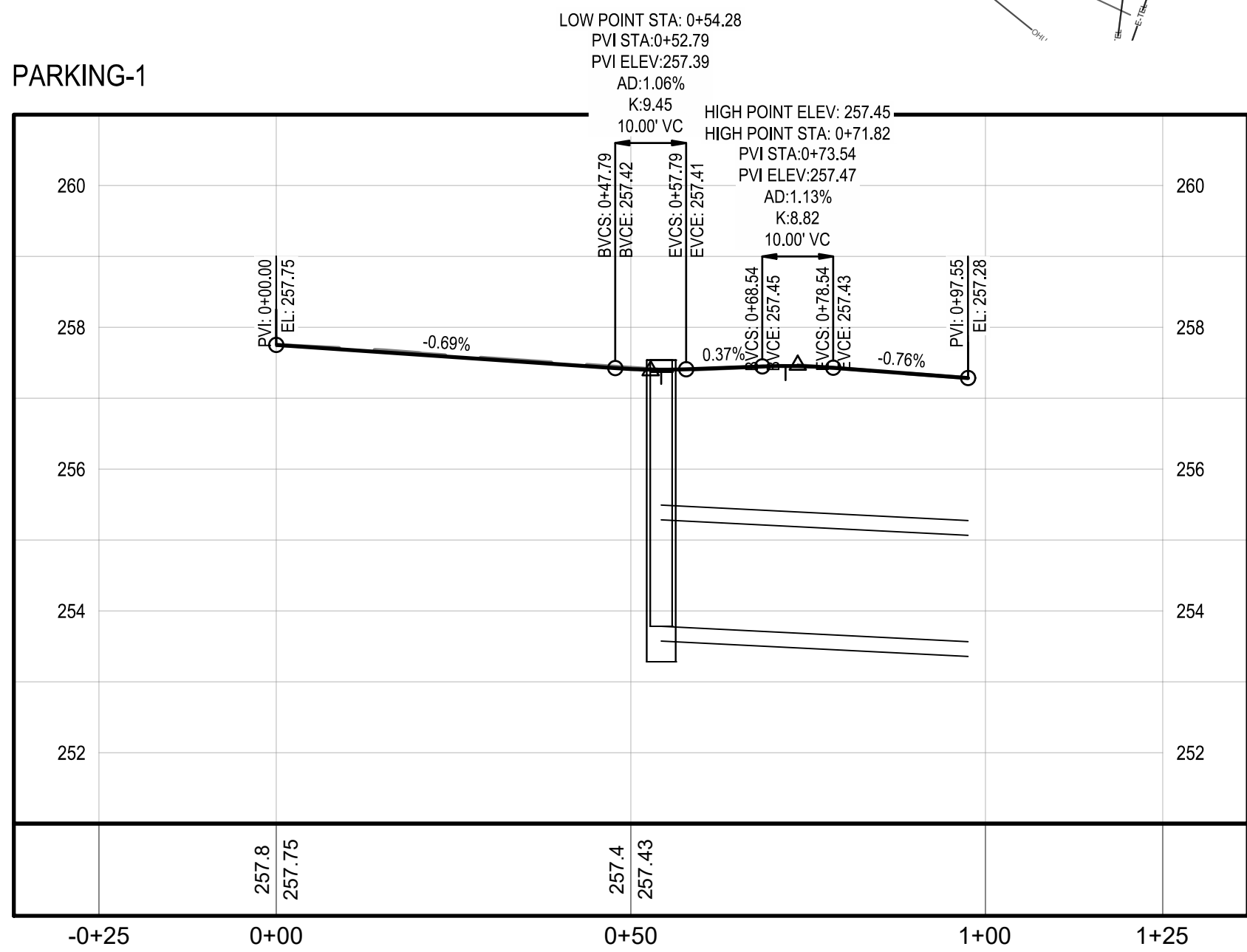
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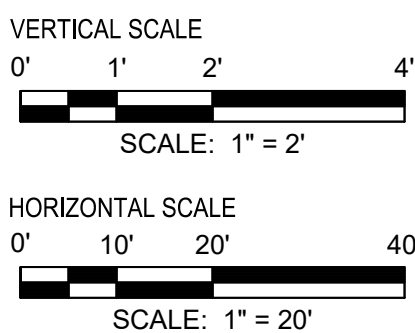
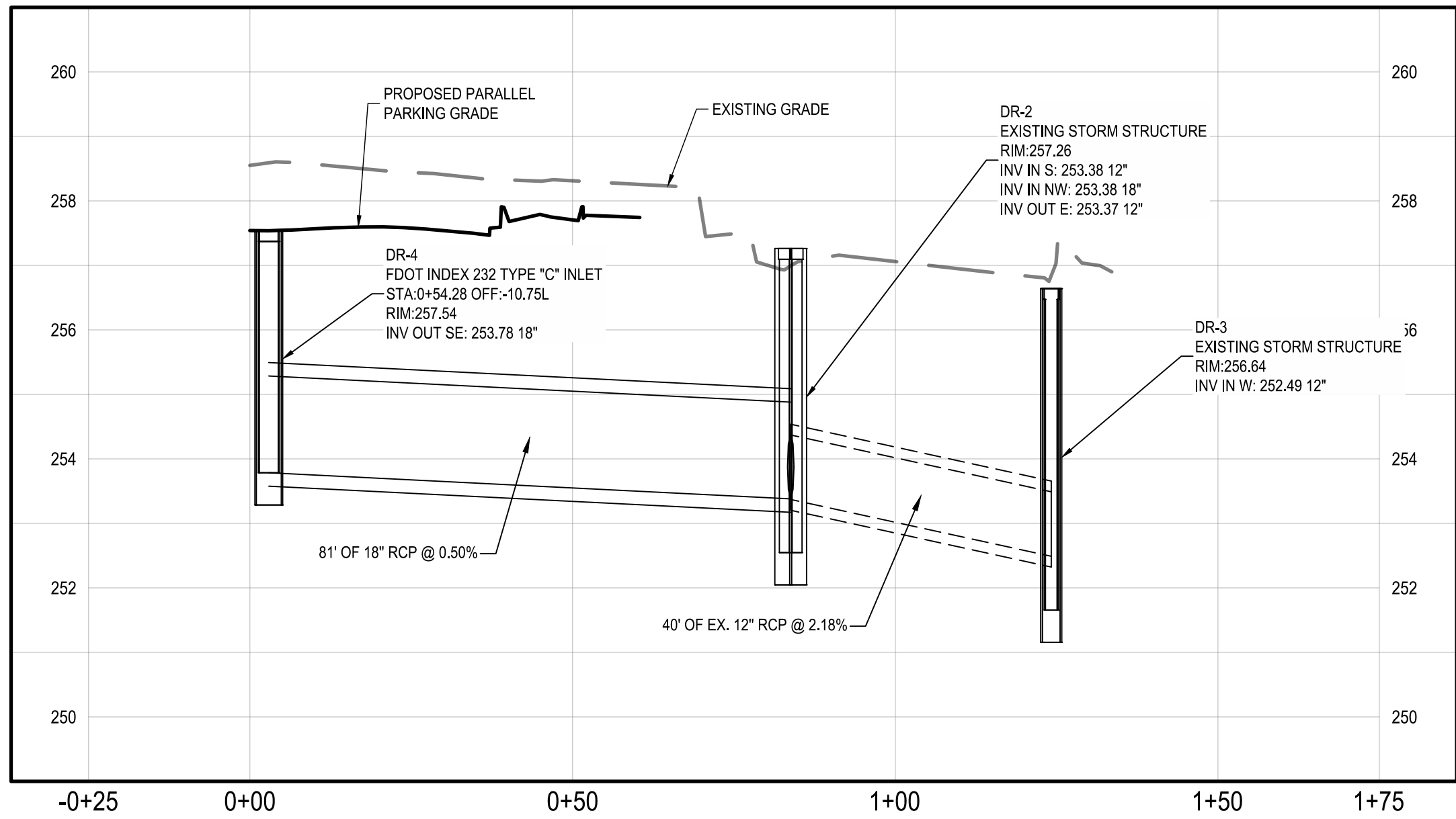
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C5.2



PROPOSED DRAINAGE PROFILE



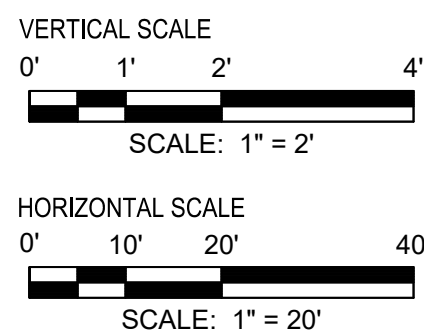
CLIFFORD L. KNAUER, P.E. 53930

CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

PROJECT NO.	SP1022
DATE	FEBRUARY 2023
DRAWN BY	BTW
APPROVED BY	BTW

SHEET NO

C5.3





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cliff@knauvereng.com

Clifford
L.
Knauer
P.E.,
CFM

CLIFFORD L. KNAUER, P.E. 53930

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CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

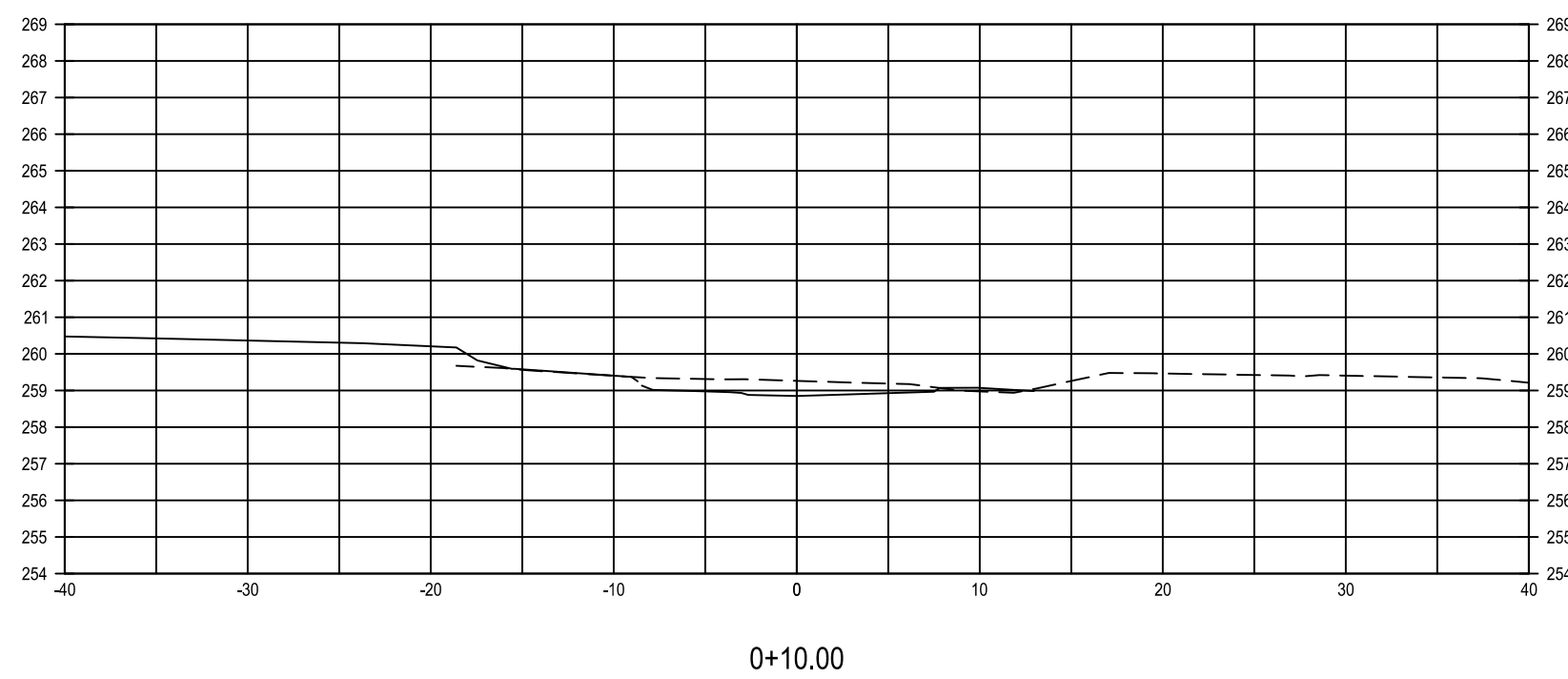
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APPROVED BY	BTW

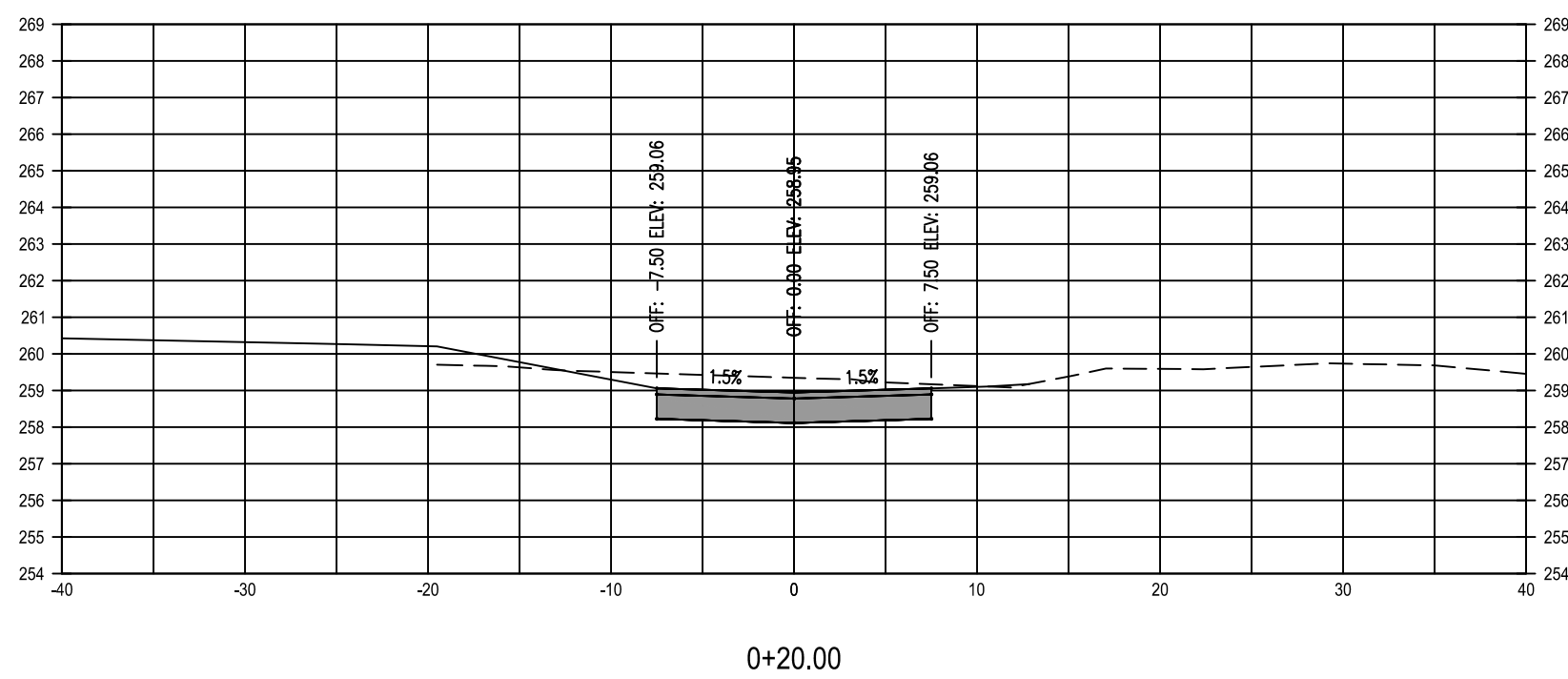
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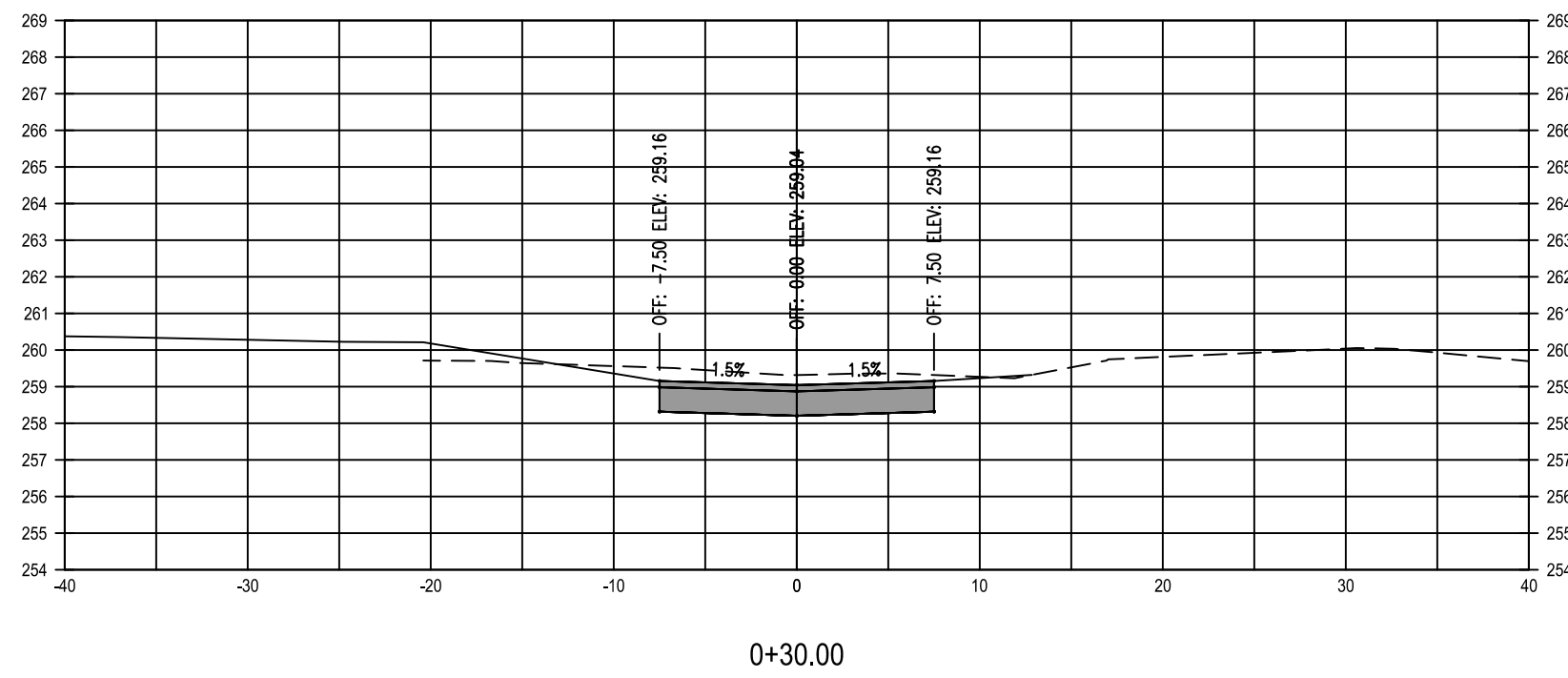
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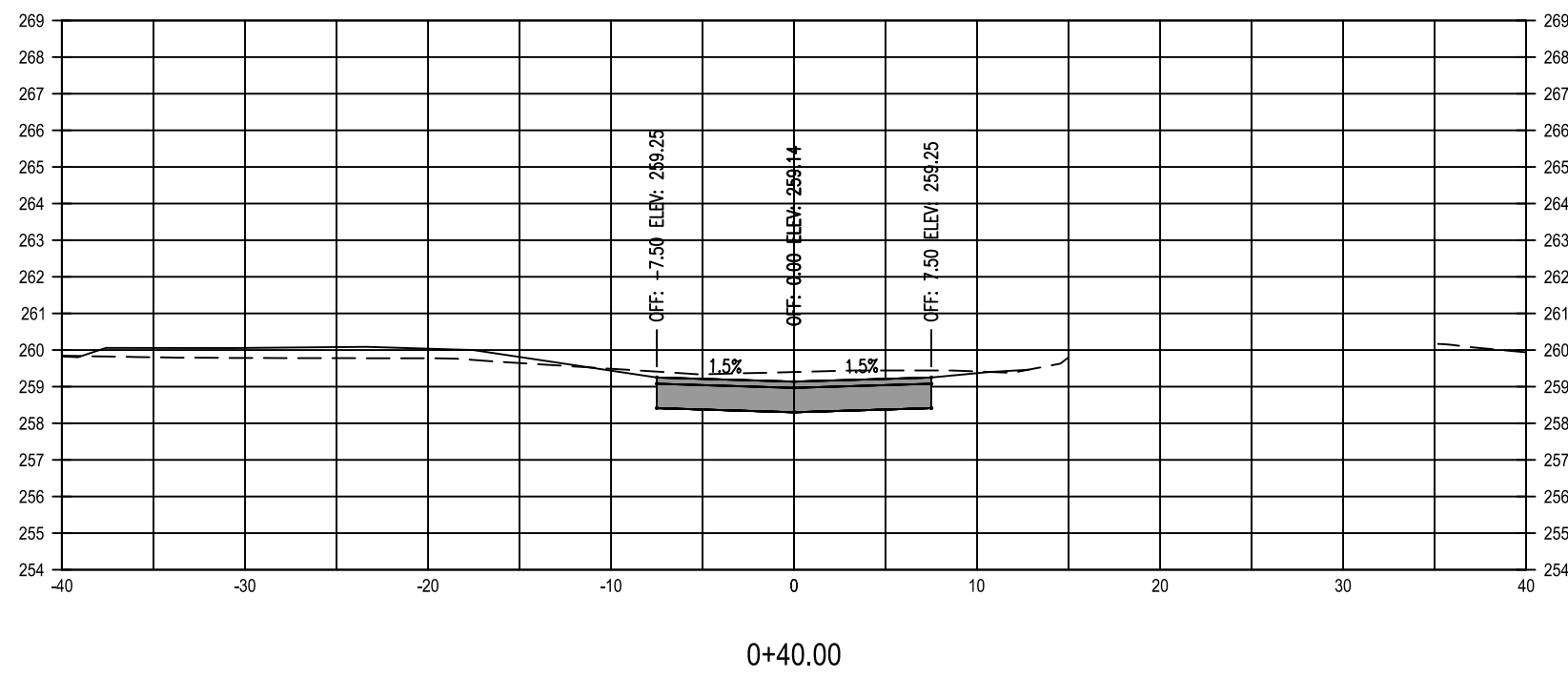
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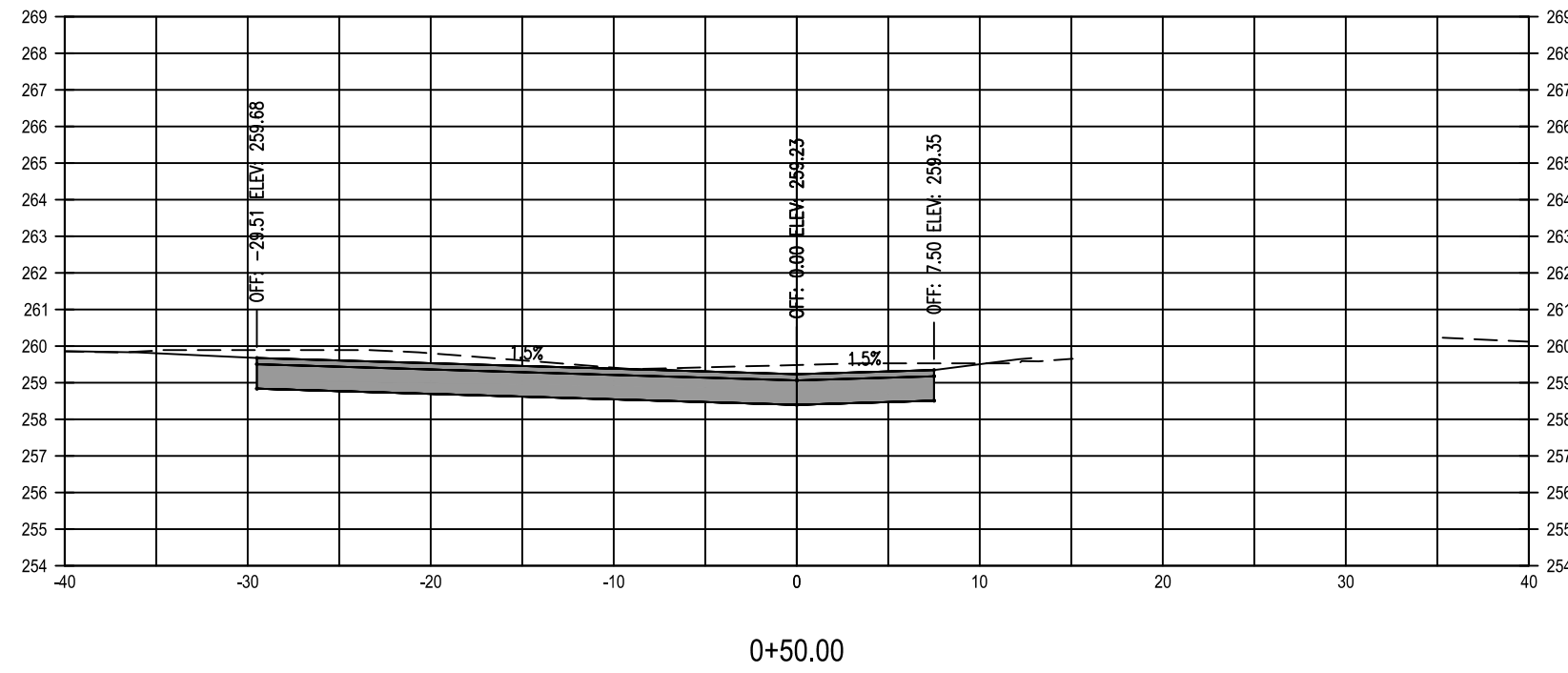
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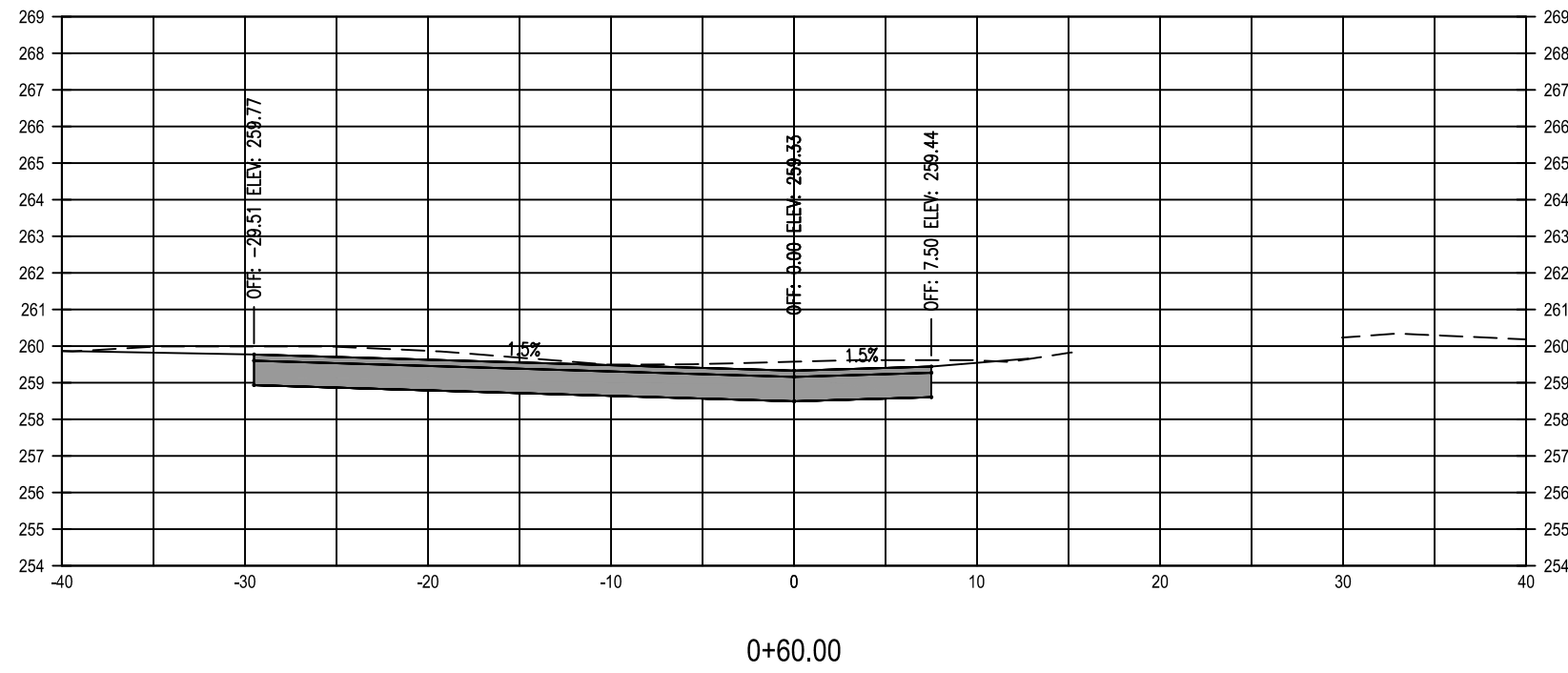
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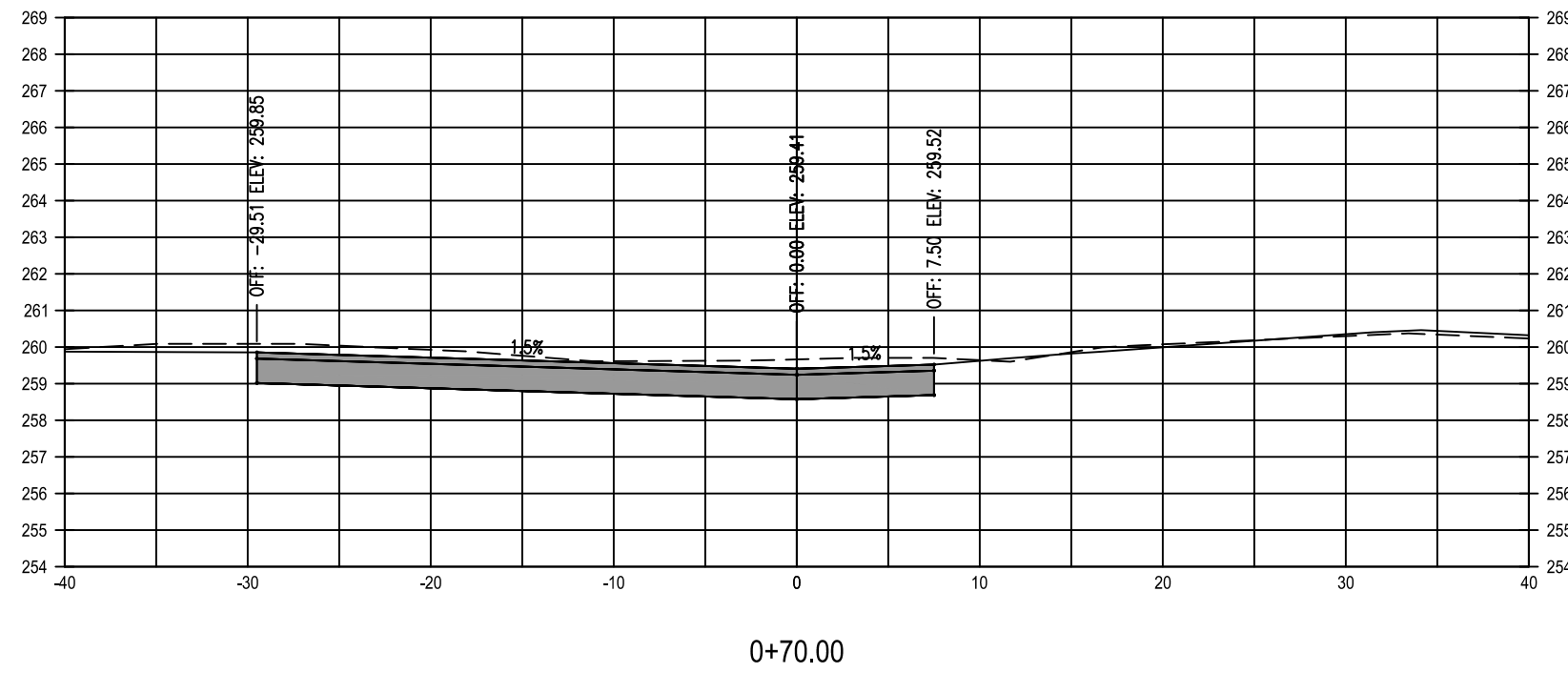
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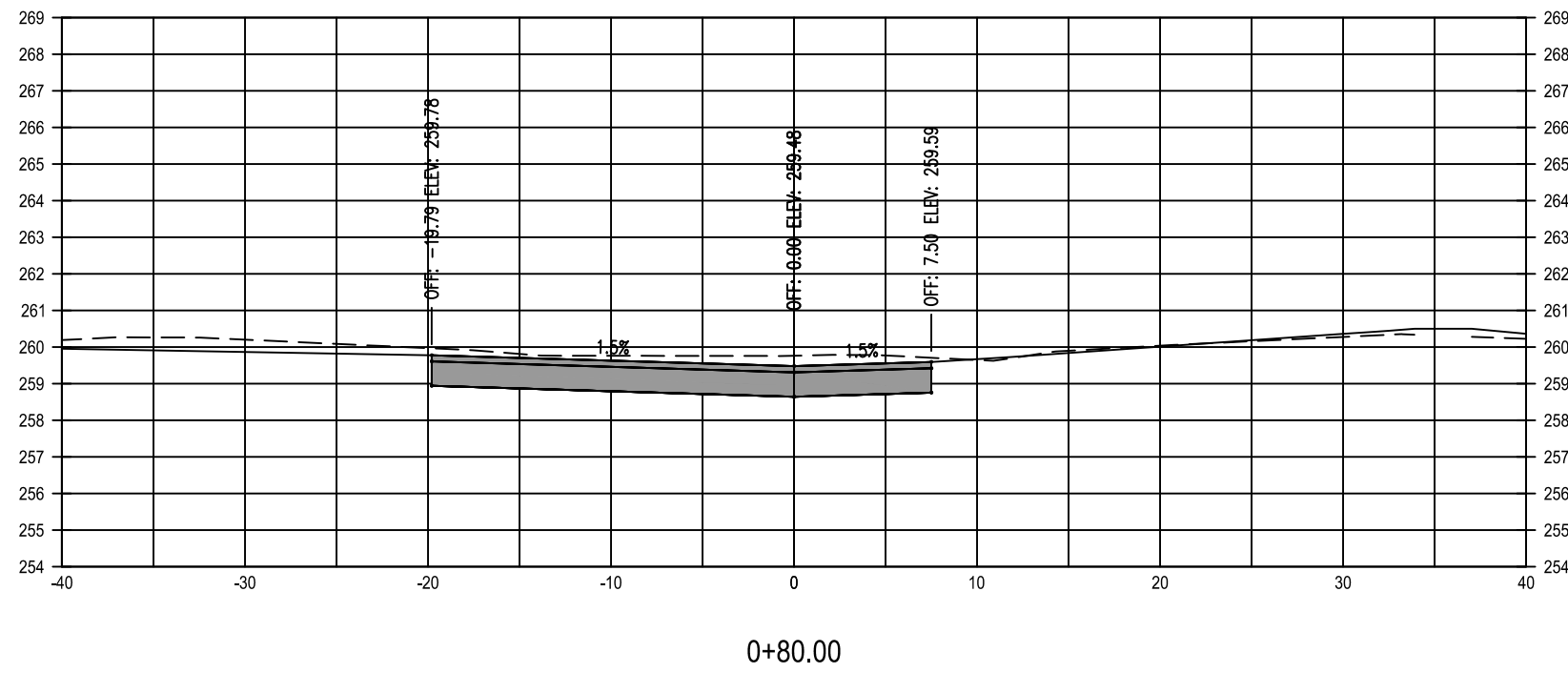
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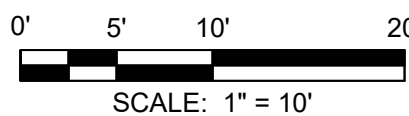
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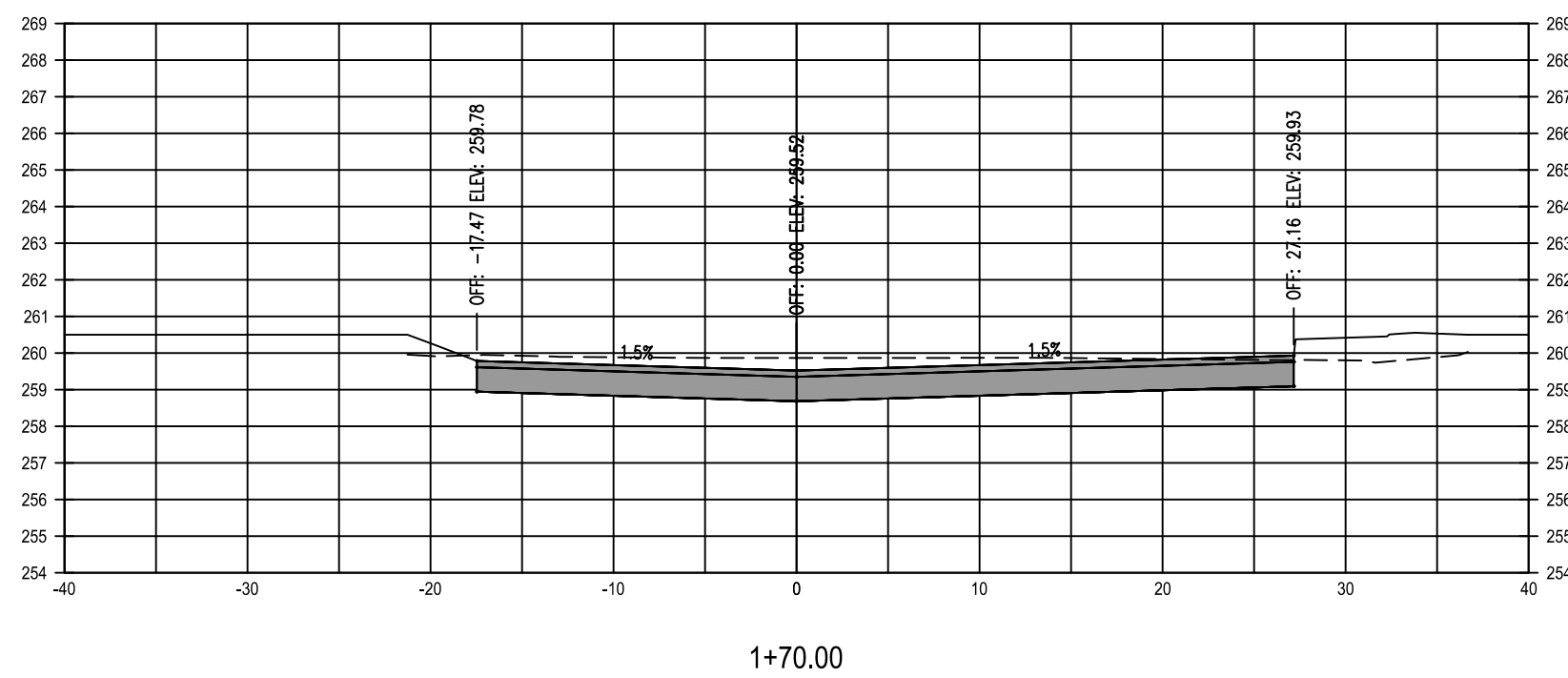


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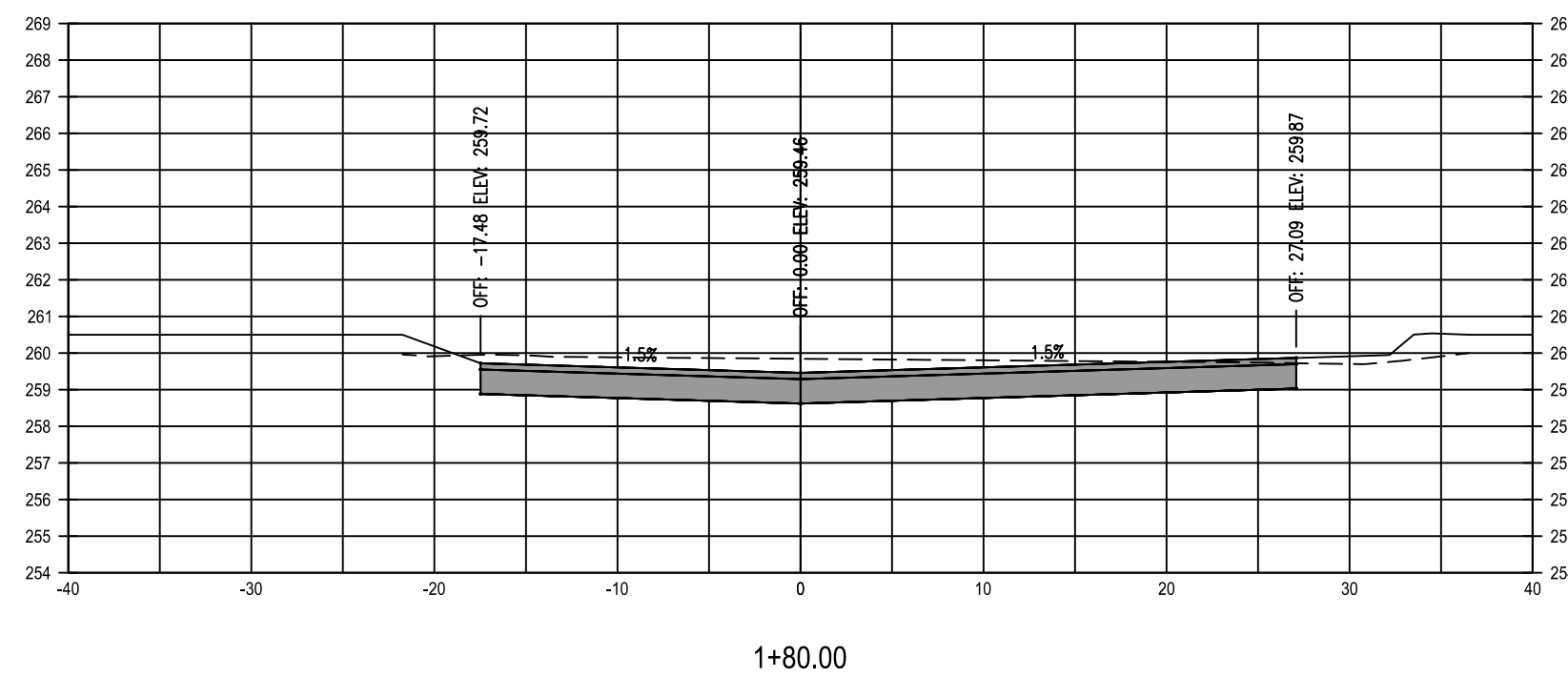


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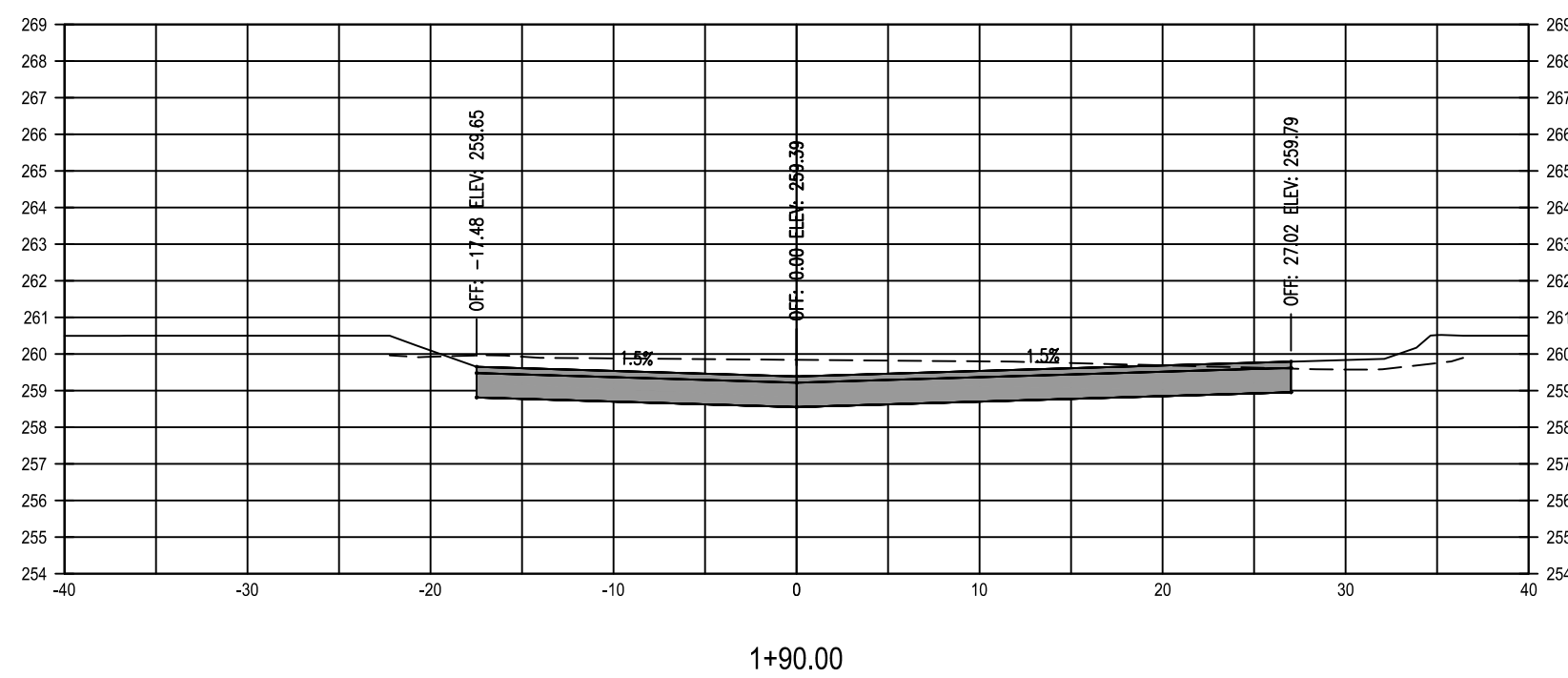




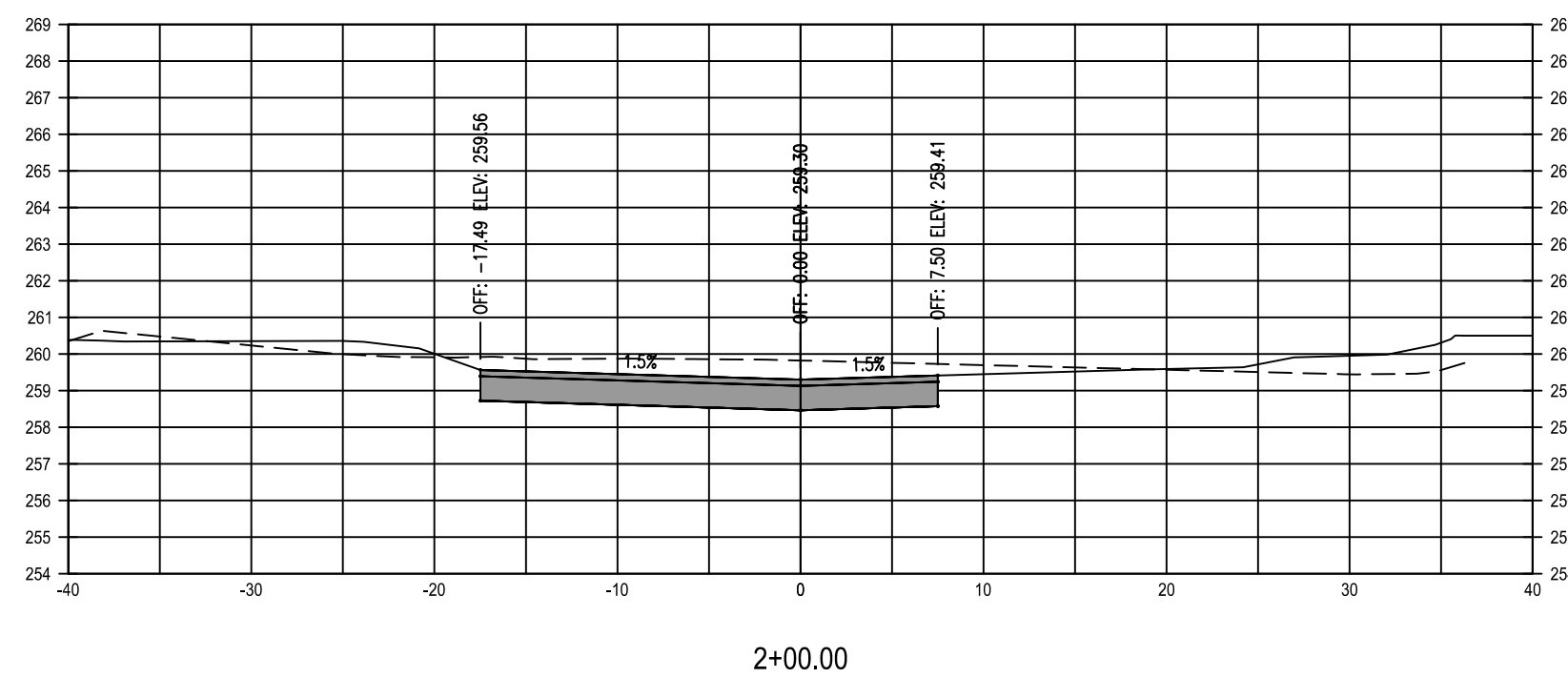
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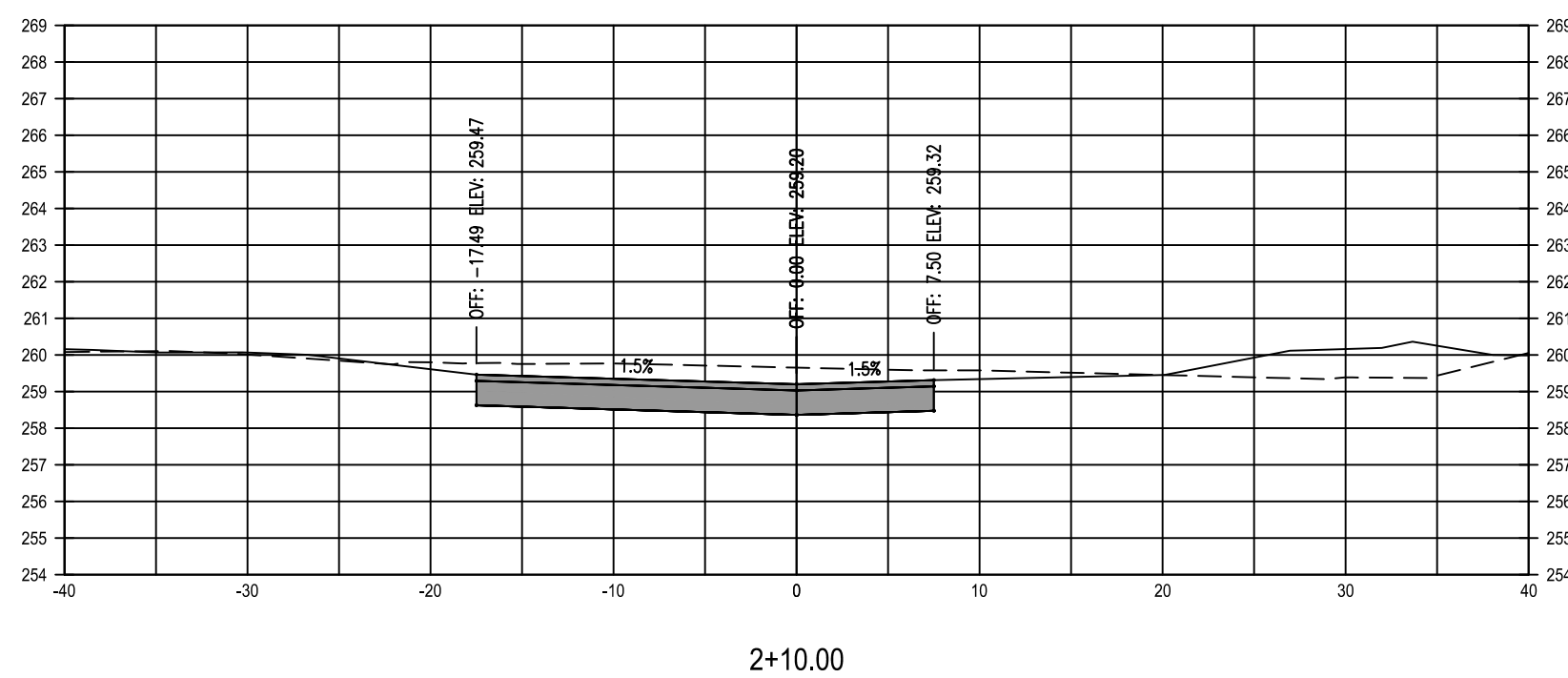
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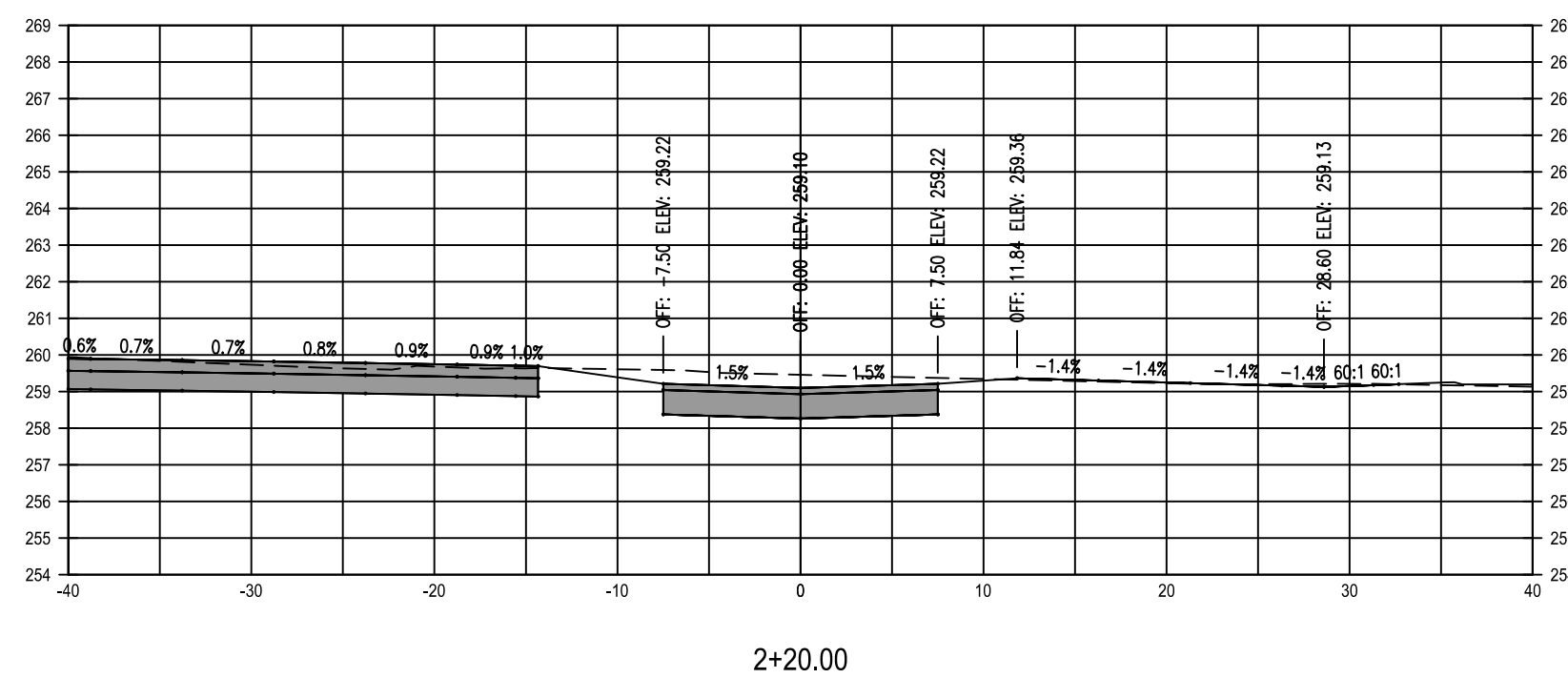
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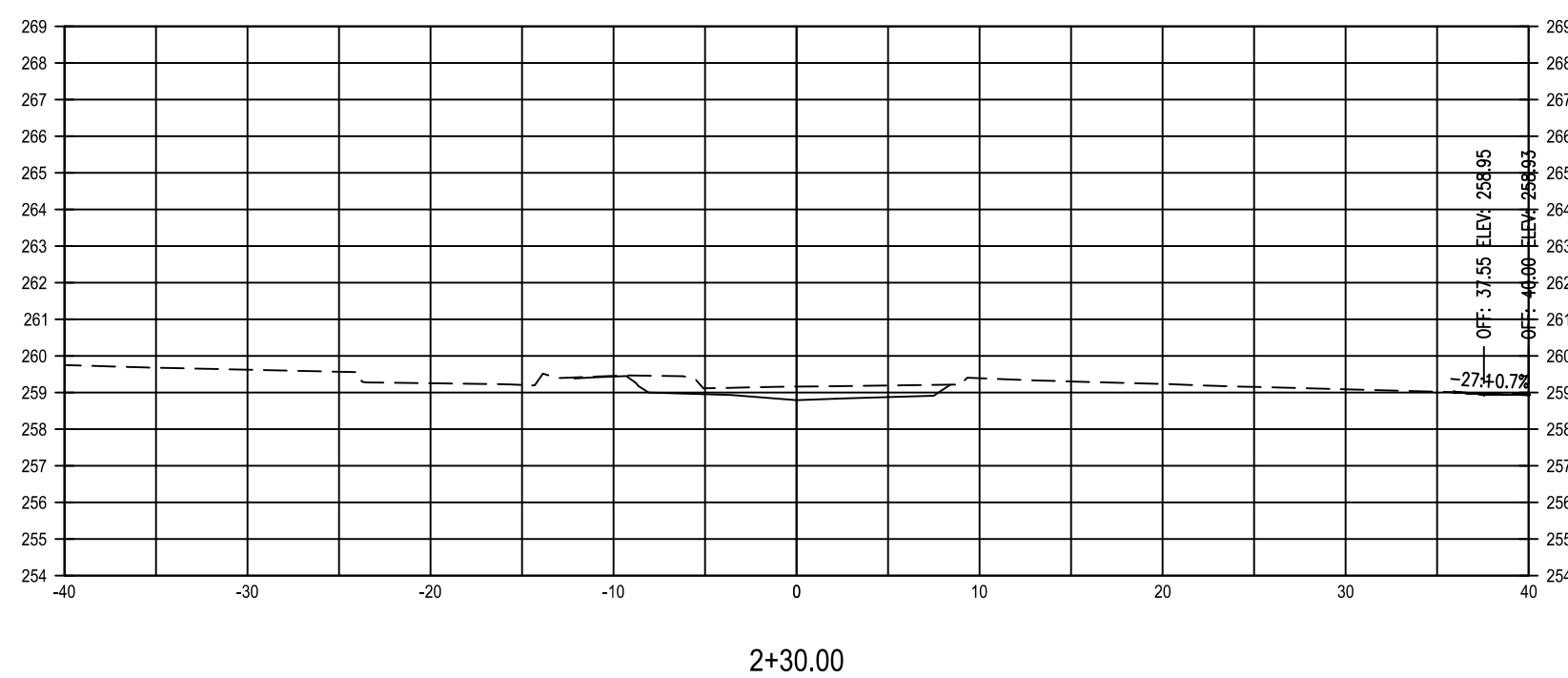
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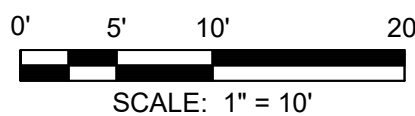
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Cum Cut Vol	65.99
Cum Fill Vol	41.35
Net Vol	24.64



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CFM

CLIFFORD L. KNAUER, P.E. 53930

[illegible]

CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

TITLE
DRIVEWAY CROSS SECTIONS

PROJECT NO.	SP1022
DATE	FEBRUARY 2025
DRAWN BY	BTW
APPROVED BY	BTW

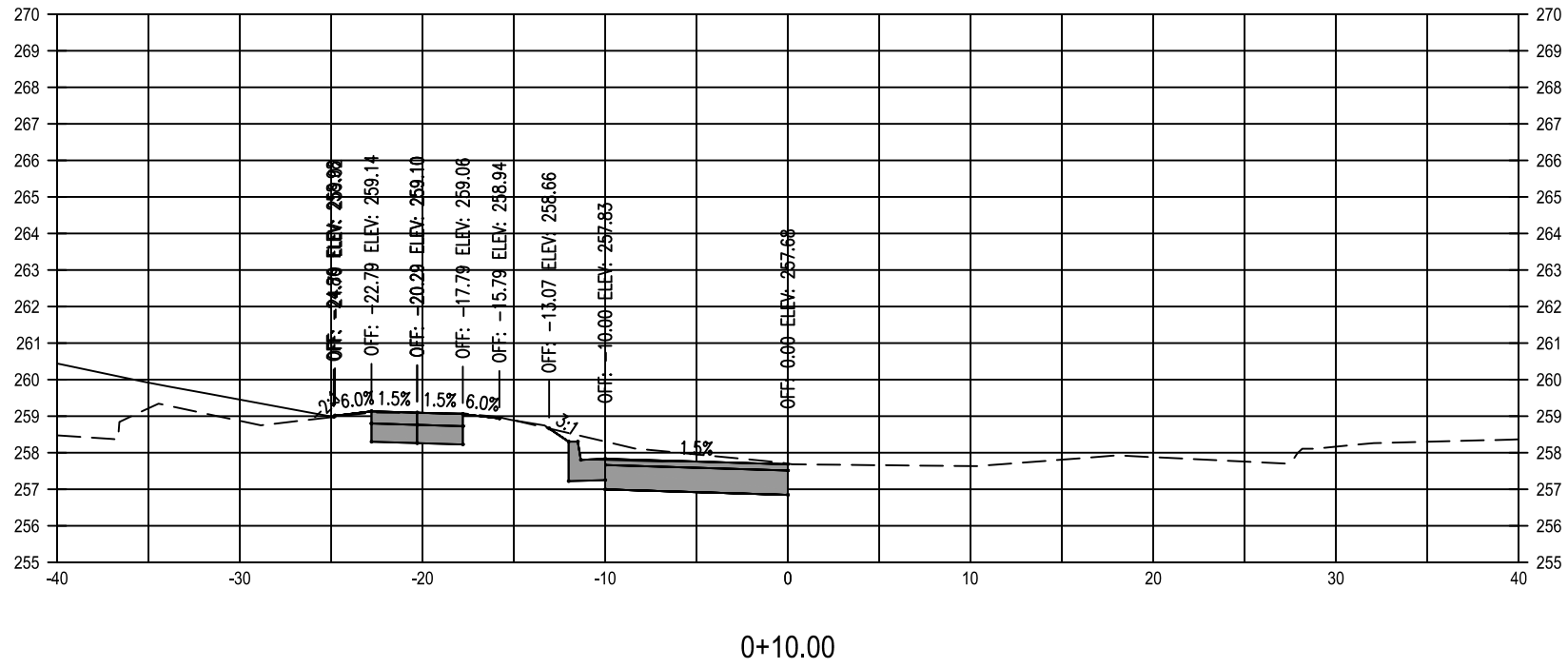
PROJECT STATUS

DUE DILIGENCE

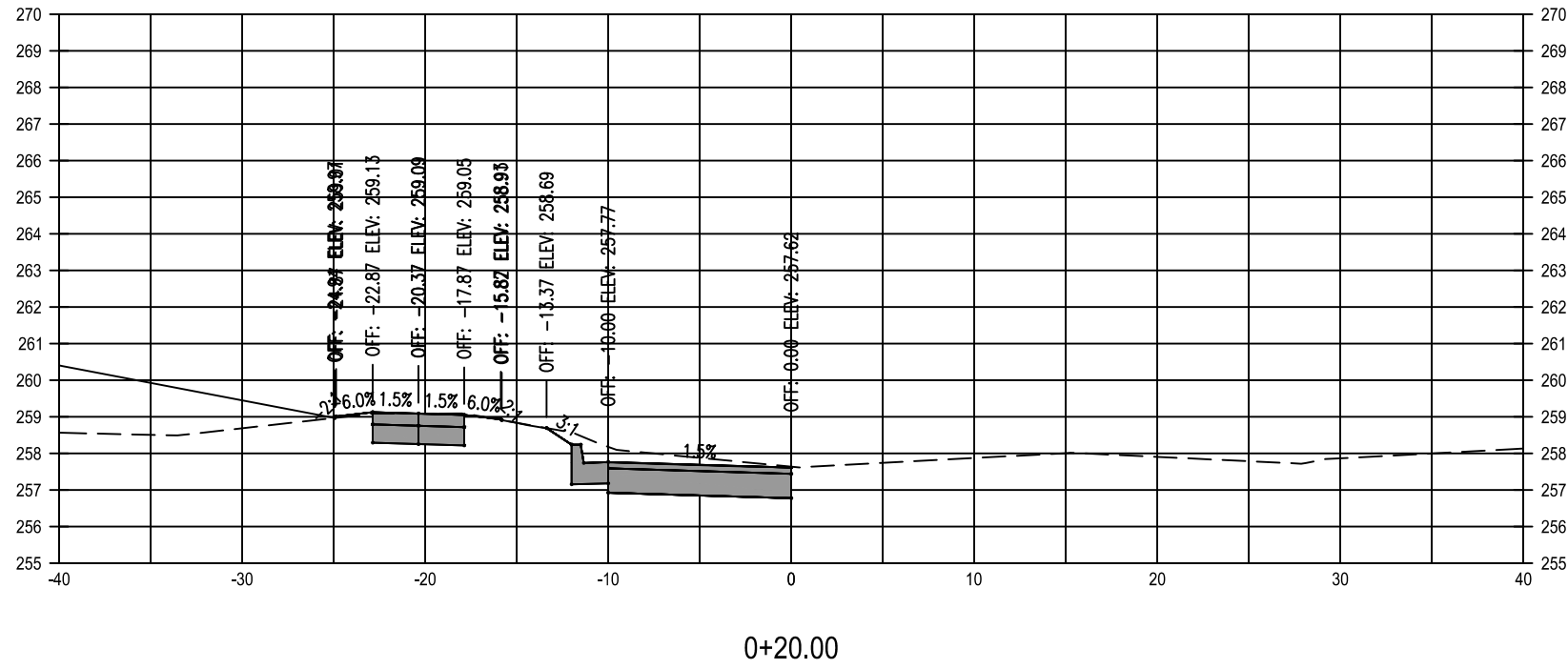
SHEET NO.

C5.6

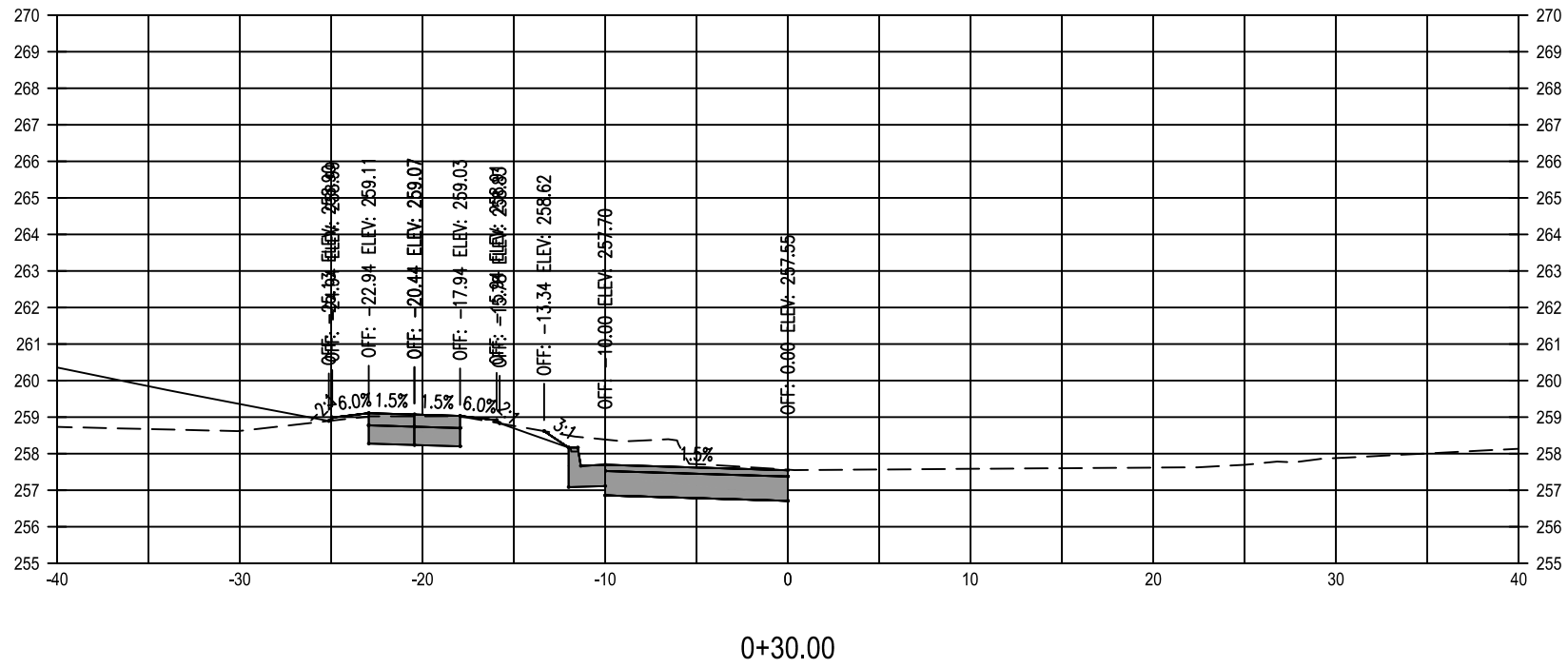
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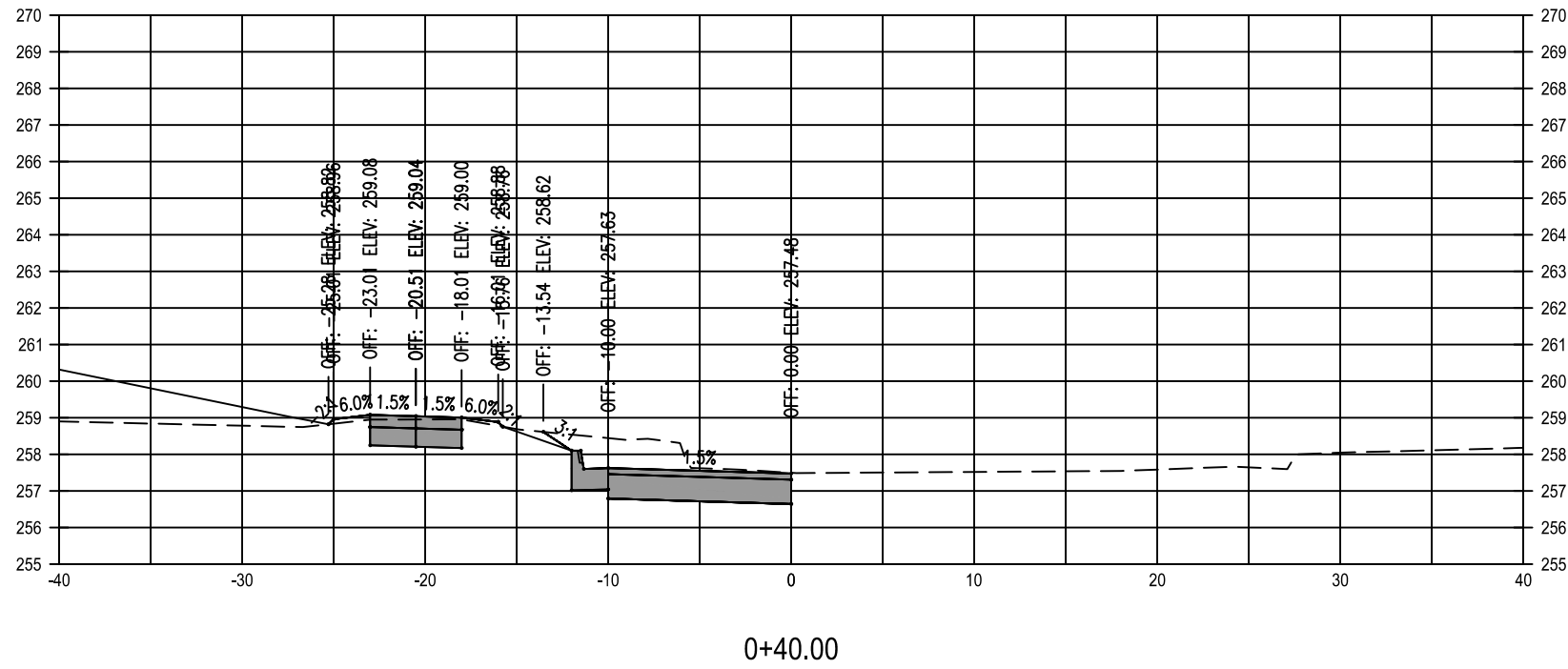
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Net Vol	0.00



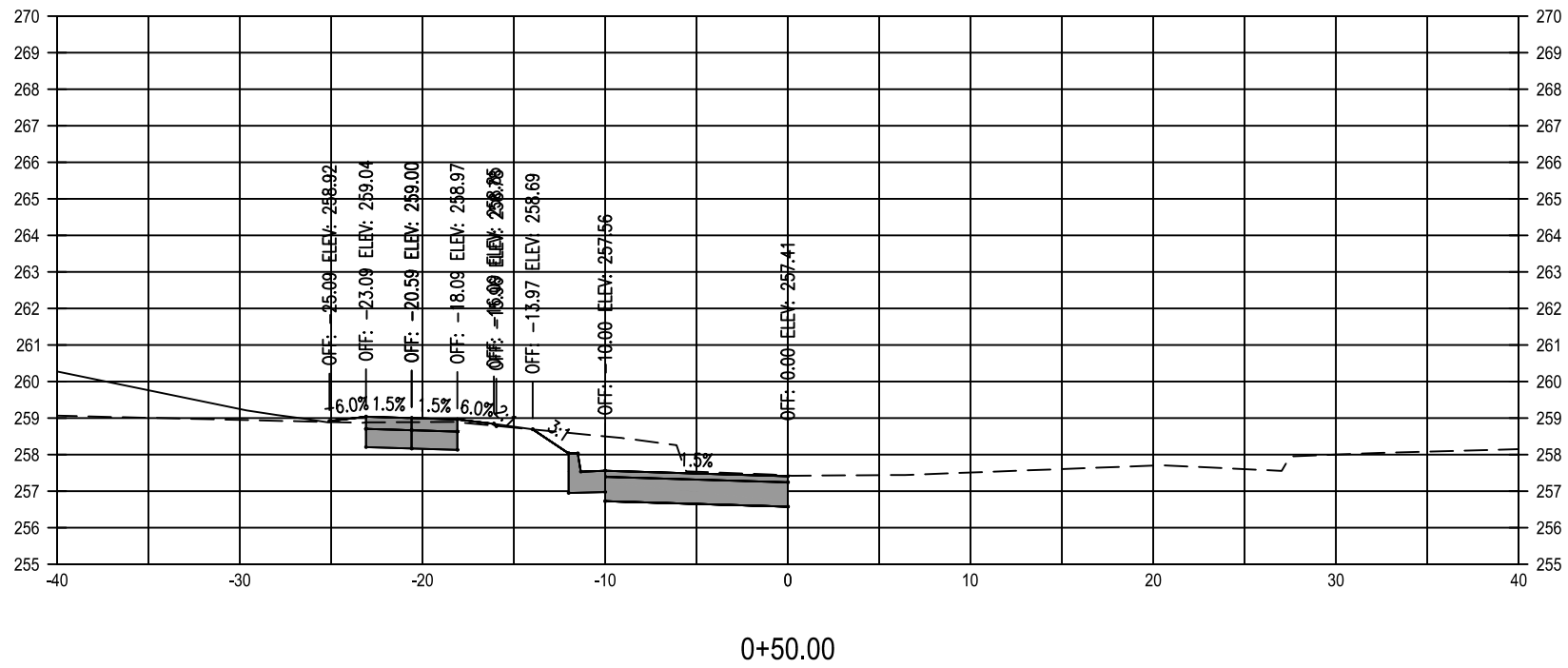
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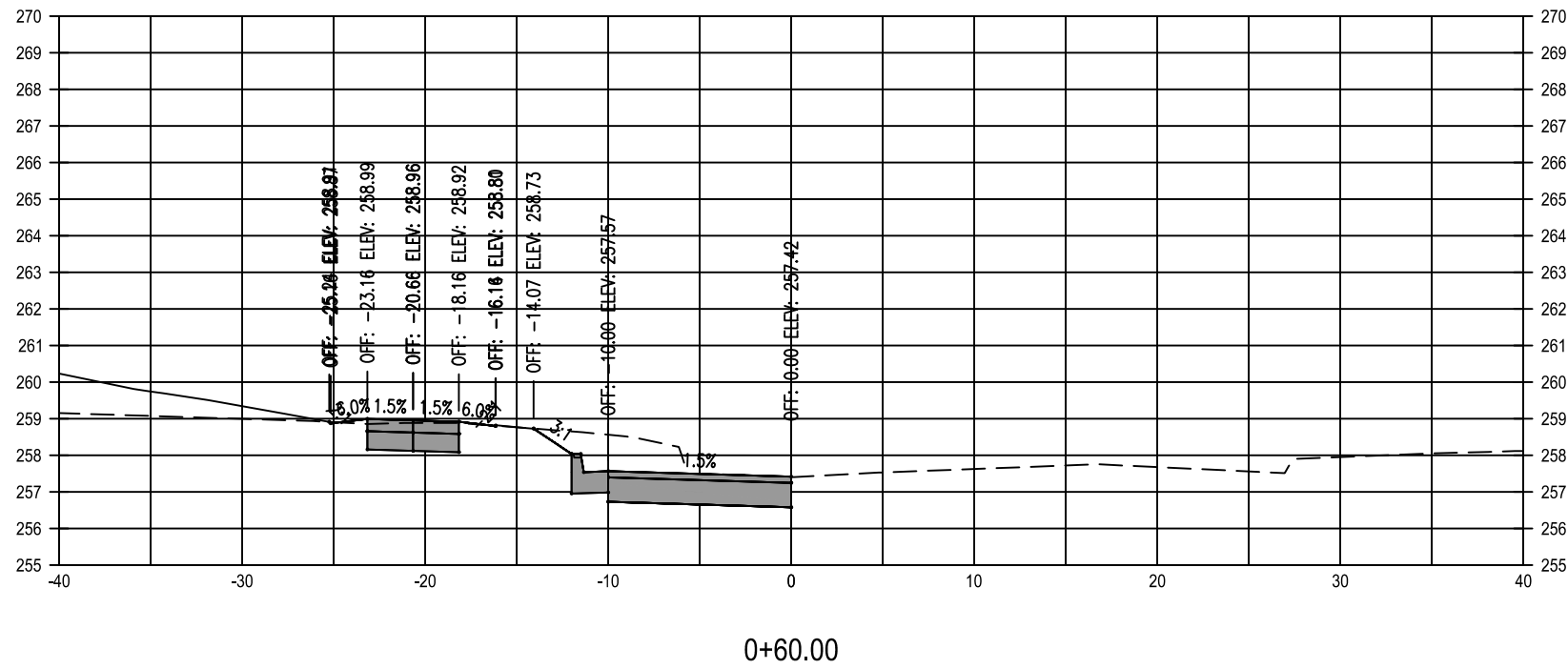
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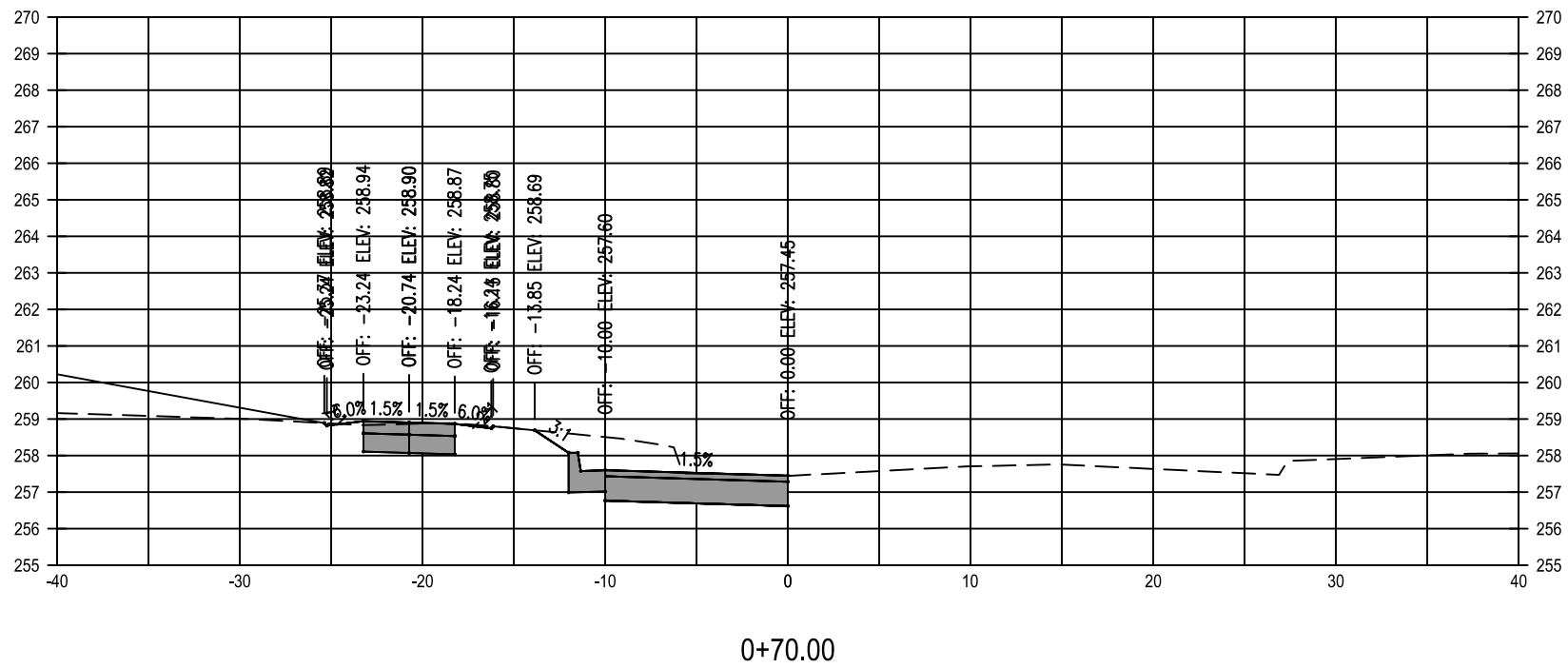
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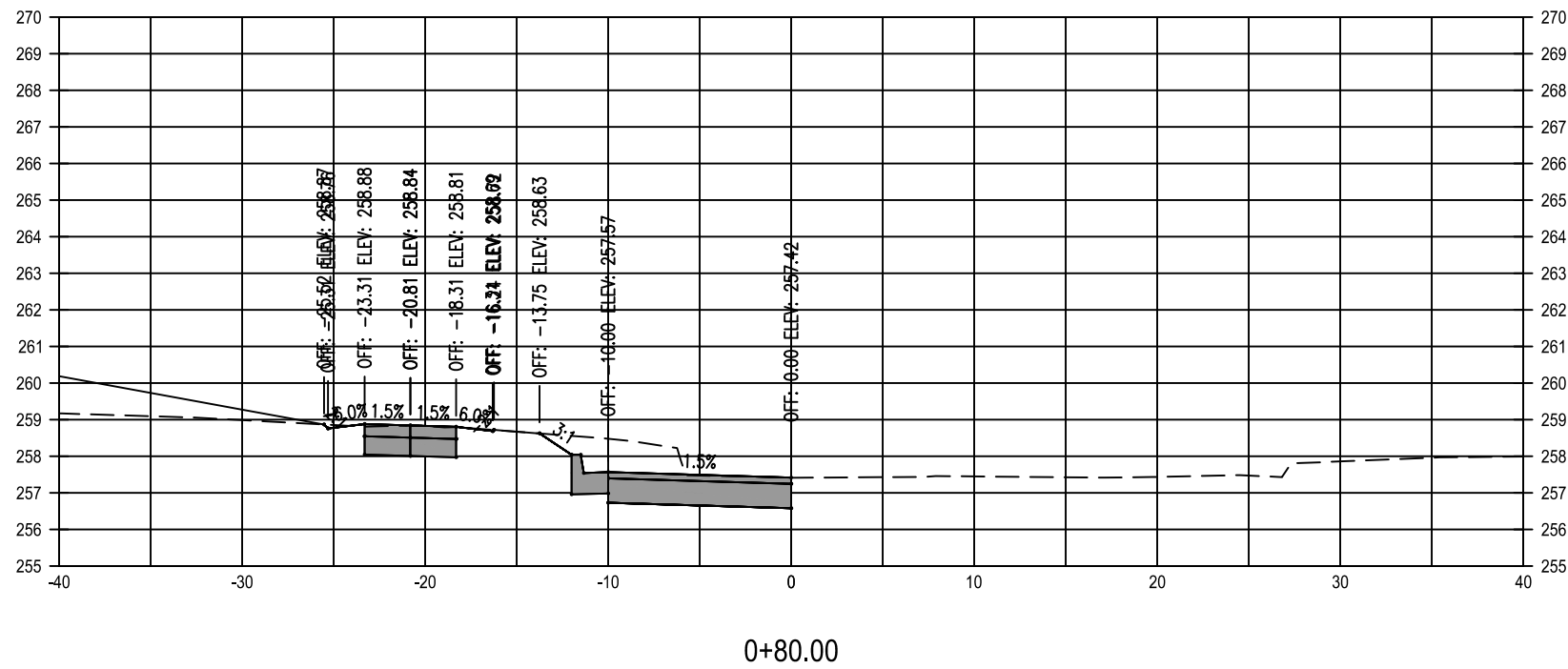
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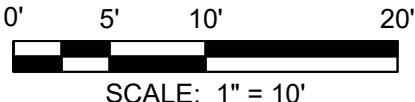
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STA: 0+70.00	
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Cum Fill Vol	25.70
Net Vol	-14.23



STA: 0+80.00	
Cut Area	5.47
Fill Area	7.27
Cut Vol	2.03
Fill Vol	2.80
Cum Cut Vol	13.50
Cum Fill Vol	28.50
Net Vol	-15.00



KNAUER NEVER ENGINEERING, PLLC
21 W. WILLOW MIST ROAD
INLET BEACH, FL 32461
PHONE: (850) 974-8815
cliff@knaurnevereng.com

Clifford L. Knauer, P.E., CFM
Digital Signature
Date: 2025.08.11 13:15:25
CLIFFORD L. KNAUER, P.E. 53930

NO.	DESCRIPTION	DATE

CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUNIAK SPRINGS
WALTON COUNTY, FLORIDA

TITLE
PARALLEL PARKING CROSS SECTIONS

PROJECT NO. SP1025
DATE FEBRUARY 2025
DRAWN BY BTW
APPROVED BY BTW

PROJECT STATUS
DUE DILIGENCE

SHEET NO.
C5.7

Page 44 of 52

LANDSCAPE NOTES:

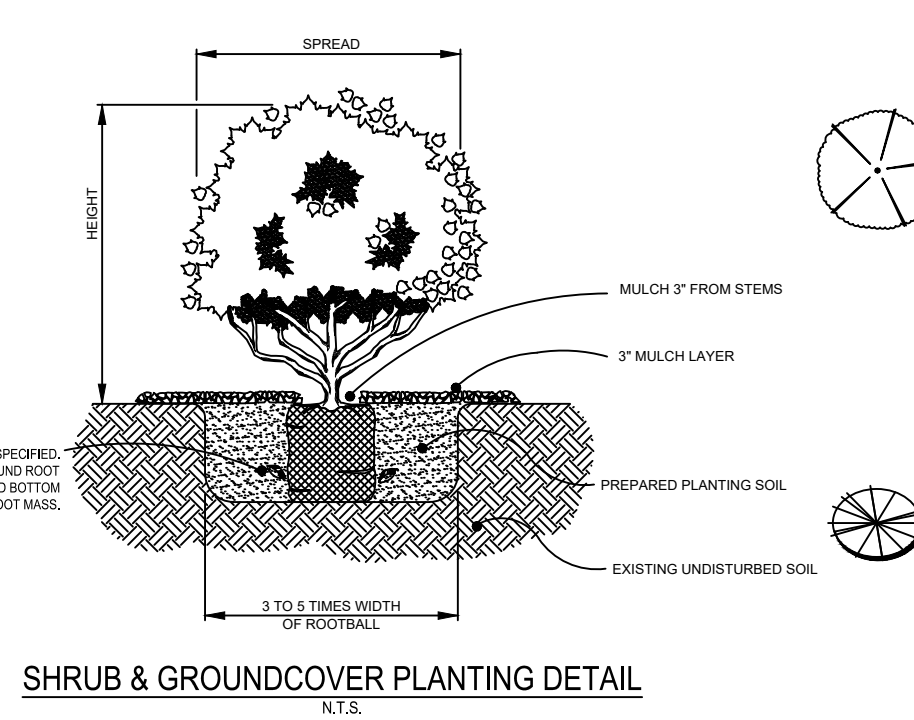
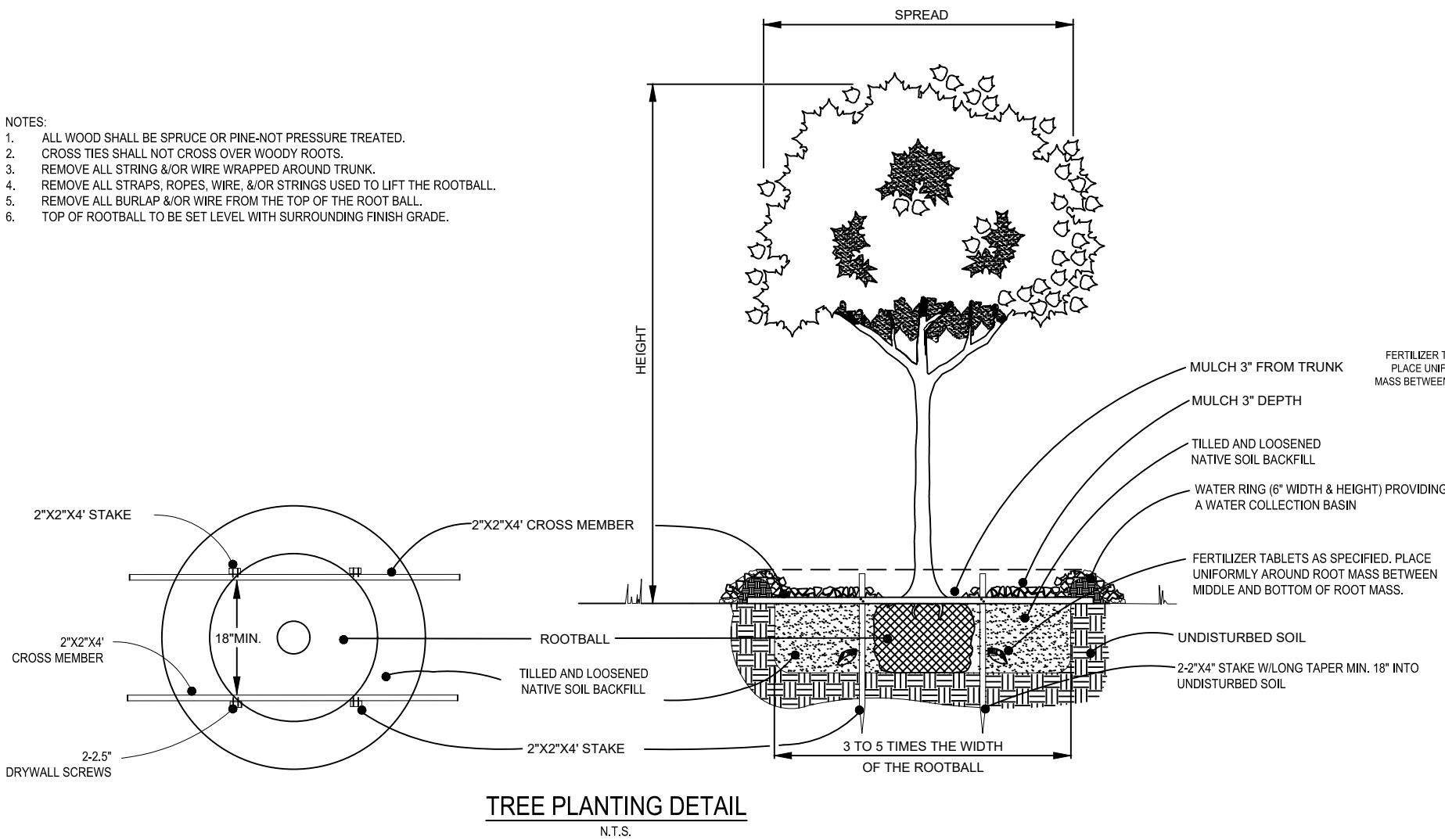
- 1) LOCATE ALL UNDERGROUND UTILITIES, ELECTRICAL WIRING, WATER, SEWER, TELEPHONE, TV CABLE, ETC., PRIOR TO LANDSCAPE OR IRRIGATION INSTALLATION.
- 2) INSTALL ONLY PLANTS GRADED FLORIDA FANCY OR BETTER AS SET FORTH IN THE FLORIDA DEPARTMENT OF AGRICULTURE "GRADES AND STANDARDS FOR NURSERY PLANTS", PARTS 1 AND 2, INCLUDING REVISIONS WHICH MEET OR EXCEED THE SIZES INDICATED IN THE PLANTING SCHEDULE.
- 3) PLANT SHRUBS IN CIRCULAR PITS WITH A DIAMETER 36" GREATER THAN ROOTBALL OR CONTAINER.
- 4) FERTILIZE ALL TREES WITH AGRIFORM 21 GRAM TABLETS, SLOW-RELEASE 20-10-50 ANALYSIS WITH ONE TABLET PER 1/2" OF TRUNK DIAMETER.
- 5) TOPDRESS ALL PLANTING BEDS WITH A 4" LAYER OF SANDY-LOAM TOPSOIL. CROWN WITH TOPSOIL ALL PARKING AREA ISLAND PLANTERS TO HEIGHT AS INDICATED ON GRADING PLAN.
- 6) BACKFILL ALL PLANTING PITS WITH THE FOLLOWING MIXTURE: 1/2 ONSITE SOIL, 1/2 CLEAN FRIABLE SANDY-LOAM TOPSOIL.
- 7) FERTILIZE ALL PLANTING BEDS WITH OSMOCOTE 18-6-12 SLOW RELEASE FERTILIZER AT THE RATE OF 16 POUNDS PER 1,000 SQUARE FEET.
- 8) TREAT PLANTING BEDS WITH PRE-EMERGENT AND POST-EMERGENT HERBICIDES ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
- 9) MULCH PLANTING BEDS TO A MINIMUM 2" COMPACTED THICKNESS WITH CLEAN SHREDDED PINE BARK, PINE STRAW, OR CYPRESS BARK (A.W.P.A. TYPE A).
- 10) LAY SOD SOLIDLY IN ALL INDICATED AREAS WITH CLOSELY ABUTTING JOINTS, ROLL AND FERTILIZE WITH AGRIFORM 34-0-7 TURFMIX AT THE RATE OF 15 POUNDS PER ACRE.
- 11) VERIFY ALL QUANTITIES IN THE PLANTING SCHEDULE AND INSTALL ALL PLANTS AND MATERIALS AS INDICATED IN THE PLAN.
- 12) ALL LANDSCAPING AREAS TO BE WATERED BY CENTRAL IRRIGATING SYSTEM.
- 13) ALL PLANT MATERIALS SHALL ARRIVE AT THE SITE WITH SOIL MOIST.
- 14) UNDER NO CIRCUMSTANCES WILL LANDSCAPE WORK BE APPROVED FOR PAYMENT IF PLANT SIZE AND GENERAL HEALTH ARE NOT AS REQUIRED ON PLAN.
- 15) ALL PLANTS MUST BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED ON PLANT LIST.
- 16) ALL TREES MUST BE STRAIGHT TRUNKED, FULL HEADED, AND MEET ALL REQUIREMENTS AS SPECIFIED.
- 17) BEFORE ANY PLANTING, LANDSCAPE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY UNFORESEEN CONDITIONS THAT MAY CONFLICT WITH LANDSCAPE INSTALLATION.
- 18) ALL PLANTING AREAS, AND UNPAVED AREAS ON SITE, MUST BE COMPLETELY MULCHED TO A MINIMUM OF 3" COMPACTED THICKNESS WITH PINE STRAW, CYPRESS BARK OR APPROVED EQUAL.
- 19) SOD SHALL BE LAID SOLIDLY IN ALL AREAS DISTURBED ON CONSTRUCTION. AREAS OF SLOPE GREATER THAN 3:1 SHALL BE STABILIZED PRIOR TO SODDING AND SOD SHALL BE PINNED TO PREVENT EROSION.
- 20) ALL PLANTS, MATERIALS AND WORK PERFORMED ARE SUBJECT TO APPROVALS OF THE ENGINEER AND THE OWNER BEFORE, DURING AND AFTER INSTALLATION.
- 21) THE LANDSCAPE DESIGNER MUST APPROVE ANY ALTERATIONS OR REVISIONS TO THE LANDSCAPE PLAN.
- 22) THE CONTRACTOR SHALL PROTECT EXISTING FEATURES ON SITE.
- 23) THE LANDSCAPE CONTRACTOR SHALL VERIFY ALL QUANTITIES SHOWN ON THESE PLANS, BEFORE PRICING THE WORK.
- 24) THE LANDSCAPE CONTRACTOR SHALL FULLY MAINTAIN PLANTING (INCLUDING BUT NOT LIMITED TO WATERING, SPRAYING, MULCHING, FERTILIZING, ETC.) PLANTING AREAS AND LAWNS UNTIL THE WORK IS ACCEPTED IN TOTAL BY THE OWNER. CONTRACTOR SHALL FERTILIZE ALL PLANTING BEDS WITH OSMOCOTE 13-6-6 SLOW-RELEASE FERTILIZER WITH ACTIVATED SLUDGE AT A RATE OF 15 POUNDS PER 1,000 S.F.
- 25) THE LANDSCAPE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL PLANT MATERIAL FOR ONE (1) YEAR BEGINNING AT THE DATE OF SUBSTANTIAL COMPLETION AND SHALL GUARANTEE ALL SODDED SLOPES. THE LANDSCAPE CONTRACTOR SHALL PROMPTLY MAKE ALL REPLACEMENTS BEFORE THE END OF THE GUARANTEE PERIOD (AS PER DIRECTION OF THE OWNER).
- 26) ANY PLANT MATERIAL WHICH DIES, TURNS BROWN OR DEFLOLIATES PRIOR TO TOTAL ACCEPTANCE OF WORK, SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, SIZE AND MEETING ALL PLANT LIST SPECIFICATIONS.
- 27) NO SUBSTITUTIONS OR CHANGES SHALL BE MADE TO THE DESIGN WITHOUT APPROVAL BY THE ENGINEER, OWNER AND THE COUNTY.
- 28) STANDARDS SET FORTH IN "AMERICAN STANDARD FOR NURSERY STOCK" REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL.
- 29) THE GENERAL CONTRACTOR IS RESPONSIBLE FOR FINISHED GRADING OF ALL LANDSCAPE PARKING ISLANDS. FINISHED GRADE IN ISLANDS IS TO BE CROWNED APPROXIMATELY 18" - 24" ABOVE THE TOP OF CURB. SOIL IN THE ISLANDS IS TO BE FREE OF UNSUITABLE MATERIAL AND DEBRIS, I.E. GRAVEL OR ASPHALT.
- 30) IF CONTRACTOR IS UNABLE TO DIG PLANT PITS TO A DEPTH THAT WILL PROVIDE 24" OF SOIL UNDER ROOT BALL DUE TO ROCK, CONTACT ARCHITECT, CIVIL ENGINEER, AND COUNTY HORTICULTURIST IMMEDIATELY.
- 31) IRRIGATION SYSTEM IS TO BE DESIGNED TO ALLOW FOR EXPANSION TO FUTURE DEVELOPMENT AREAS.
- 32) IRRIGATION CONTRACTOR SHALL SUBMIT A SLEEVING PLAN TO ARCHITECT.
- 33) LANDSCAPE CONTRACTOR SHALL PROVIDE AN AUTOMATIC IRRIGATION SYSTEM THAT PROVIDES 100% COVERAGE TO ALL PLANT MATERIAL. CONTRACTOR SHALL PROVIDE IRRIGATION PIPE LAYOUT AND SPECIFICATIONS FOR APPROVAL BY THE LANDSCAPE DESIGNER.
- 34) ALL PLANT MATERIAL SHALL BE DROUGHT AND SALT TOLERANT.

PERIMETER LANDSCAPE BUFFER REQUIREMENTS:

SOUTH AND EAST SIDE: 3 CANOPY TREES, 2 UNDERSTORY TREES AND 15 SHRUBS PER 100 FEET

NOTES:

1. ALL WOOD SHALL BE SPRUCE OR PINE-NOT PRESSURE TREATED.
2. CROSS TIES SHALL NOT CROSS OVER WOODY ROOTS.
3. REMOVE ALL STRING AOR WIRE WRAPPED AROUND TRUNK.
4. REMOVE ALL STRAPS, ROPES, WIRE, AOR STINKS USED TO LIFT THE ROOTBALL.
5. REMOVE ALL BURLAP AOR WIRE FROM THE TOP OF THE ROOT BALL.
6. TOP OF ROOTBALL TO BE SET LEVEL WITH SURROUNDING FINISH GRADE.



ALL SHADE OR CANOPY TREES TO BE:

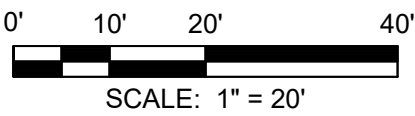
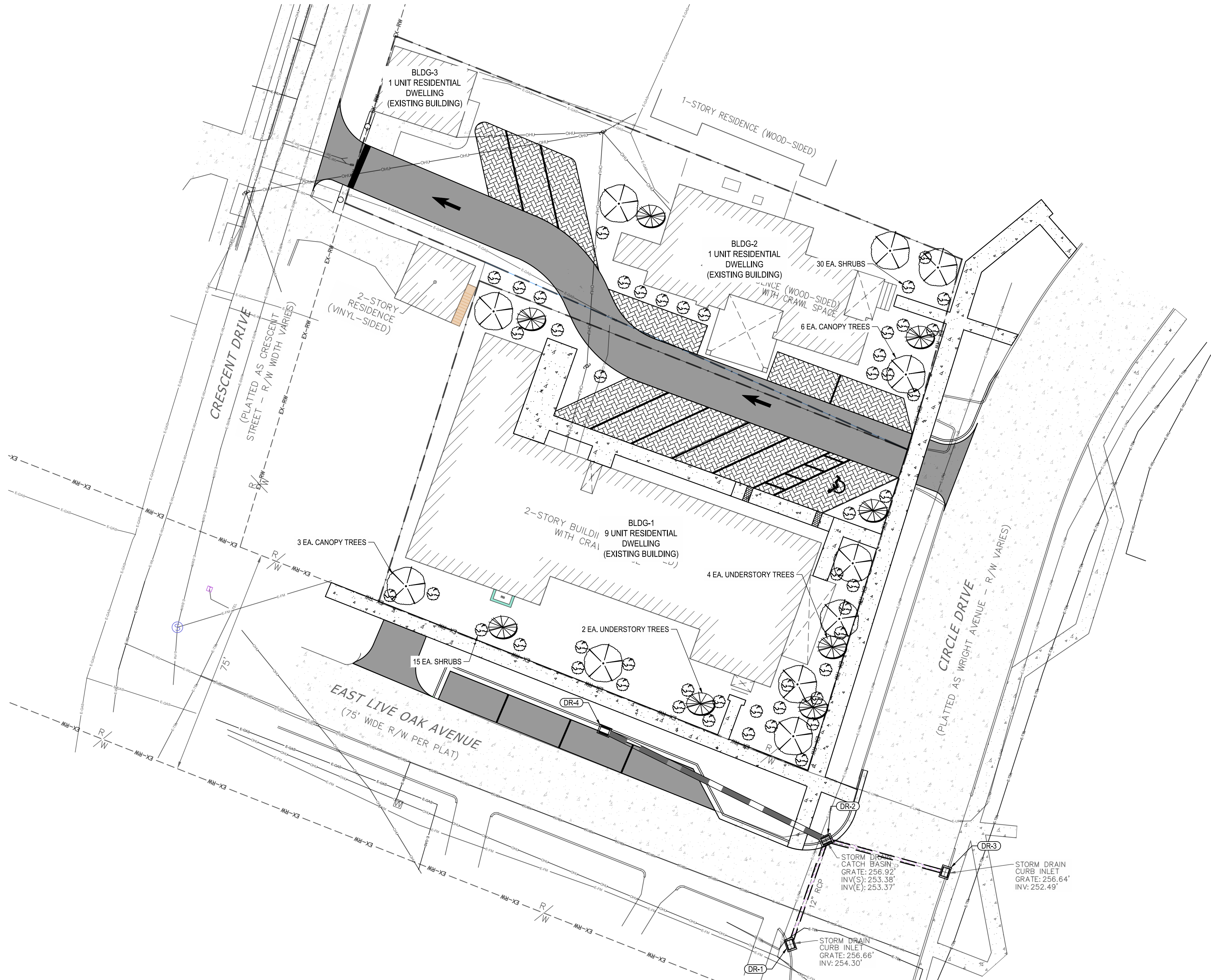
1. SMOOTH REDBAY (Persea borbonia) and/or
2. HICKORY (Carya spp.) and/or
3. SWEET GUM (Liquidambar styraciflua) and/or
4. PALM, Cabbage (Sabal palmetto) and/or
5. PALM, Pinda (Bulia capitata)

ALL UNDERSTORY TREES TO BE:

1. BRADFORD PEAR (Pyrus calleryana Bradford) and/or
2. CREPE MYRTLE (Lagerstroemia indica) WATERMELON RED and/or
3. FLOWERING DOGWOOD (Cornus florida) and/or
4. YAUPON (Ilex vomitoria)

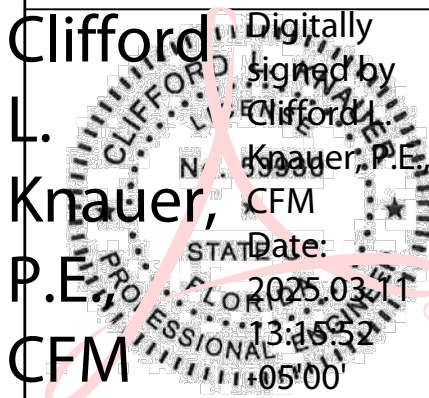
ALL SHRUBBERY PLANTS TO BE:

1. RED TOP (Photinia glabra and Photinia fraseri) and/or
2. LIGUSTRUM (Rhododendron indicum, Rhododendron simsii, Rhododendron obtusum) and/or
3. PAMPAS GRASS (Cortaderia selloana)



KNAUER NEVER ENGINEERING, PLLC

21 W. WILLOW MIST ROAD
INLET BEACH, FL 32461
PHONE: (850) 974-8815
cliff@knaurnevereng.com



CLIFFORD L. KNAUER, P.E. 53930

NO.	DESCRIPTION	DATE

CIRCLE DRIVE TOWNHOMES
REYNOLDS HENDERSON CONTINENTAL PACIFIC
CITY OF DEFUINAK SPRINGS
WALTON COUNTY, FLORIDA

TITLE
LANDSCAPE PLAN

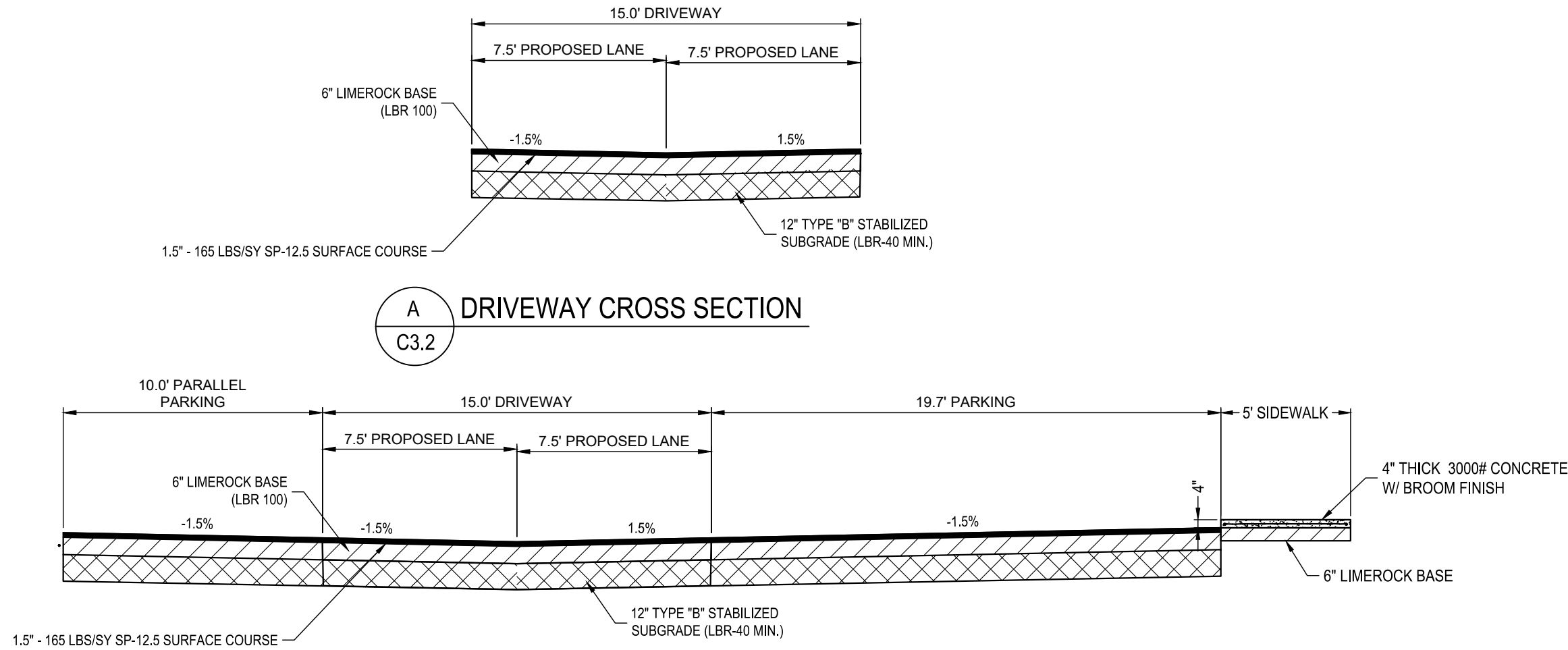
PROJECT NO. SP1025
DATE FEBRUARY 2025
DRAWN BY BTW
APPROVED BY BTW

PROJECT STATUS
DUE DILIGENCE

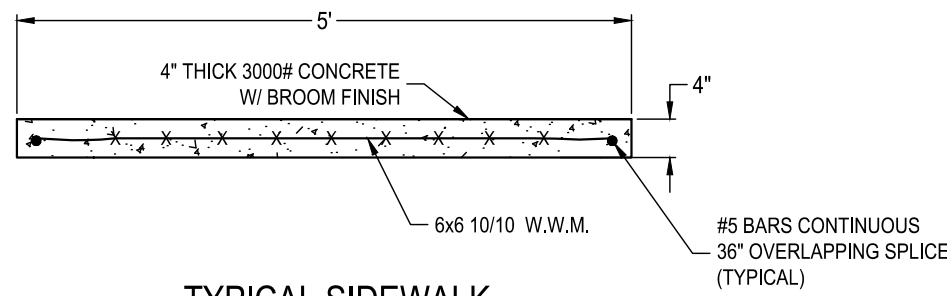
SHEET NO.

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B
C3.2
DRIVEWAY CROSS SECTION @ PARKING



TYPICAL SIDEWALK
DETAIL



KNAUER NEVER ENGINEERING, INC.
877 CR 393 NORTH
SANTA ROSA BEACH, FL 32459
PHONE: (850) 974-8815
cliff@knaurnevereng.com

Clifford L. Knauer, P.E.
C.E.M.
No. 53930
STATE OF FLORIDA
Digitally signed by Clifford L. Knauer, P.E., C.E.M.
Date: 2025.02.14 13:16:15
05:00
CLIFFORD L. KNAUER, P.E. 53930

NO.	DESCRIPTION	DATE											

CIRCLE DRIVE TOWNHOMES REYNOLDS HENDERSON CONTINENTAL PACIFIC CITY OF DEFUNIAK SPRINGS WALTON COUNTY, FLORIDA		CONSTRUCTION DETAILS
PROJECT NO.	SP1025	
DATE	FEBRUARY 2025	
DRAWN BY	BTW	
APPROVED BY	BTW	DUE DILIGENCE
SHEET NO.	C7.1	

City of DeFuniak Springs
1350 Baldwin Ave
DeFuniak Springs, FL
32435



M-E-M-O-R-A-N-D-U-M

TO: City of DeFuniak Springs Planning Board

FROM: Chris Wallace, Planning Director

RE: 2025-SSA-05 & 2025-RZ-04, Jonathan Nash's request to amend the Future Land Use Map and a request to amend the Zoning Map.

DATE: April 3, 2025

(Planning Board meeting on Monday, April 7, 2025, 5:30 p.m.)

PART A. GENERAL INFORMATION

1. Applicant:
Jonathan Nash
O'Connell & Associates Consulting Engineers, LLC
1394 County Hwy 283 S, Bldg #3
Santa Rosa Beach, FL 32459
2. Requested Action: Jonathon Nash is requesting a Future Land Use Map amendment from MDR, Medium Density Residential to Commercial and a rezoning from R-1, Single-Family Residential, Agriculture, and C-1, Commercial to C-2, Commercial. The subject property is located on US Highway 331 S. (parcel # 03-2N-19-18000-007-0000) and is approximately 3.91+/- acres in size. Please refer to Exhibit A- Applicants Brief
3. Number of Notices Sent to Property Owners within 500 feet: There will be 23 notices sent to property owners located within 500 feet of the subject property.
4. Existing Zoning: The subject property is currently zoned R-1, Single-Family Residential, Agriculture, and C-1, Commercial. The adjoining property to the north is zoned C-2, Commercial as is the property located east across Hwy 331 S. The property to the west is zoned Agriculture. Property to the south is zoned Agriculture, and C-1 Commercial. Please refer to Exhibit B – Existing Zoning.

5. Existing Future Land Use Map: The subject property is currently designated on the FLUM as MDR, Medium-Density Residential and Commercial. The property to the north is designated Commercial as is the property to east across Hwy 331 S. Property to the west is designated MDR, Medium-Density Residential. Property to the south is designated MDR, Medium-Density Residential and Commercial. Please Refer to Exhibit C - Future Land Use Map.
6. Existing Land Use: The subject property contains a single-family home. The adjacent property to the north contains a small strip center. Property to the west and south is vacant.

PART B: LAND DEVELOPMENT CODE EXCERPTS

Sec. 18-46. - "C-2" Commercial—General district.

District purpose. The commercial general district is intended to apply to business establishments primarily not of a neighborhood or central business district character, serving a larger segment of population. Such businesses generally require considerable ground area, do not cater directly to pedestrians, and need a conspicuous and accessible location convenient for motorists.

(1) Uses allowed without review.

- a. Any commercial use allowed without review in C-1 district.
- b. Businesses using outdoor displays, canopies, or sheds.
- c. Used car lots.
- d. Ornamental iron.
- e. Discount and auction houses.
- f. Research and testing laboratories.
- g. Mortuary.
- h. Pest control agency.
- i. All retail establishments.
- j. All service establishments.
- k. All repair shops.

(2) Use exceptions allowed upon special approval.

- a. Recreational vehicle parks.

1. Recreational vehicle parks shall comply with the Florida Administrative Code and any amendments thereto.

2. No occupant of a vehicle space within a recreational vehicle park shall remain at the park for more than one hundred eighty (180) consecutive days.

- b. Mini-storage warehouses located at least 200' from any State Highway. Other uses allowed without review are encouraged within the 200' separation.

c. Hospitals/medical clinics

(3) Prohibited uses.

a. Fortune tellers or clairvoyants.

b. Cemeteries.

c. Wholesale and warehouse establishments.

d. Storage yards not accessory to retail sales establishments including building supply, contractors, plumbing, lumber, petroleum products, coal and wood, stone and junk.

e. Manufacturing, fabricating or processing activities not accessory to retail sales.

f. Sanitariums, orphanages and similar institutions for the care or treatment of persons.

(4) Minimum yard setbacks.

In substantial conformity with front yards of buildings within one hundred fifty (150) feet on each side. Front yard of twenty-five (25) feet if no buildings within one hundred fifty (150) feet on each side.

(5) Maximum floor area ratio.

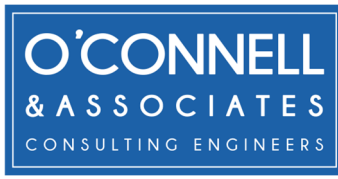
The maximum floor area ratio shall be 1.0. However, a minimum of ten (10) percent of the site must be preserved as open space and landscaped with native species in accordance with the city's landscape ordinance.

PART C. ANALYSIS

Jonathon Nash is requesting a Future Land Use Map amendment from MDR, Medium Density Residential to Commercial and a rezoning from R-1, Single-Family Residential, Agriculture, and C-1, Commercial to C-2, Commercial. The subject property is located on US Highway 331 S. The requested land use designation to accommodate a commercial use should not have any negative impacts on the adjoining properties as it is located on a commercial corridor.

PART D. STAFF RECOMMENDATION

Staff recommends approval of this request.



February 28, 2025

City of DeFuniak Springs
Planning Department
1350 Baldwin Avenue
DeFuniak Springs, FL 32435

RE: Statement of Consistency
DeFuniak Springs Planning Department
Engineer's Project No.: 25028

To Whom It May Concern,

Please accept this letter as verification that the following application criteria for the 1368 S US HWY Small Scale Amendment request have been met in our submittal, ensuring consistency and compliance with the City's Comprehensive Plan, including but not limited to:

1. Consistency and compliance with the environmental protection and conservation requirements comprehensive plan as well as all other applicable sections. (An Environmental Assessment, by itself, will not address this requirement.)
 - a. Based on a review of the current site conditions, the parcel does not appear to result in significant adverse impacts on the natural environment, including vegetative communities and endangered species. Any proposed development of the proposed subject property would be developed according to City LDC requirements which include provisions to identify and protect environmentally sensitive areas such as wetlands, wellhead protection zones, protected vegetative communities, or threatened and endangered species according to section 5.1 of the City of Defuniak Comprehensive Plan.
2. Describe any substantial changes conditions and trends in the City or adjacent areas that would justify amending the comprehensive plan to accommodate your requested land-use change.
 - a. The subject parcel is the only non-commercial property along the U.S. Highway 331 corridor in this immediate area. Rezoning to C-2 would align more consistently with the surrounding commercial zoning along the corridor.
3. State your reasons why there is a need for the proposed amendment.
 - a. The subject parcel is the only non-commercial property along the U.S. Highway 331 corridor in this area. For more consistent planning districts and potential safety concerns associated with agricultural uses adjacent to a major highway, this property is better suited for commercial zoning.
4. Provide a statement to the extent to which the proposed amendment:
 - 1) Is compatible with the existing character of the district.
 - a. The U.S. Highway 331 corridor is predominantly commercial; therefore, the request for C-2 zoning would be consistent with the existing character of the district and adjacent zonings.
 - 2) Will result in an orderly and logical development pattern.
 - a. The U.S. Highway 331 corridor is predominantly commercial; therefore, the request for C-2 zoning aligns with the predictable and orderly development pattern of the area.

If you have any questions or need additional information to concur with these documents, please contact us.

Sincerely,

O'CONNELL & ASSOCIATES
CONSULTING ENGINEERS, LLC

Jonathan E. Nash, P.E.
Civil Engineering Manager

Exhibit B- Existing Zoning

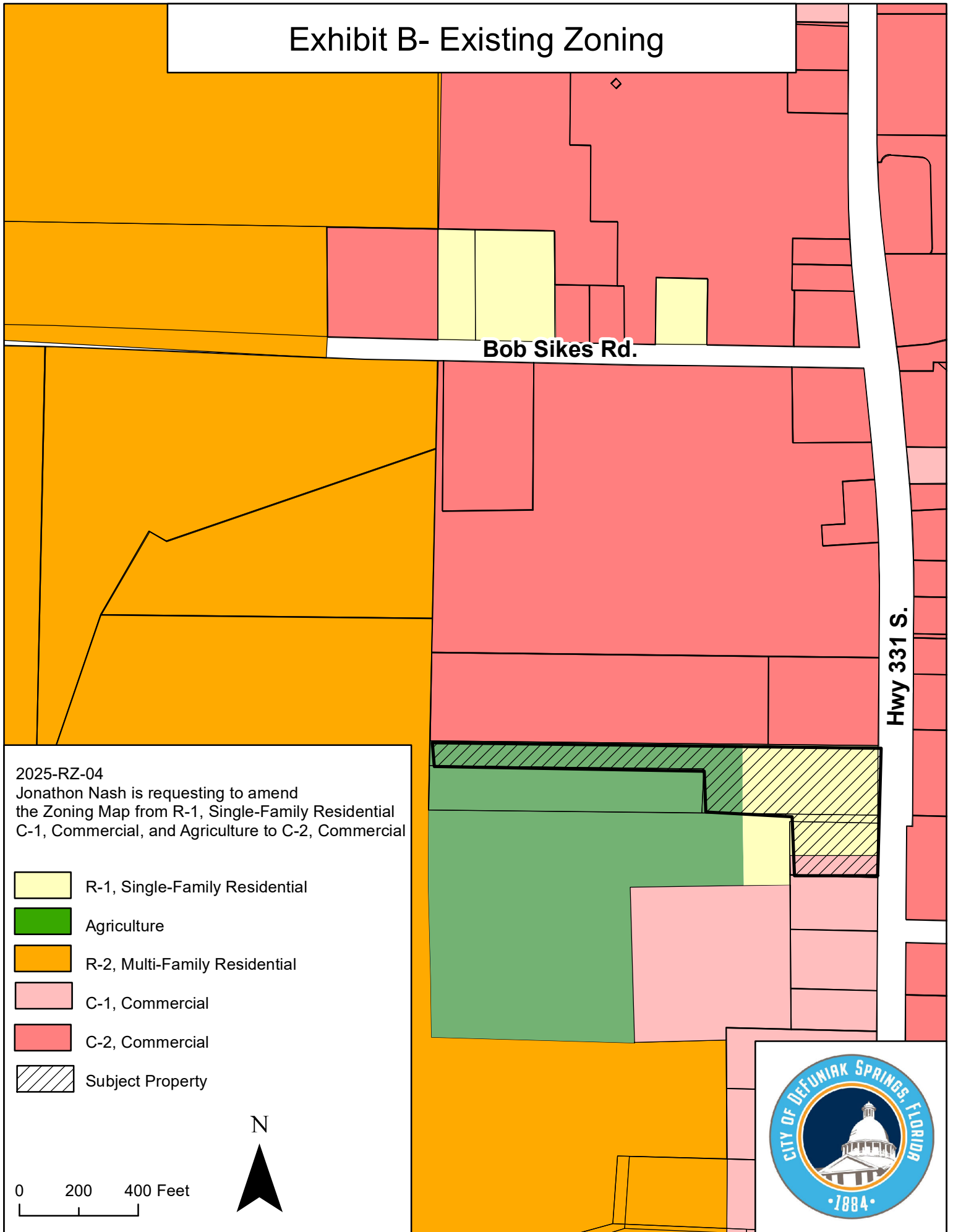


Exhibit C- Existing FLUM

