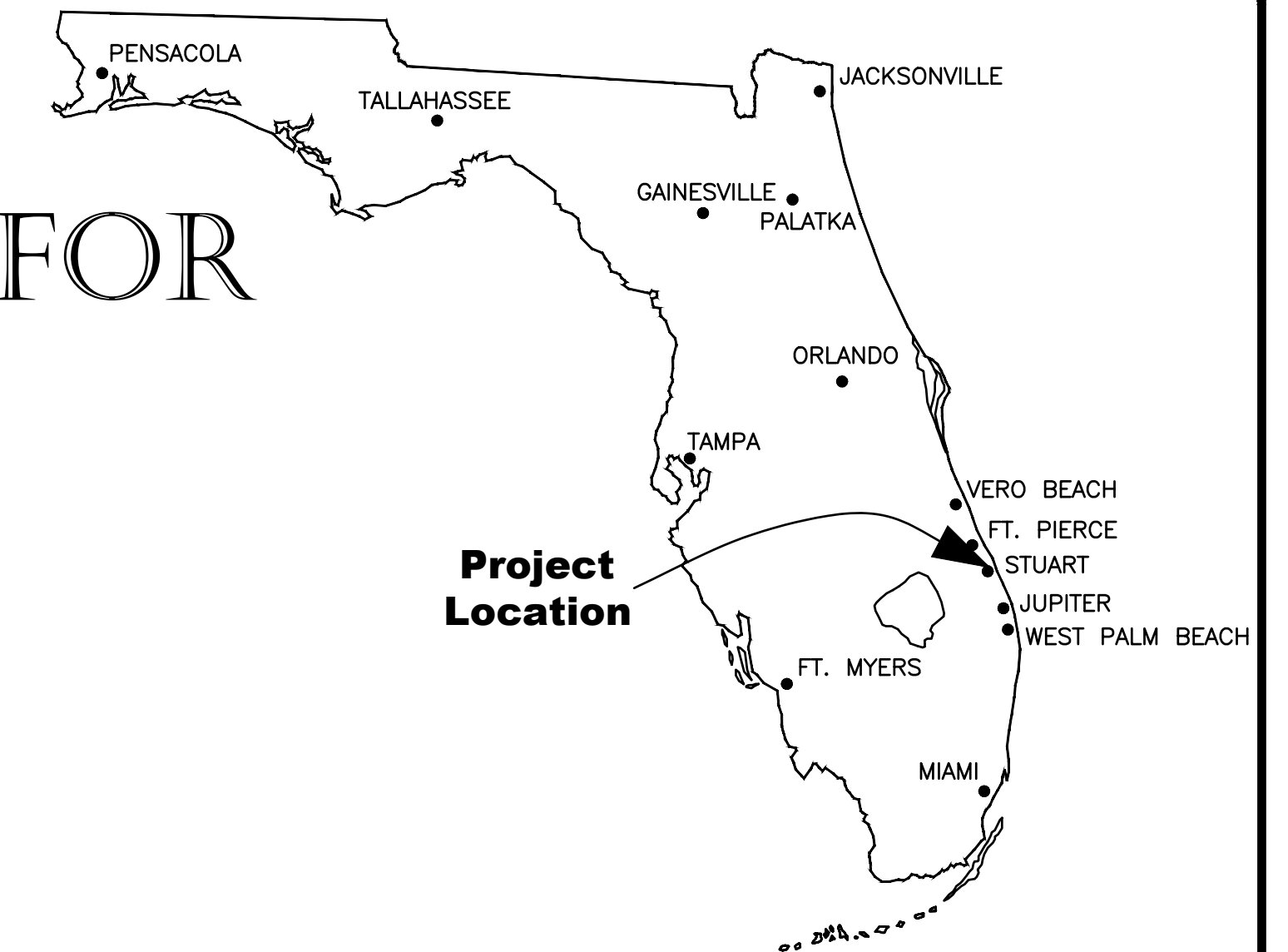


# CONSTRUCTION PLANS & SPECIFICATIONS FOR FREEDOM RV STORAGE MARTIN COUNTY, FLORIDA



THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, DESIGN STANDARDS, LATEST EDITION.

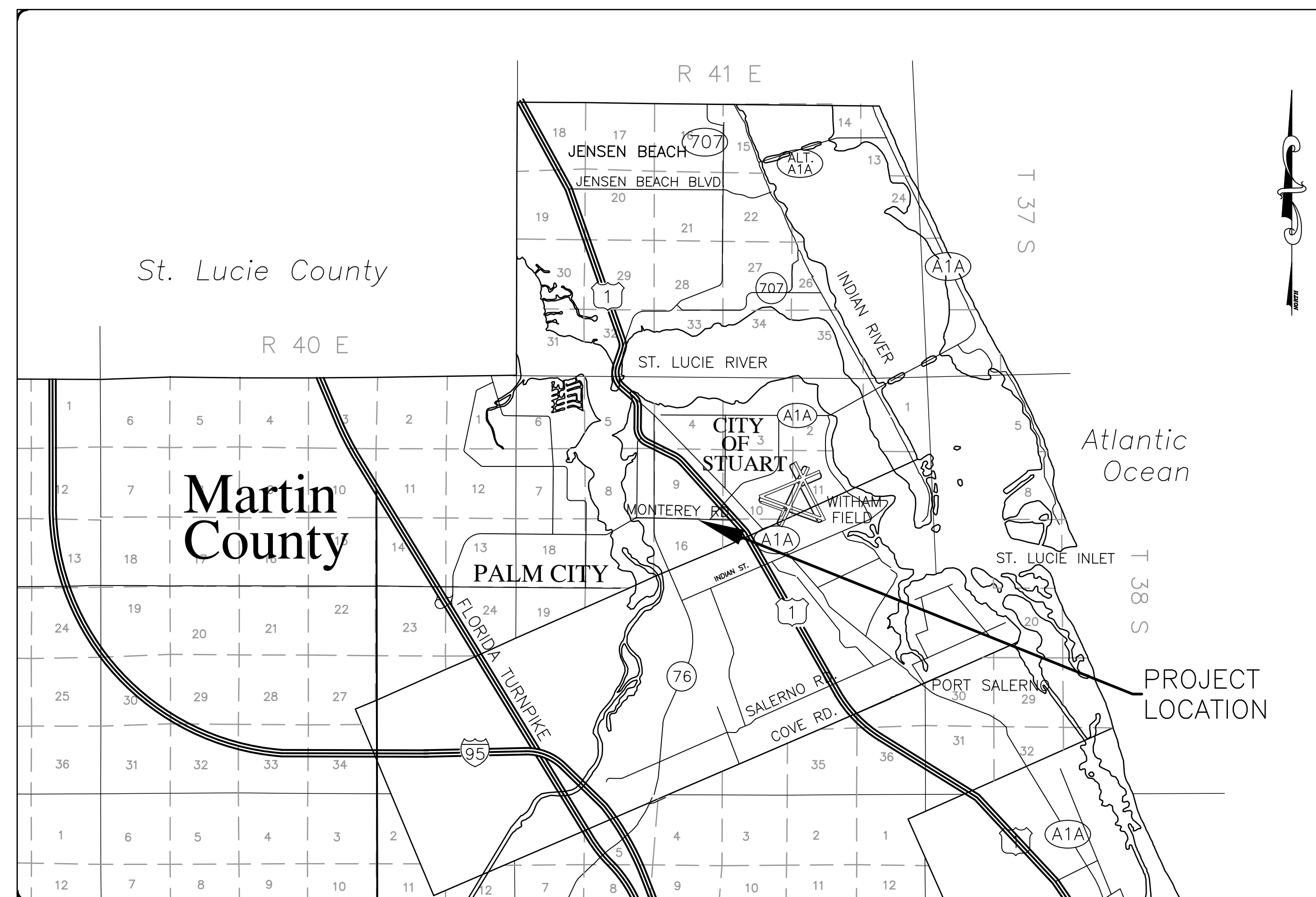
GOVERNING SPECIFICATIONS:  
FDOT STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION

THE FLORIDA DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITION.

THE MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS (GREENBOOK), LATEST EDITION.

THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.), LATEST EDITION.

AND THE CITY OF STUART LAND DEVELOPMENT REGULATIONS, LATEST EDITION.



Sheet List Table	
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D-6	LIFT STATION DETAILS
D-7	DETAILS
XS-1	CROSS SECTIONS

**DESIGN TEAM:**  
SITE PLANNER AND CIVIL ENGINEER  
GIANGRANDE ENGINEERING & PLANNING  
2081 SE OCEAN BLVD, SUITE 1A  
STUART, FL 34996  
(772) 888-9076

LANDSCAPE ARCHITECT  
LUCIDO & ASSOCIATES  
701 E OCEAN BLVD  
STUART, FL 34994  
(772) 220-2100

ARCHITECT  
ADVANCED ARCHITECTURE & PLANNING  
4929 SOUTH INDIAN RIVER DRIVE  
FORT PIERCE, FL 34982  
(772) 631-5709

SURVEYOR  
BETSY LINDSAY, INC.  
7997 SW JACK JAMES DRIVE  
STUART, FL 34997  
(772) 286-5753

**APPROVED FOR  
CONSTRUCTION**

DECEMBER 2022

REV 4 12/21/2022 DCM REVISED PER CITY OF STUART COMMENTS  
REV 3 10/10/2022 LDG REVISED PER CITY OF STUART COMMENTS  
REV 2 07/27/2022 JLS REVISED PER CITY OF STUART COMMENTS  
REV 1 02/04/2022 AC REVISED PER CITY OF STUART COMMENTS

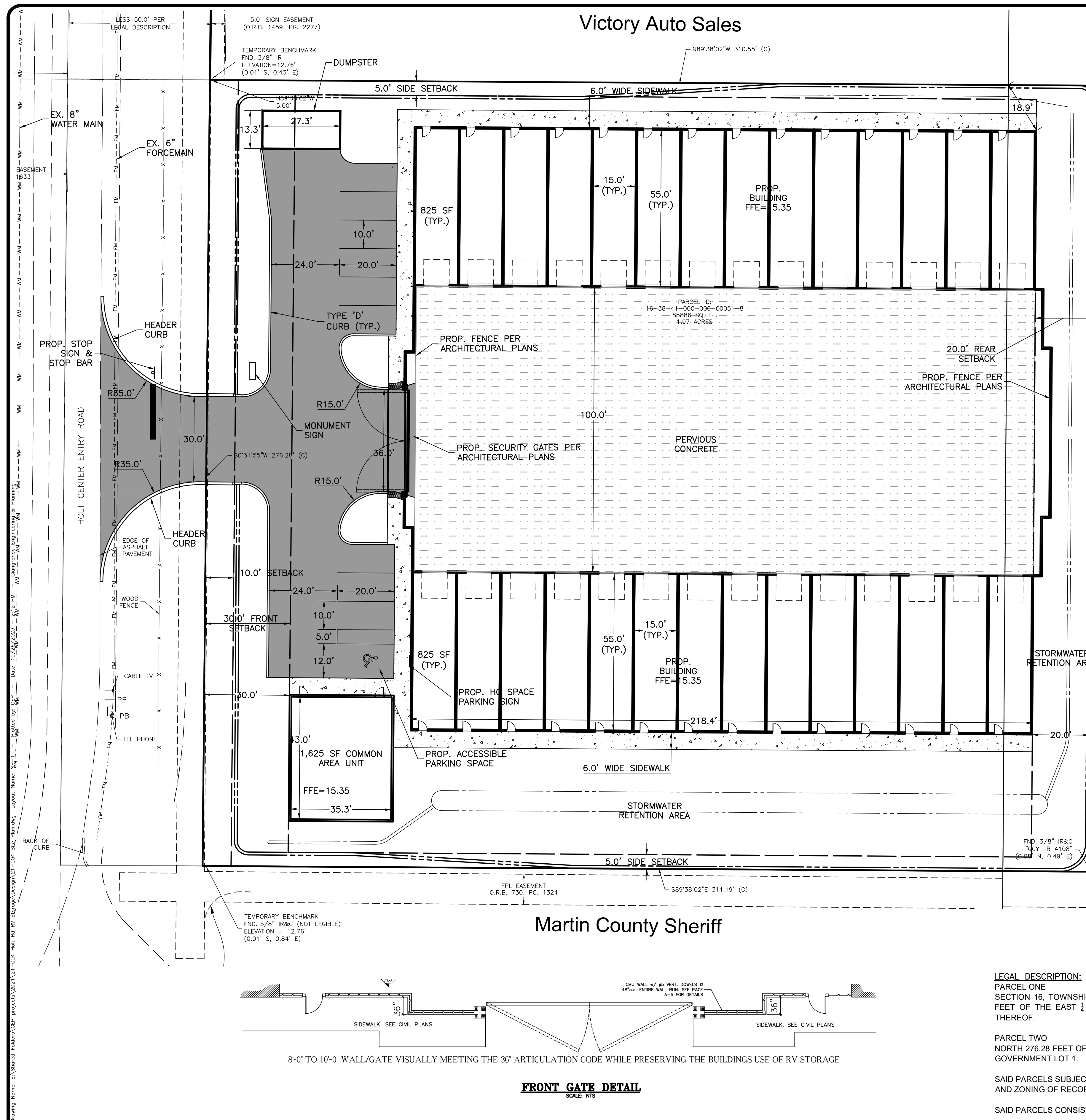
**GIANGRANDE ENGINEERING AND PLANNING**  
2081 SE OCEAN BLVD, SUITE 1A  
STUART, FLORIDA 34996  
PH. (772) 888-9076

LEO D. GIANGRANDE, PE  
License No: 66387

SHEET  
C-1







**SITE PLAN DATA TABLE**

PARCEL #	16-38-41-000-00051-8
TOTAL SITE AREA	1.97 AC.
ZONING	B-2, BUSINESS, GENERAL
FUTURE LAND USE	COMMERCIAL
MAX BUILDING HEIGHT	4 STORIES OR 45 FEET
BUILDING HEIGHT PROVIDED	1 STORIES, 18 FEET 4 INCHES
BUILDING COVERAGE/ TOTAL BUILDING AREA	0.60 AC. (26,130 S.F.)
BUILDING SETBACK REQUIREMENTS	
FRONT	30 FT
BACK	20 FT
SIDE	5 FT

**SITE AREA STATISTICS (PROPOSED):**

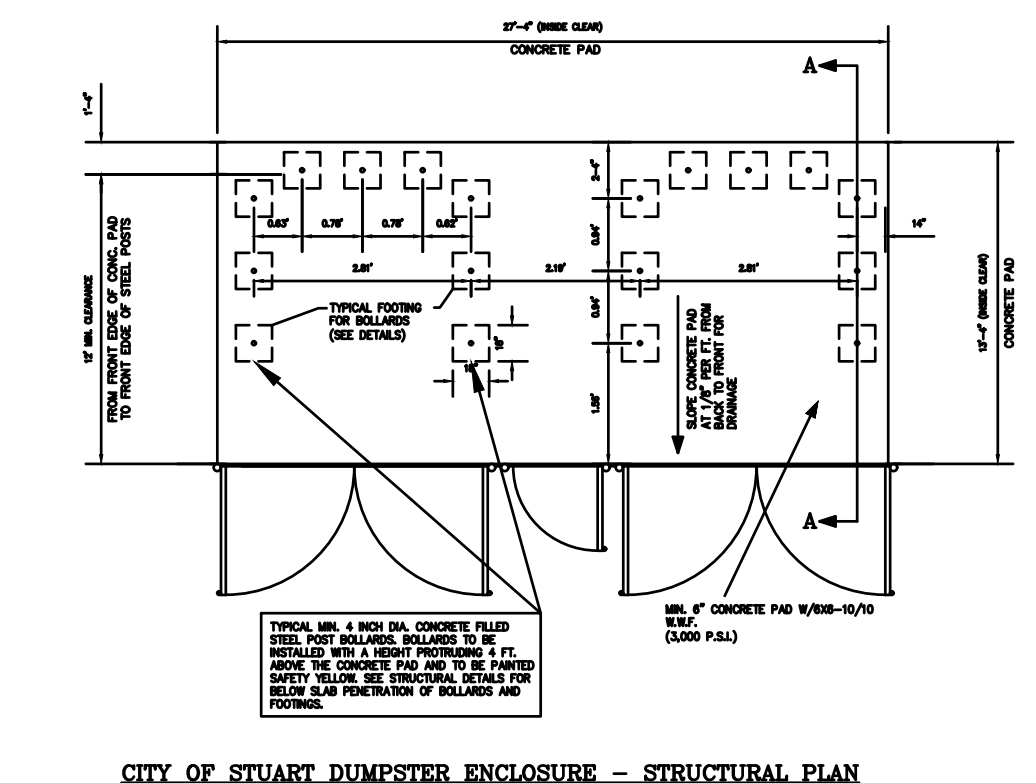
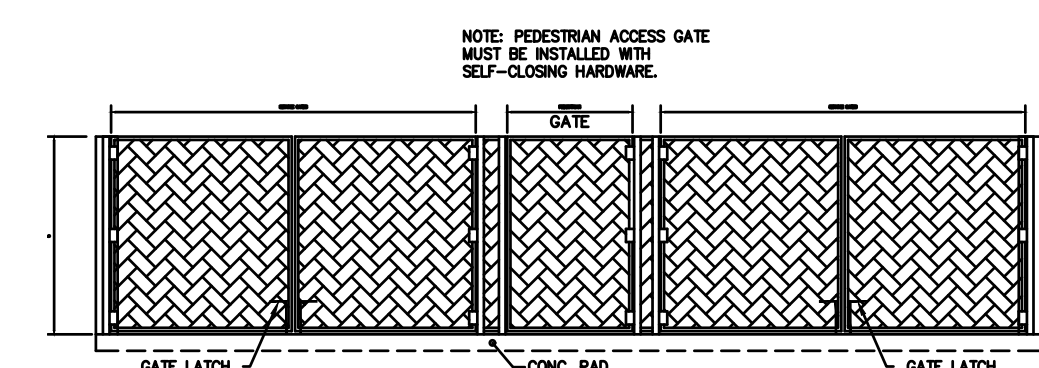
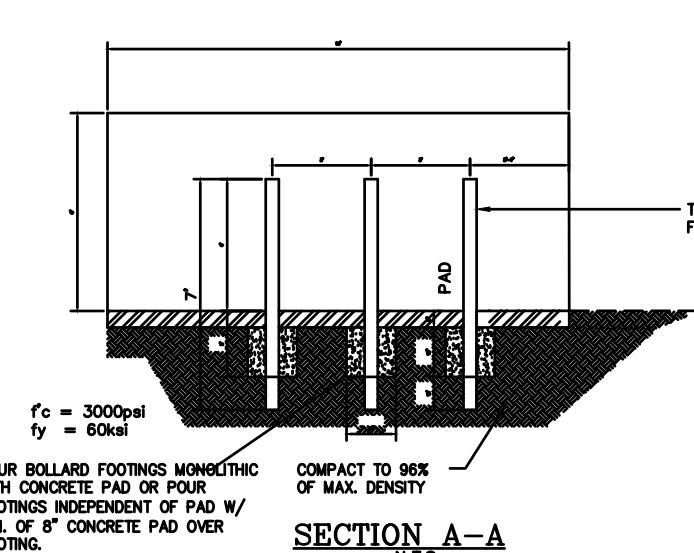
OPEN SPACE AREA	24,141 SF	0.55 AC	28.1%
RETENTION AREA	1,550 SF	0.04 AC	1.9%
PERVIOUS CONCRETE	10,890 SF	0.25 AC	12.7%
TOTAL OPEN SPACE	36,581 SF	0.84 AC	42.6%
BUILDING AREA	26,086 SF	0.60 AC	30.4%
PAVEMENT AREA	8,297 SF	0.19 AC	9.7%
CONCRETE AREA	3,959 SF	0.09 AC	4.6%
PERVIOUS CONCRETE AREA	10,890 SF	0.25 AC	12.7%
TOTAL IMPERVIOUS AREA	49,232 SF	1.13 AC	57.4%
TOTAL SITE AREA	85,813 SF	1.97 AC	100.0%

**PARKING DATA:**

TOTAL PROVIDED PARKING SPACES	10
REGULAR SPACES	9
HANDICAP SPACES	1
TOTAL REQUIRED PARKING SPACES	9
RV STORAGE (1 PER 10 STORAGE UNITS)	3
OFFICE SPACE (1 PER 300 SF)	6

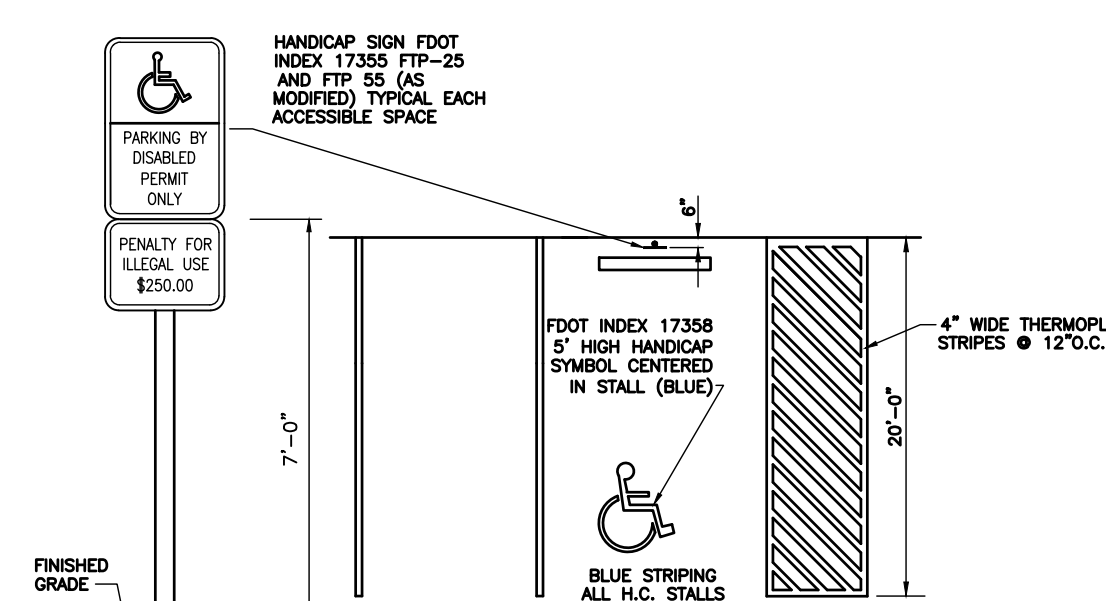
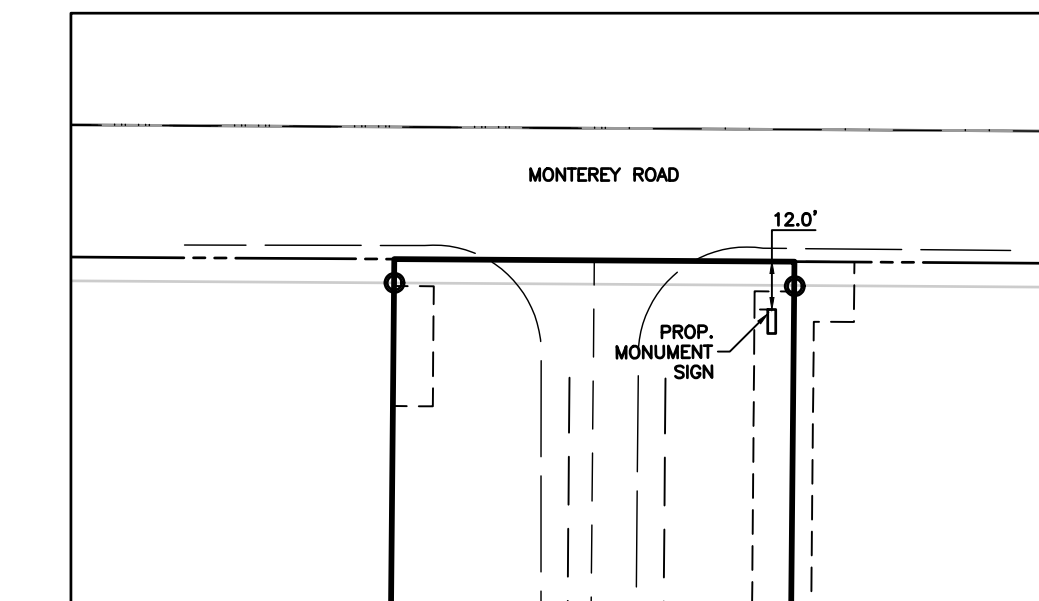
- LEGEND**
- EXIST. PROPERTY LINE
  - BUFFER / SETBACK LINE
  - EXIST. EDGE OF PAVEMENT
  - EXIST. CONCRETE
  - PROP. TOP OF BANK
  - RIGHT OF WAY LINE
  - PROP. STRIPING
  - PROP. CONCRETE
  - PROP. ASPHALT
  - PROP. BUILDING

County Owned



**FRONT VIEW WITH GATES**  
N.T.S.

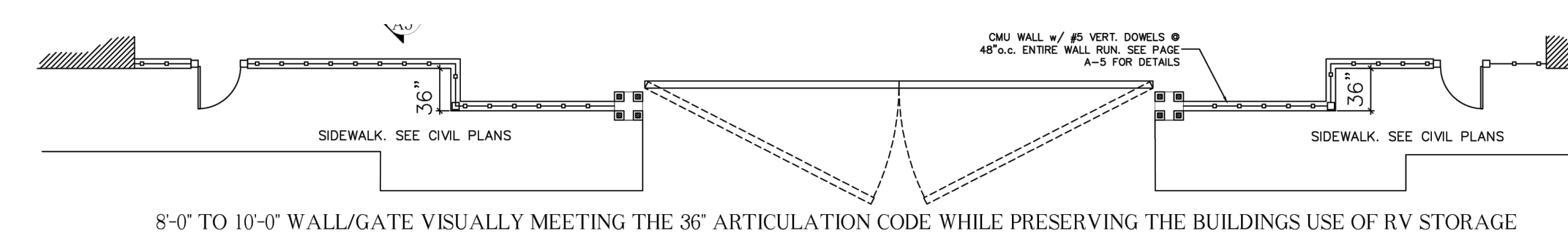
**DUMPSTER ENCLOSURE DETAIL**  
N.T.S.



**MONUMENT SIGN ON MONTEREY RD**  
SCALE: 1"=30'

**HANDICAP PARKING DETAIL**  
N.T.S.

**LEGAL DESCRIPTION:**  
PARCEL ONE  
SECTION 16, TOWNSHIP 38 SOUTH, RANGE 41 EAST, THE SOUTH 276.28 FEET OF THE NORTH 630 FEET OF THE EAST 1/4 OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4, LESS THE WEST 50 FEET THEREOF.  
PARCEL TWO  
NORTH 276.28 FEET OF THE SOUTH 636.28 FEET OF THE NORTH 990 FEET OF THE WEST 30 FEET OF GOVERNMENT LOT 1.  
SAID PARCELS SUBJECT TO EASEMENTS, CONDITIONS, COVENANTS, RESERVATIONS, RESTRICTIONS AND ZONING OF RECORD.  
SAID PARCELS CONSISTING OF 1.97 ACRES OR 85,886 SQUARE FEET MORE OR LESS.



**FRONT GATE DETAIL**  
SCALE: N.T.S.

DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
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07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

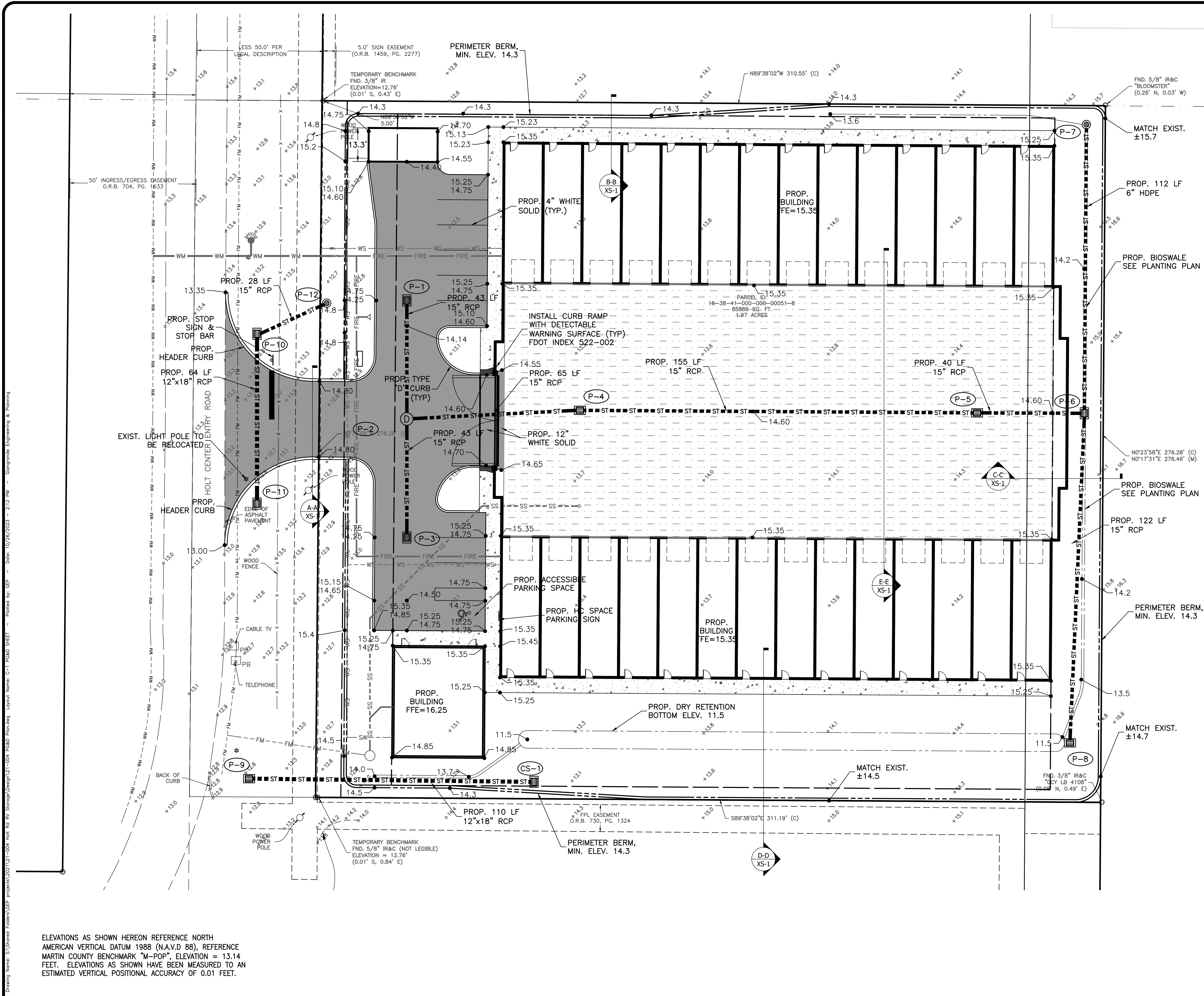
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Drawn By: AC  
Check By: LDG

FREEDOM RV STORAGE  
MIELE EQUITIES  
CITY OF STUART, FLORIDA

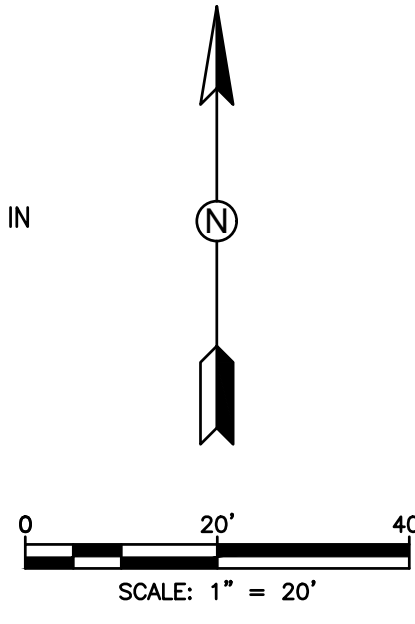
SITE PLAN

**GIANGRANDE ENGINEERING AND PLANNING**  
LEO D. GIANGRANDE, P.E.  
2081 SE OCEAN BLVD., SUITE 1A  
STUART, FLORIDA 34996  
PH. (772) 888-9076  
Cert. No. 30901

PROJECT #: 21-004  
**SP-1**  
License No: 66387



NOTES:  
 1. FILL MATERIAL SHOULD BE INORGANIC (CLASSIFIED AS SP/GW) CONTAINING NOT MORE THAN 5 PERCENT (BY WEIGHT) FIBROUS ORGANIC MATERIALS. FILL MATERIAL HAVING SILT/CLAY-SIZE FINES CONTENTS GREATER THAN 5 PERCENT SHOULD NOT BE USED, INCLUDING CYCLONE SAND MATERIAL. THE FILL SHOULD BE PLACED IN MAXIMUM 12-INCH THICK LIFTS. EACH LIFT SHOULD BE COMPACTED TO A MINIMUM DENSITY OF 98 PERCENT OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (AASHTO T-180).



**LEGEND**

- EX. EDGE OF PAVEMENT
- EX. EDGE OF CONCRETE
- OHU EX. OVERHEAD ELECTRIC
- X-X- PROP. FENCE
- PROP. SWALE
- ST --- ST --- PROP. STORMWATER PIPE
- PROP. TOP OF BANK
- PROP. TOE OF SLOPE
- PROP. PAVEMENT
- EX. PVIOUS PAVEMENT
- PROP. SIDEWALK
- EX. GUY WIRE
- EX. POWER POLE
- PROP. MITERED END SECT.
- PROP. INLET
- PROP. BOLLARD
- DRAINAGE FLOW ARROW
- x xxx.xx EX. ELEVATION
- 15.25 PROP. SPOT GRADE

**STRUCTURE DATA TABLE**

ID	STRUCTURE TYPE	FDOT STANDARD PLAN	RIM/GRATE ELEV. (FT-NAVD)	INVERT(S) (FT-NAVD)	STRUCTURE BOTTOM ELEV. (FT-NAVD)
P-1	TYPE C INLET	425-052	14.10	S INV 11.75	10.25
P-2	4'-0" MANHOLE	425-001 & 425-010	14.75	N/S/E INV 11.65	10.15
P-3	TYPE C INLET	425-052	14.10	N INV 11.75	10.25
P-4	TYPE C INLET	425-052	14.10	E/W INV 11.50	10.00
P-5	TYPE C INLET	425-052	14.10	E/W INV 11.15	9.65
P-6	TYPE C INLET	425-052	13.85	S/W INV 11.03 N INV 10.69	9.15
P-7	YARD DRAIN	425-060	13.30	S INV 10.95	
P-8	TYPE C INLET (NONTRAVERSABLE)	425-052	13.10	N INV 10.75	9.50 W/ WEEP HOLE
P-9	TYPE C INLET	425-052	12.80	E INV 10.50	9.00
P-10	TYPE C INLET (NONTRAVERSABLE)	425-052	13.30	N SLOT INV 12.80 N INV 10.60 S INV 11.00	9.10
P-11	TYPE C INLET (NONTRAVERSABLE)	425-052	13.30	S SLOT INV 12.80 N INV 11.00	9.50 W/ WEEP HOLE
P-12	YARD DRAIN	425-060	12.90	10.70	
CS-1	TYPE C INLET (NONTRAVERSABLE)	425-052	14.00	WEIR INV 13.05 W INV 10.60	8.60

ELEVATIONS AS SHOWN HEREON REFERENCE NORTH AMERICAN VERTICAL DATUM 1988 (N.A.V.D. 88), REFERENCE MARTIN COUNTY BENCHMARK "M-POP" ELEVATION = 13.14 FEET. ELEVATIONS AS SHOWN HAVE BEEN MEASURED TO AN ESTIMATED VERTICAL POSITIONAL ACCURACY OF 0.01 FEET.

DATE	BY	REVISIONS
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02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

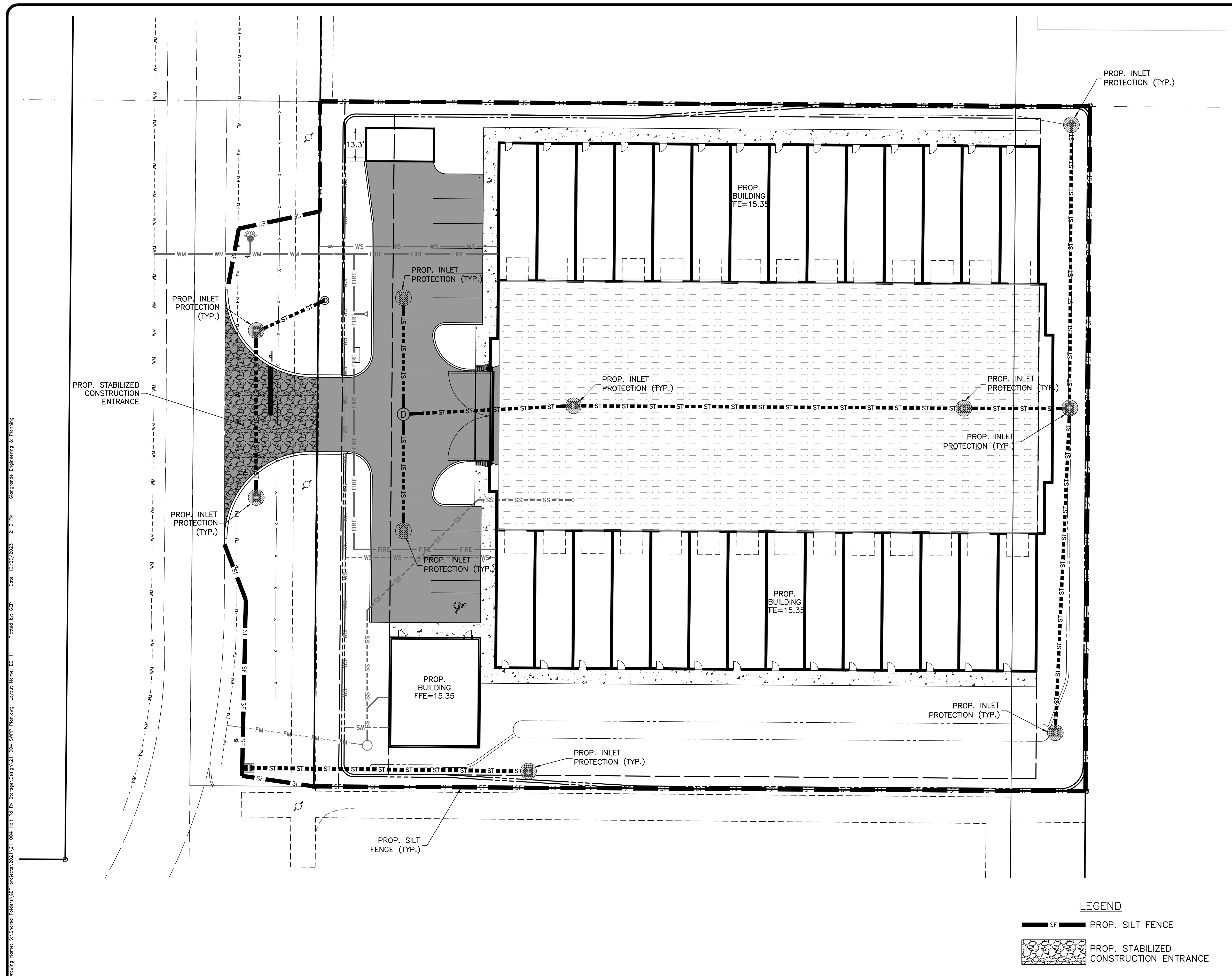
Date: 06/30/2021  
 Scale: # # # #  
 Design By: CS  
 Drawn By: AC  
 Check By: LDG

FREEDOM RV STORAGE  
 MIELE EQUITIES  
 CITY OF STUART, FLORIDA

PAVING GRADING & DRAINAGE PLAN



**GIANGRANDE ENGINEERING AND PLANNING**  
 2081 SE OCEAN BLVD., SUITE 1A  
 STUART, FLORIDA 34996  
 PH. (772) 888-9076  
 Cert. No. 30901

LEO D. GIANGRANDE, P.E.  
 License No: 66387  
 PROJECT #: 21-004  
**P-1**



- EROSION CONTROL NOTES:**
1. THIS PROJECT IS SUBJECT TO ALL RELATED ENVIRONMENTAL REQUIREMENTS WHICH INCLUDE A "CONTROL OF EROSION AND SEDIMENTATION PLAN". THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY AND ADEQUATE MEASURES FOR PROPER CONTROL OF EROSION DUE TO SEDIMENTATION RUNOFF FROM THE SITE PRIOR TO CONSTRUCTION OPERATIONS IN A PARTICULAR AREA. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO START OF CONSTRUCTION. FIELD ADJUSTMENTS WITH RESPECT TO LOCATIONS AND DIMENSIONS MAY BE DIRECTED BY THE ENGINEER AS REQUIRED.
  2. EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RAIN EVENT FOR DAMAGE AND GENERAL EFFECTIVENESS. ANY DAMAGED OR INEFFECTIVE CONTROLS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR.
  3. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED, IF DEEMED NECESSARY, BY THE ON-SITE INSPECTOR.
  4. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. TEMPORARY AND PERMANENT MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
  5. ALL TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE LEFT IN PLACE AND MAINTAINED UNTIL THE AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION.
  6. ALL CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ON TO ANY PUBLIC RIGHT-OF-WAY. THIS SHALL REQUIRE PERIODIC TOP DRESSING WITH STONE, AS CONDITIONS REQUIRE. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHT-OF-WAY OR INTO STORM DRAINS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
  7. TURBIDITY SCREENS OR EQUIVALENT SHALL BE PROPERLY EMPLOYED AND MAINTAINED AS NECESSARY DURING CONSTRUCTION ACTIVITIES SO THAT TURBIDITY LEVELS DO NOT EXCEED 29 NTU'S ABOVE NATURAL BACKGROUND 50 FEET DOWNSTREAM OF POINT OF DISCHARGE. IF TURBIDITY LEVELS EXCEED THESE LIMITS, PROJECT ACTIVITIES SHALL IMMEDIATELY CEASE, AND WORK SHALL NOT RESUME UNTIL TURBIDITY LEVELS DROP TO WITHIN THESE LIMITS.
  8. CONTRACTOR SHALL SOD GRASS AREAS DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO OWNER.
  9. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE ENVIRONMENTAL PROTECTION AGENCY (EPA) AND THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES).
  10. SEDIMENT BARRIERS SHALL BE PLACED PRIOR TO ANY WORK ON THE SITE. SEDIMENT BARRIERS SHALL BE PLACED AS DEPICTED AS SHOWN ON THESE CONSTRUCTION PLANS.
  11. PRESERVE AREAS ARE TO REMAIN UNDISTURBED. VEHICLE AND CONSTRUCTION EQUIPMENT TRAFFIC IS PROHIBITED WITHIN THESE AREAS.
  12. DAMAGED TURBIDITY CONTROLS SHALL BE REPAIRED PROMPTLY AND BEFORE ANY SUBSEQUENT RAINFALL.
  13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF THE NPDES AND RELATED STORM WATER PLAN FOR THE DURATION OF THE PROJECT. UPON COMPLETION THE CONTRACTOR SHALL REMOVE ALL TEMPORARY STORM WATER MANAGEMENT MEASURES AND SHALL DISPOSE OF THEM AS REQUIRED.
  14. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR AT LEAST 7 DAYS SHALL BE STABILIZED WITH SEED & MULCH NO LATER THAN 7 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREAS. THE SEEDING SHALL FOLLOWING TYPICAL CONSTRUCTION PRACTICES TO INSURE A YEAR ROUND STABILIZED AREA.
  15. CONTRACTOR SHALL COMPLY WITH SPILL PREVENTION, CONTROL AND COUNTER MEASURES (SPEC) REQUIREMENTS PURSUANT TO EPA RULES AND REGULATIONS.
  16. ALL CONSTRUCTION WASTE MATERIAL SHALL BE COLLECTED AND STORED IN A SECURED METAL DUMPSTER RENTED / LEASED FROM A LOCAL WASTE MANAGEMENT COMPANY. THE DUMPSTER SHALL MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURES FOR WASTE DISPOSAL. NOTICES STATING THESE PRACTICES SHALL BE POSTED IN THE OFFICE TRAILER / CONSTRUCTION TRAILER AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.
  17. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS AT A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.
  18. TRUCKS / EQUIPMENT IMPORTING OR EXPORTING FILL SHALL COVER THEIR LOADS WITH A TARPULIN TO AVOID UNNECESSARY GENERATION OF DUST.
  19. ALL HAZARDOUS WATER MATERIAL SHALL BE DISPOSED OF AS PER LOCAL / STATE REGULATIONS OR AS RECOMMENDED BY THE MANUFACTURER. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES AND THE CONTRACTOR IS RESPONSIBLE TO FOLLOW THESE PRACTICES.
  20. THE GENERAL CONTRACTOR'S SITE SUPERINTENDENT SHALL SELECT INDIVIDUALS, TYPICALLY THREE, WHO WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES AND FILING OUT OF INSPECTION REPORTS. PERSONNEL SELECTED SHALL BE RECEIVE PROPER TRAINING, AT THE CONTRACTORS EXPENSE, PRIOR TO SITE CONSTRUCTION COMMENCEMENT.
  21. ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE INSPECTED EVERY 7 DAYS OR WITHIN 24 HOURS OF A STORM OF 0.5 INCHES OR MORE IN RAINFALL. ALL CONTROLS MUST BE IN PROPER ORDER AS REQUIRED UNTIL SITE COMPLETION.
  22. SILT FENCE SHALL BE INSPECTED FOR TEARS, DEPTH OF SEDIMENT, AND TO INSURE THE FENCE IS SECURELY FASTENED TO THE POSTS AND ALSO THAT POSTS ARE FIRMLY IN PLACE. SEDIMENT SHALL BE REMOVED IF THE DEPTH OF SEDIMENT IS GREATER THAN ONE-THIRD THE HEIGHT OF THE SILT FENCE.
  23. THE INSPECTOR SHALL RECORD ANY DAMAGES OR DEFICIENCIES IN THE TURBIDITY CONTROLS IN THE REPORT FORM FOR THIS PURPOSE. A COPY OF ALL RECORDING AND REPORTS SHALL BE FORWARDED TO THE ENGINEER FOR REVIEW.
  24. THE REQUIREMENTS LISTED ABOVE AND DETAILS PRESENTED ON THIS SHEET SHALL BE CONSIDERED MINIMUM REQUIREMENTS AND THE CONTRACTOR SHALL USE WHATEVER METHODS THE CONTRACTOR DEEMS NECESSARY TO PREVENT EROSION AND SILTATION AS MAY BE REQUIRED FOR THE PROJECT.

**LEGEND**


-  PROP. SILT FENCE
-  PROP. STABILIZED CONSTRUCTION ENTRANCE

DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
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02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

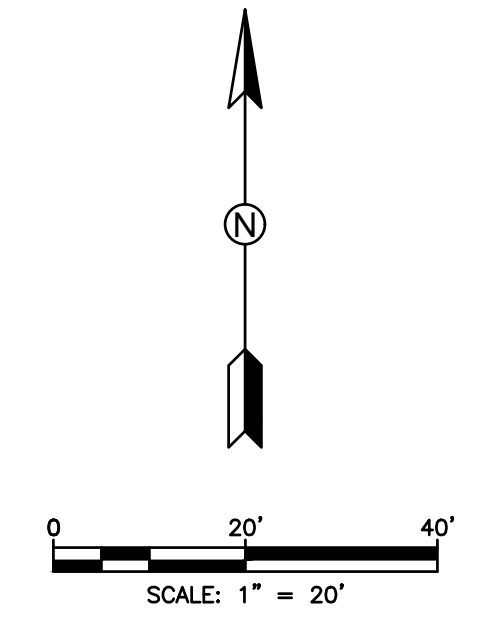
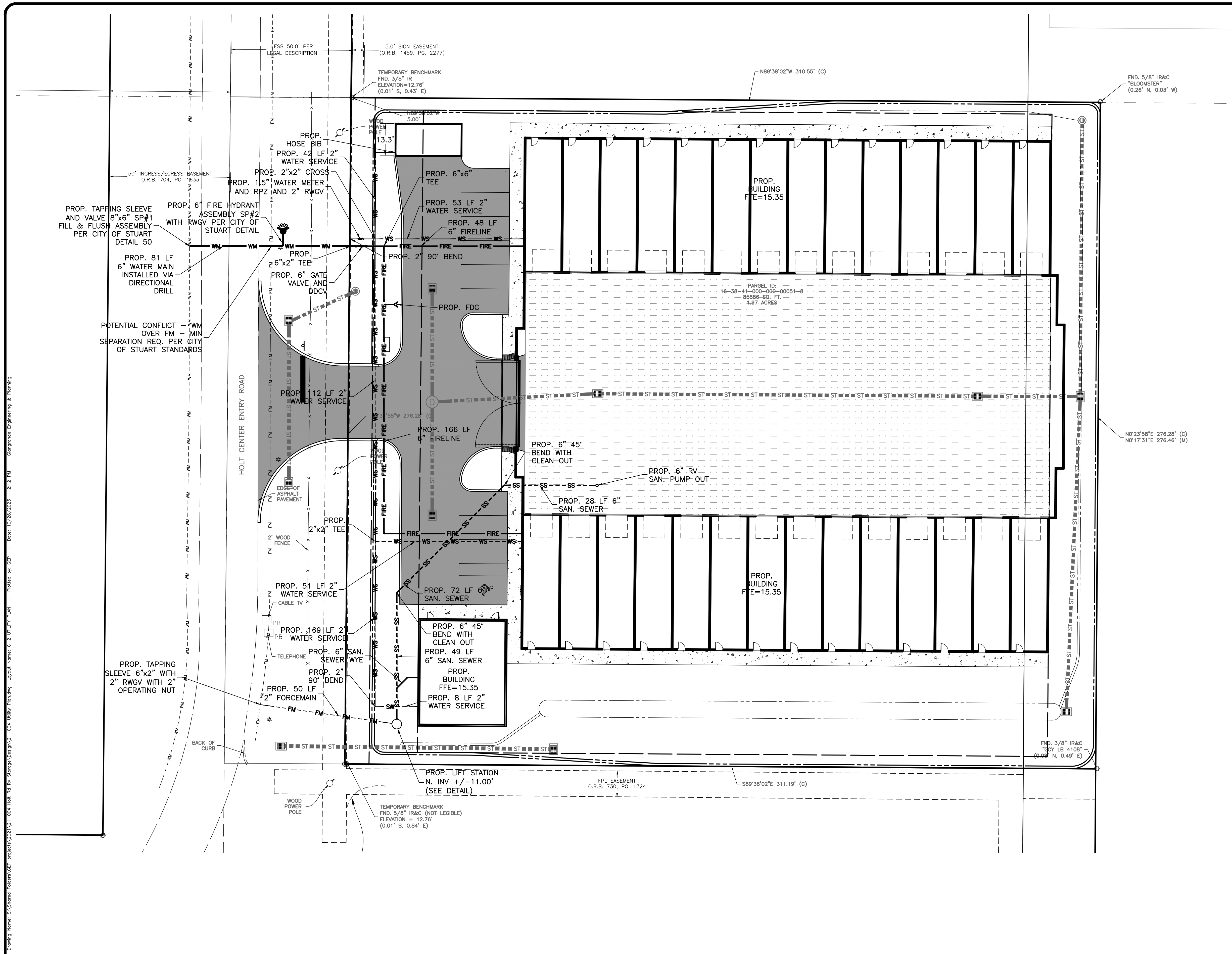
Date: 06/30/2021  
 Scale: #####  
 Design By: CS  
 Drawn By: AC  
 Check By: LDG

FREEDOM RV STORAGE  
 MIELE EQUITIES  
 CITY OF STUART, FLORIDA

STORMWATER POLLUTION PREVENTION PLAN

**GIANGRANDE ENGINEERING AND PLANNING**  
  
 2081 SE OCEAN BLVD., SUITE 1A  
 STUART, FLORIDA 34996  
 PH. (772) 888-9076  
 Cert. No. 30901

LEO D. GIANGRANDE, P.E.  
 License No: 66387  
 PROJECT #: 21-004  
**ES-1**



- NOTES:
1. CONTRACTOR TO COORDINATE OPEN CUTTING OF HOLT ENTRY ROAD WITH THE MARTIN COUNTY PUBLIC SAFETY COMPLEX FACILITIES MANAGER. ONE TRAVEL LANE SHALL REMAIN OPEN AT ALL TIMES.
  2. THE PROPOSED WATER METER SHALL BE PER THE CITY OF STUART APL/SPECIFICATION.

**LEGEND**

- EX. EDGE OF PAVEMENT
- - - EX. EDGE OF CONCRETE
- OHU EX. OVERHEAD ELECTRIC
- X X PROP. FENCE
- ST --- ST --- PROP. STORMWATER PIPE
- WM PROP. WATER MAIN
- FIRE PROP. FIRE LINE
- WS - - - WS PROP. WATER SERVICE
- SS - - - SS PROP. SANITARY SEWER
- FM - - - FM PROP. FORCEMAIN
- PROP. TOP OF BANK
- PROP. TOE OF SLOPE
- █ PROP. PAVEMENT
- █ EX. PVIOUS PAVEMENT
- █ PROP. SIDEWALK
- EX. GUY WIRE
- EX. POWER POLE
- ▭ PROP. MITERED END SECT.
- ▭ PROP. INLET
- PROP. BOLLARD
- ⊙ PROP. HYDRANT

Drawing Name: S:\Shared\Projects\2021\21-004\Freedom RV Storage\Design\21-004\Freedom RV Storage\Utility Plan.dwg Date: 10/26/2023 2:12 PM - 212 PM - Gianngrande Engineering & Planning

DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS
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Date: 06/30/2021  
 Scale: 1"=20'  
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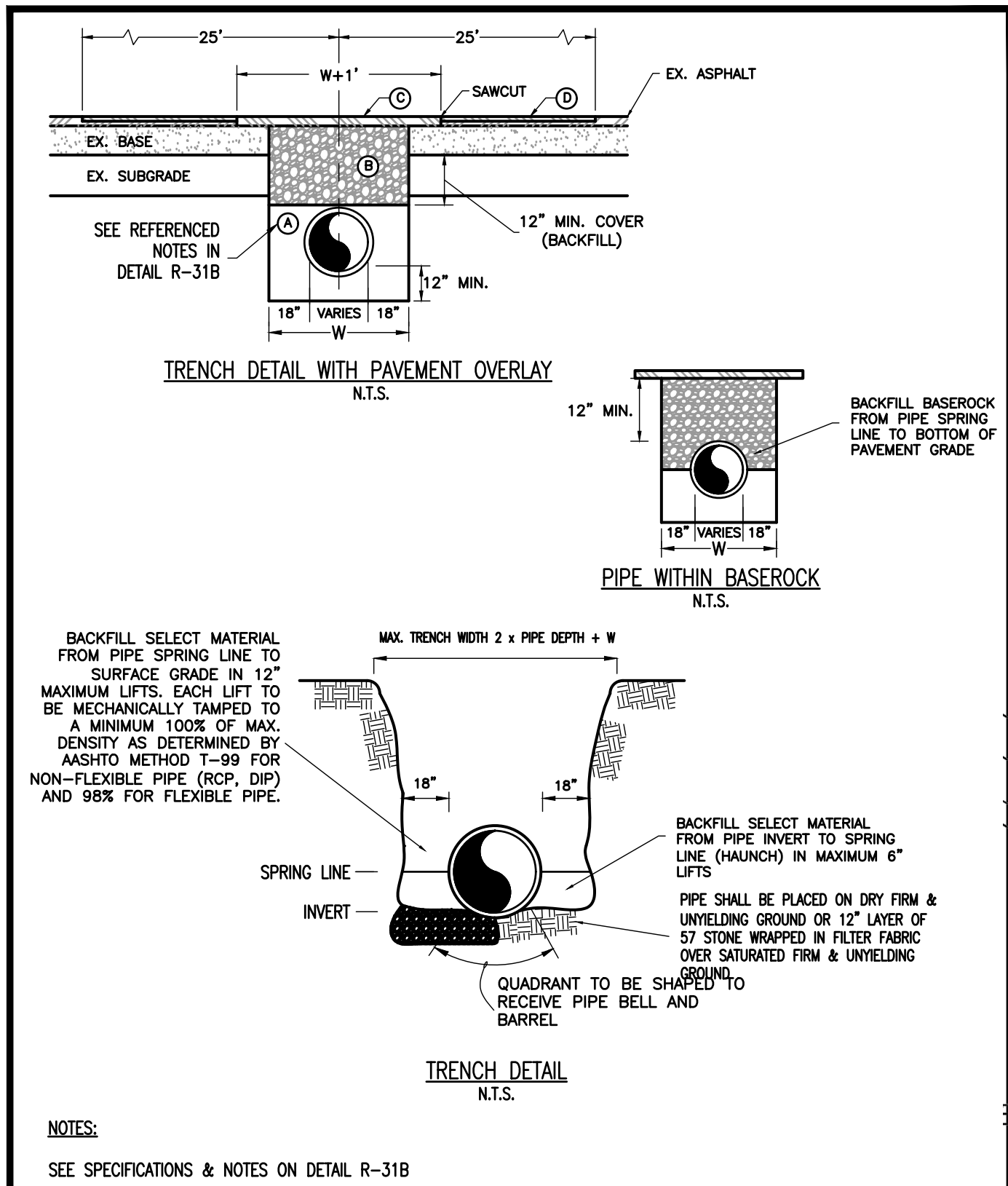
**FREEDOM RV STORAGE**  
**MIELE EQUITIES**  
**CITY OF STUART, FLORIDA**

**UTILITY PLAN**

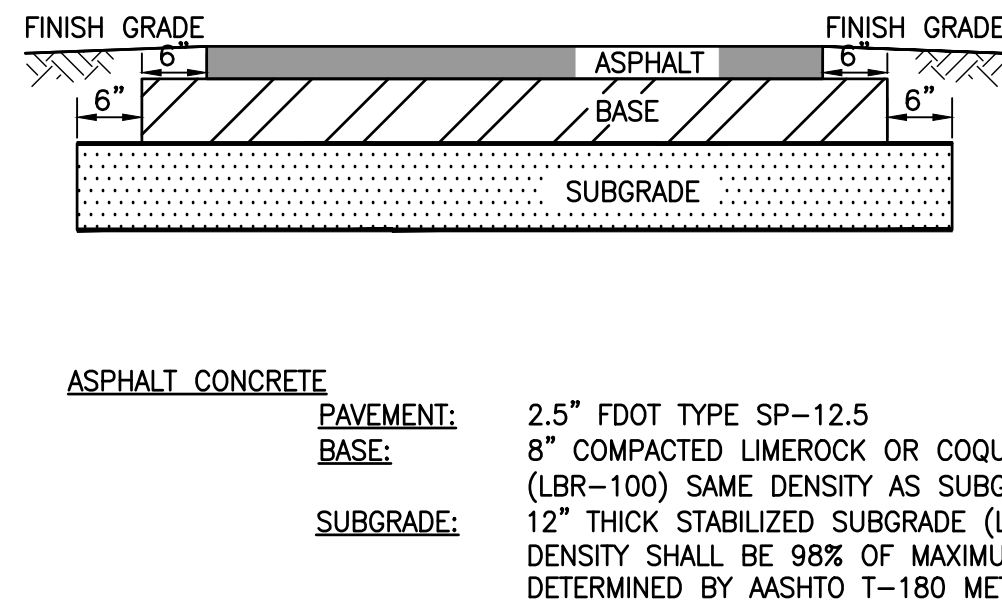
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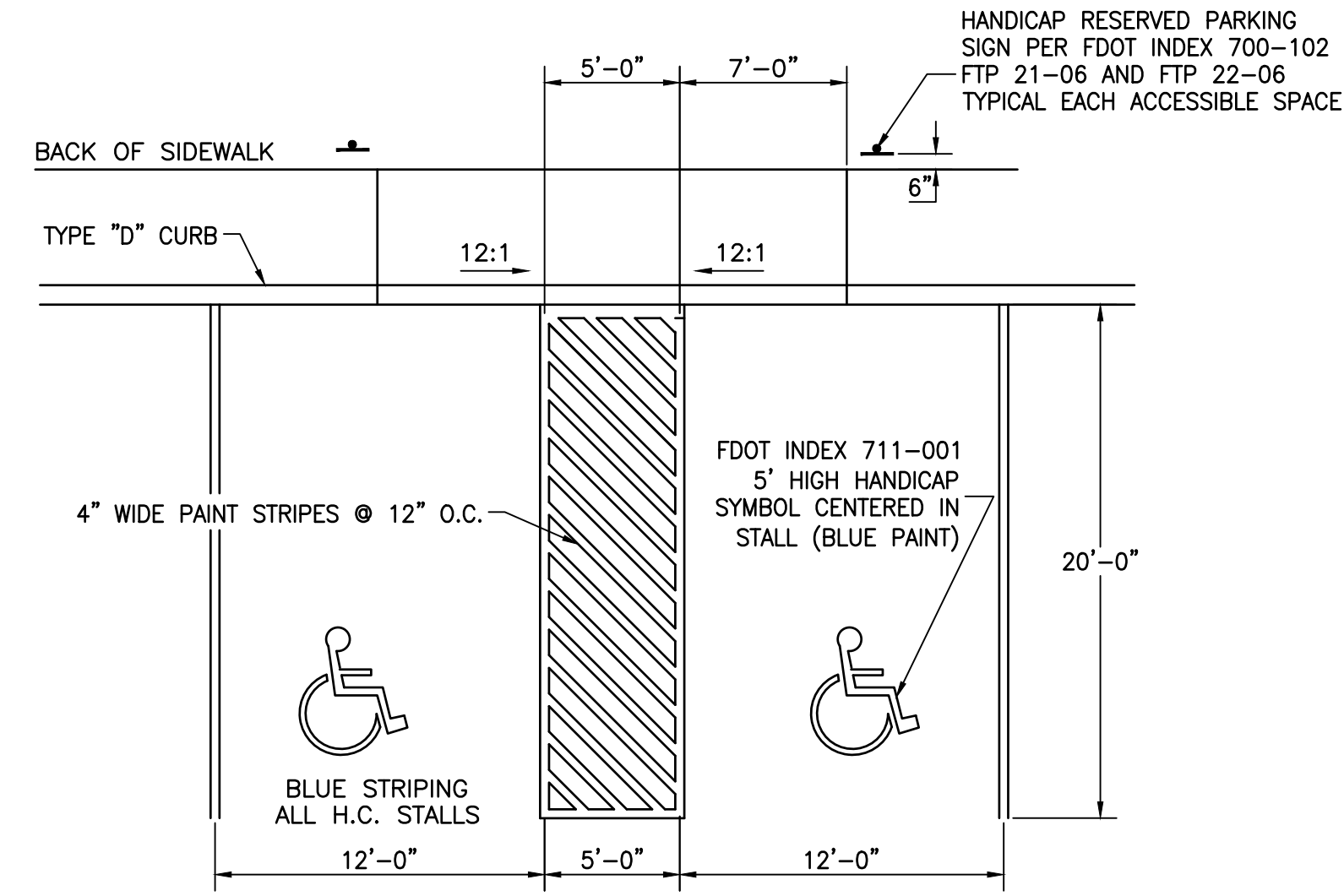
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**U-1**



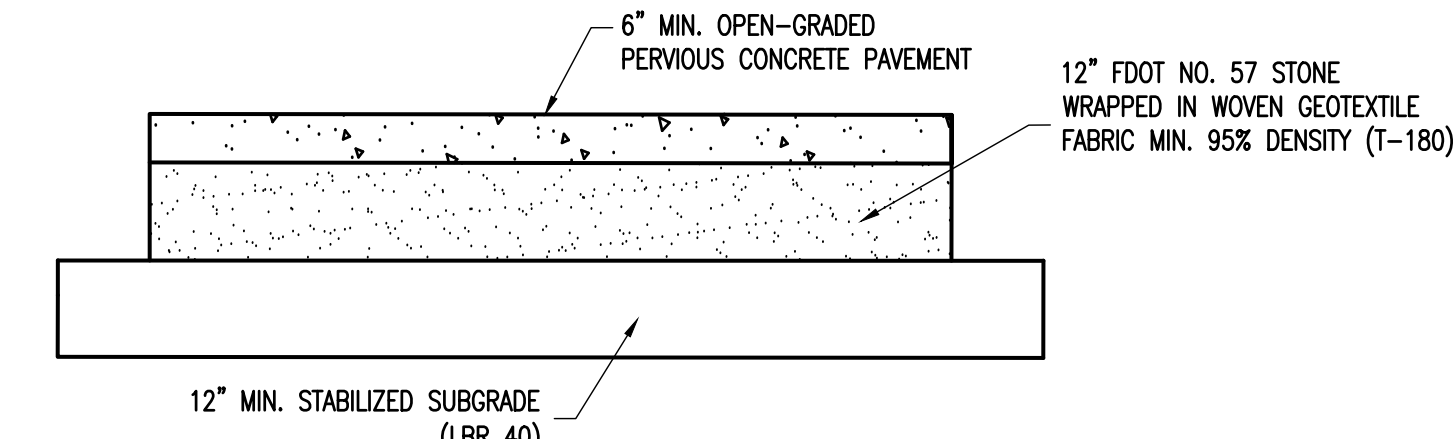
MARTIN COUNTY PUBLIC WORKS - STANDARD DETAILS	DETAIL R-31A
TYPICAL OPEN CUT TRENCH	DATE: 12/03/19



**TYPICAL PAVEMENT SECTION**  
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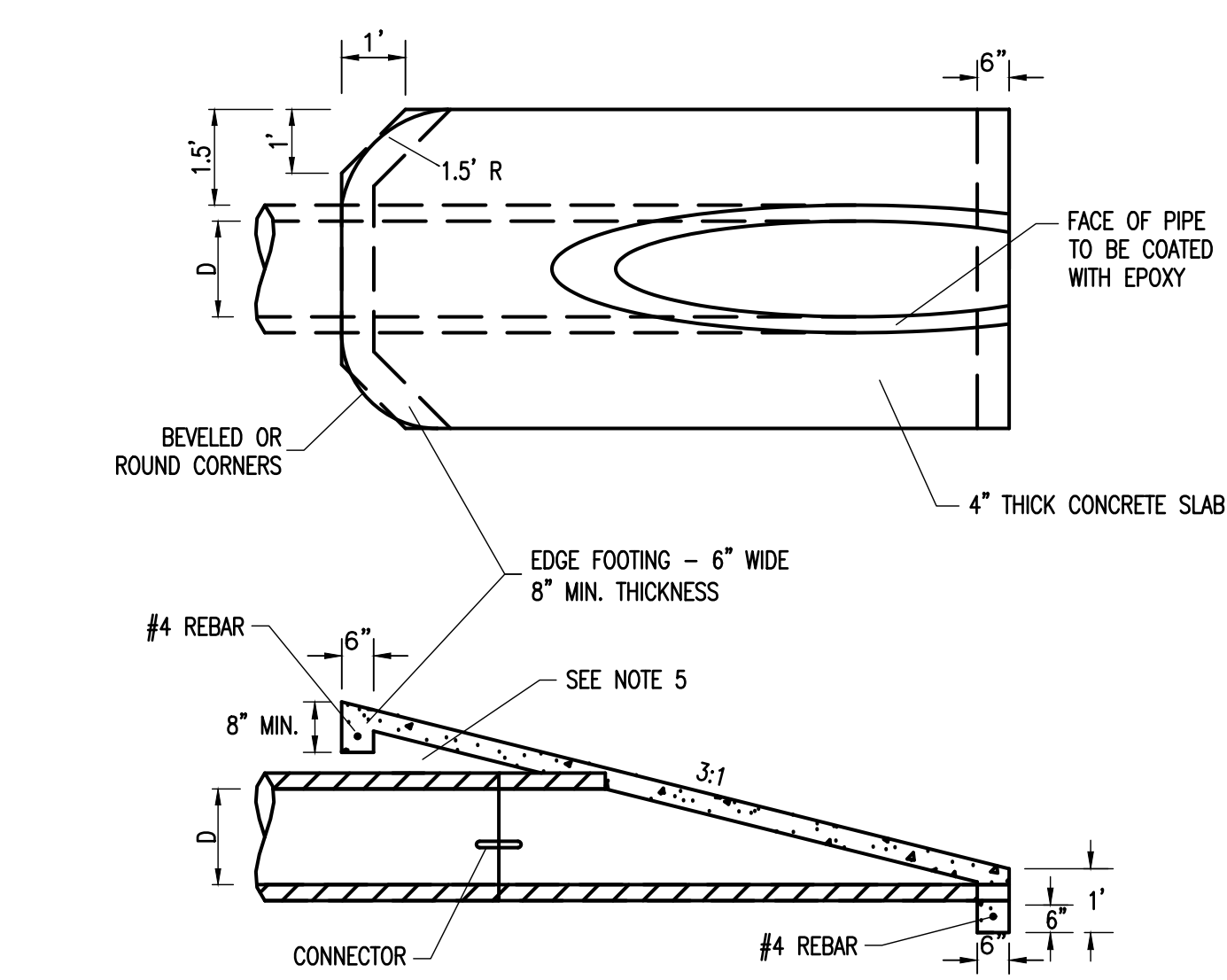


**HANDICAP PARKING DETAIL**  
N.T.S.



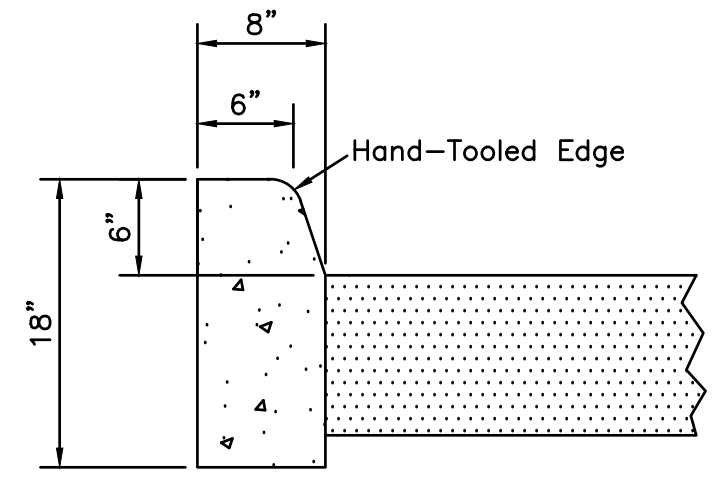
**NOTES:**

- THE CONTRACTOR SHALL SUBMIT A PERVIOUS PAVEMENT MIX DESIGN TO THE ENGINEER FOR APPROVAL.
- PERVIOUS CONCRETE MIX SHALL HAVE 20% TO 25% VOIDS, AN AGGREGATE TO CEMENT (A/C) RATIO BETWEEN 4.0 AND 4.5, AND A WATER TO CEMENT (W/C) RATIO BETWEEN 0.27 AND 0.36.
- ALL MATERIAL USED WITHIN THE ROADWAY MUST MEET FDOT SPECIFICATIONS AND BE SUPPLIED FROM A FDOT CERTIFIED MINING OPERATION AND ASPHALT PLANT.
- A MINIMUM OF TWO DENSITY TESTS SHALL BE TAKEN FOR EACH SIX (6) INCH LIFT OF SUB GRADE AND BASE. WHEN THE SPECIFIED COMPACTED BASE IS GREATER THAN SIX AND ONE-HALF (6 1/2) INCHES THE BASE SHALL BE CONSTRUCTED IN TWO OR MORE COURSES. PROCTORS FOR MATERIALS USED IN BACK-FILLING SHALL BE OBTAINED BY A CERTIFIED LABORATORY. DENSITY TESTS SHALL BE CONDUCTED BY A CERTIFIED LABORATORY. THE PERCENTAGE OF MAXIMUM DENSITY REQUIRED SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. A COPY OF ALL COMPLETED AND ACCEPTED DENSITY TESTS SHALL BE FURNISHED TO THE COUNTY ENGINEER'S OFFICE PRIOR TO FINAL INSPECTION.
- CRUSHED CONCRETE MAY NOT BE USED.

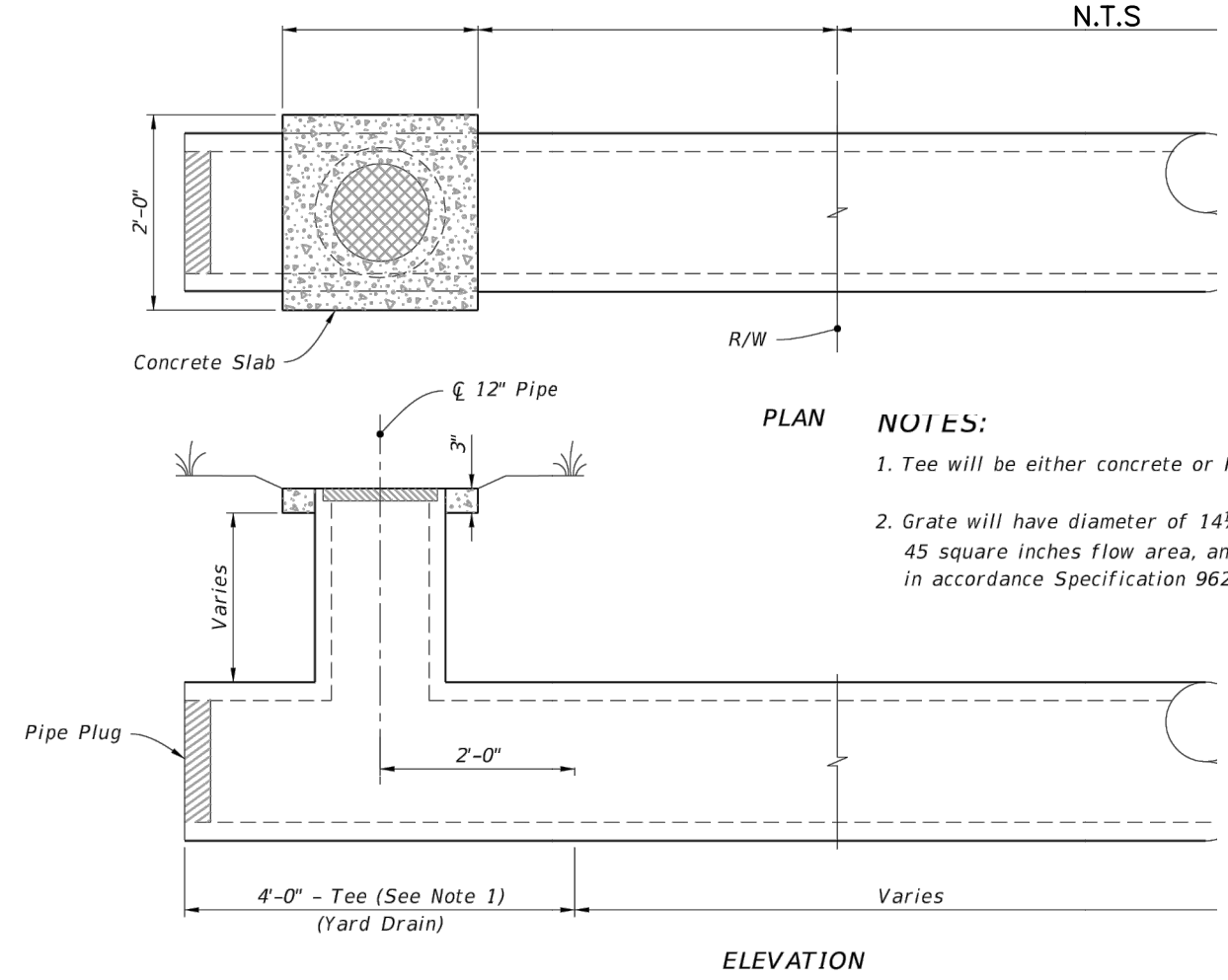


- NOTES:**
- SLAB CONCRETE SHALL BE STRUCTURAL 3000 PSI
  - SLAB SHALL CONSIST OF WWF 6x6-W1.4 THERMAL REINFORCEMENT TIED INTO BOTTOM FOOTER OR FIBERMESH
  - TOP AND BOTTOM EDGES SHALL HAVE 6\"/>
  - THE MITRED/CUT FACE OF THE PIPE SHALL BE COATED WITH A HIGH-BUILD, PROTECTIVE, SOLVENT-FREE, COLORED EPOXY COATING (SIKA SIKAGARD 62 EPOXY COATING OR EQUIVALENT APPROVED BY ENGINEER).
  - TOP EDGE FOOTING SHALL BE A MINIMUM OF 8\"/>

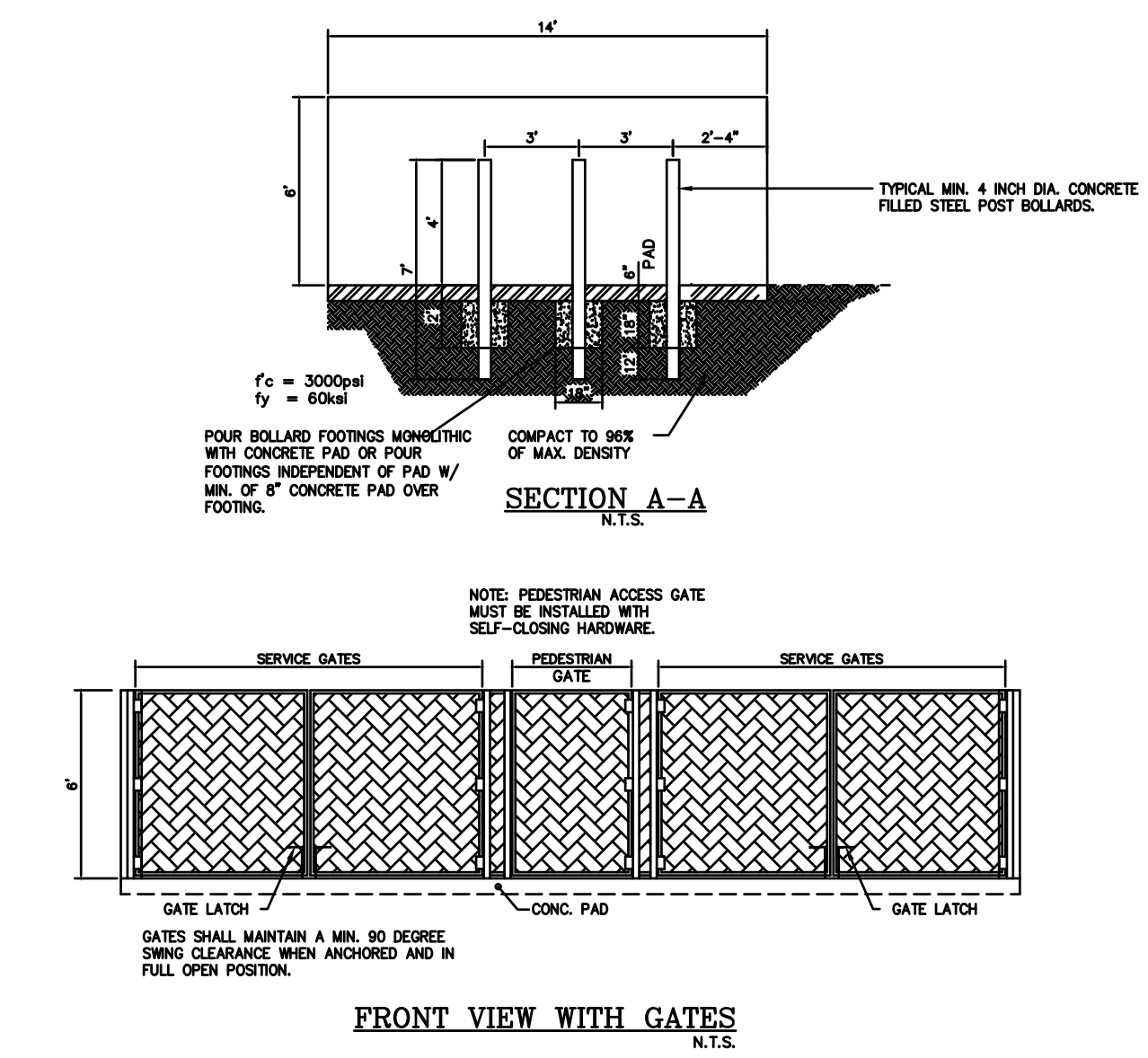
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FDOT INDEX NO. 430-021  
(NTS)



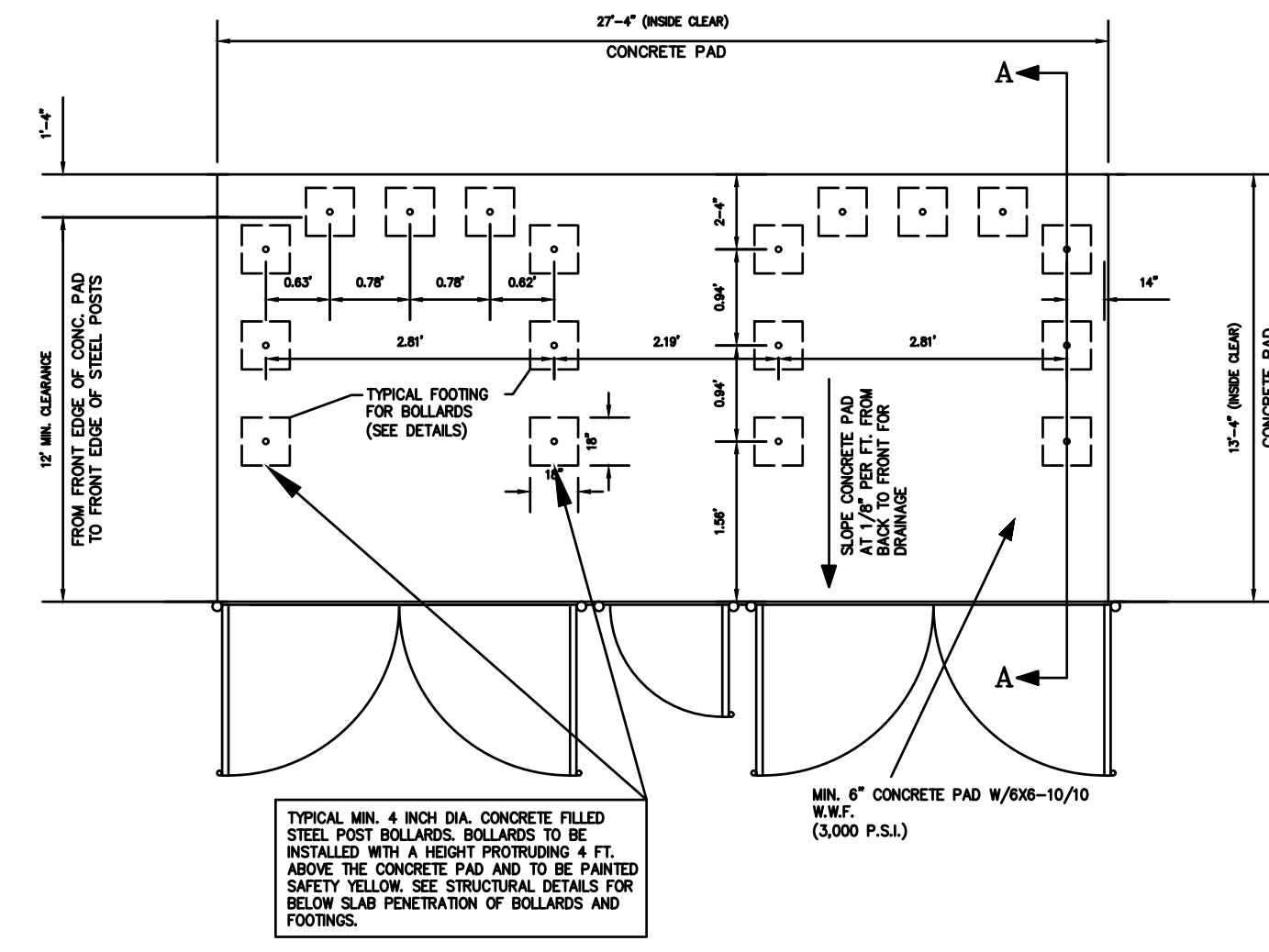
**TYPE 'D' CURB DETAIL**  
N.T.S.  
NOTE: CURBING TO BE INSTALLED PRIOR TO PAVEMENT



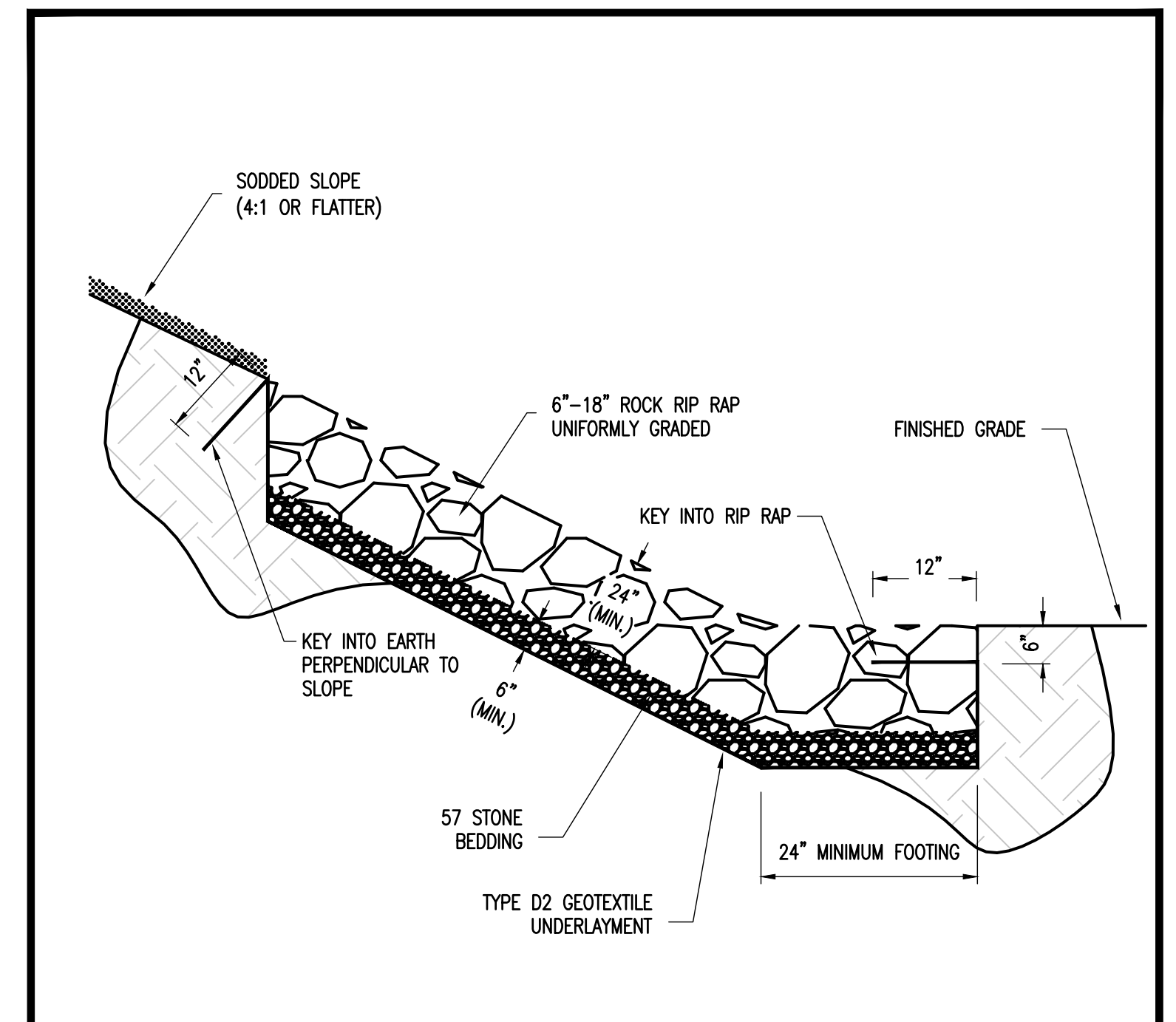
**YARD DRAIN DETAIL**  
SCALE: N.T.S.



**DUMPSTER ENCLOSURE DETAIL**  
SCALE: N.T.S.



**CITY OF STUART DUMPSTER ENCLOSURE - STRUCTURAL PLAN**  
DOUBLE DUMPSTER w/ RECYCLING  
N.T.S.



- NOTES:**
- RIP RAP SHALL HAVE 6\"/>
  - RIP RAP SHALL BE COQUINA ROCK (MINIMUM SPECIFIC GRAVITY ≥ 2.3) UNIFORMLY GRADED AND TIGHTLY INTERLOCKED.
  - TYPE D2 GEOTEXTILE SHALL BE KEYED INTO THE NATURAL EARTH AT THE TOP OF BANK AND KEYED INTO THE RIP RAP AT THE TOE OF SLOPE, A MINIMUM OF 12\"/>
  - RIP RAP SHALL BE WASHED FREE OF FINE SEDIMENTATION PRIOR TO PLACEMENT.

MARTIN COUNTY PUBLIC WORKS - STANDARD DETAILS	DETAIL R-38
RIP RAP INSTALLATION	DATE: 12/03/19

Drawing Name: S:\Shared\Projects\GEP\Projects\2021\21-004\Freedom\_Rv\_Storage\Design\31-004\_Publishing Layout Name: B-11 - Date: 07/29/2023 - 2:13 PM - Plotted by: GEP - Date: 07/29/2023 - 2:13 PM - G:\engr\Engineering & Planning

DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS
07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

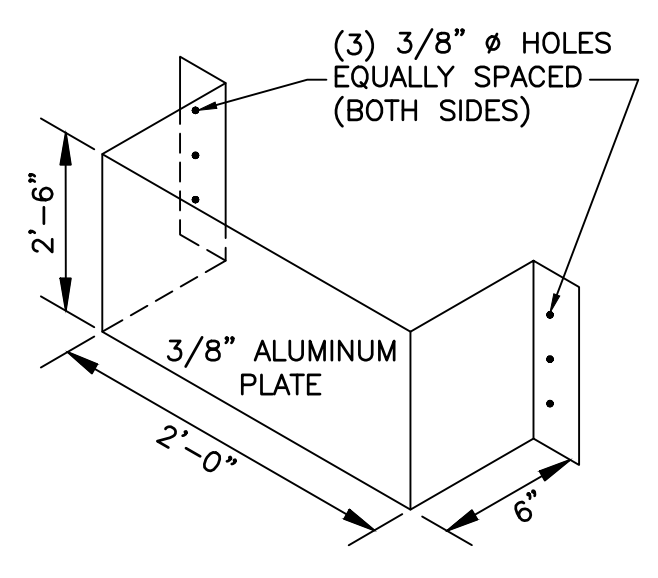
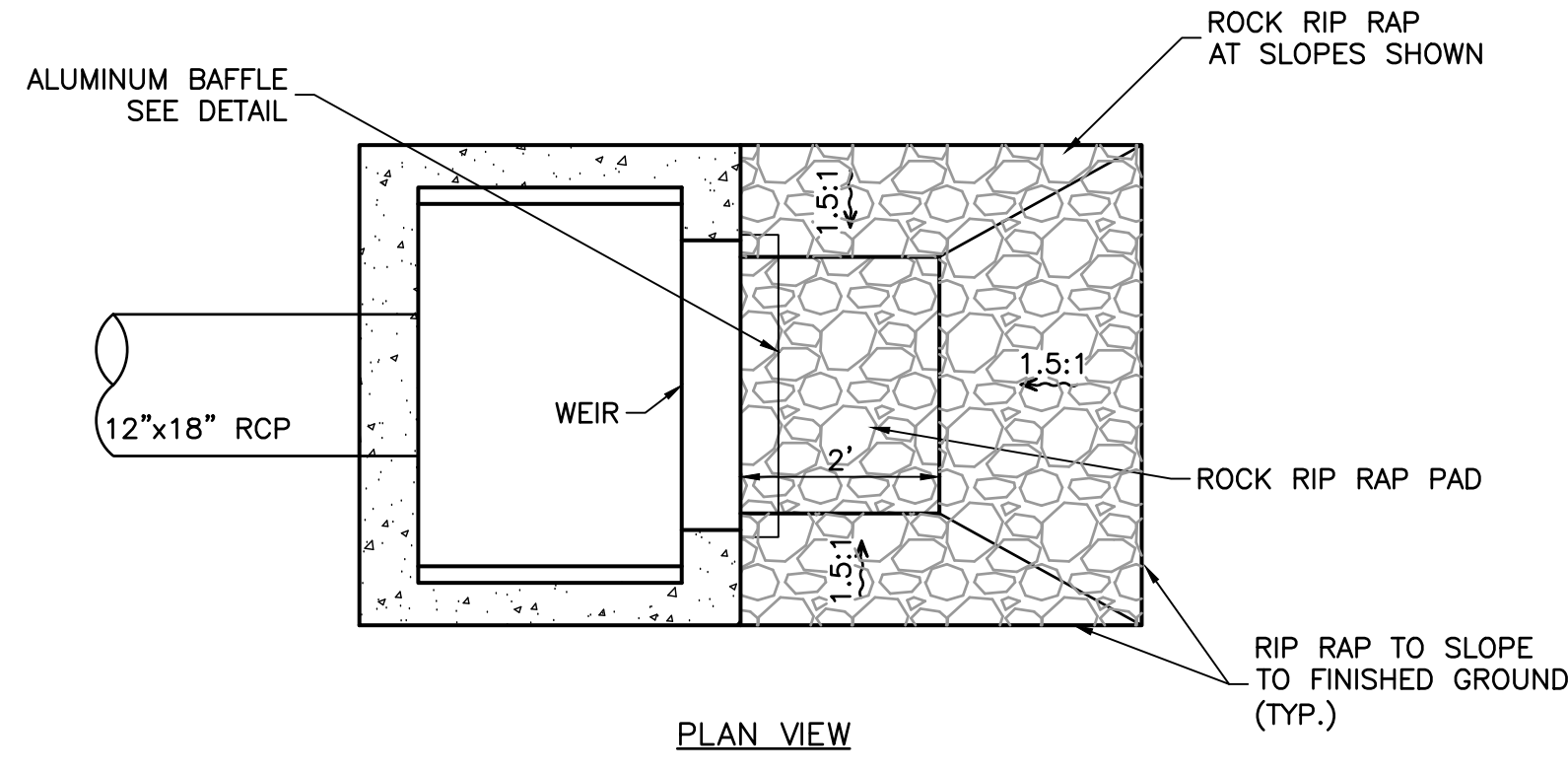
Date: 06/30/2021  
Scale: 1"=10'  
Design By: CS  
Drawn By: AC  
Check By: LDG

FREEDOM RV STORAGE  
MIELE EQUITIES  
CITY OF STUART, FLORIDA

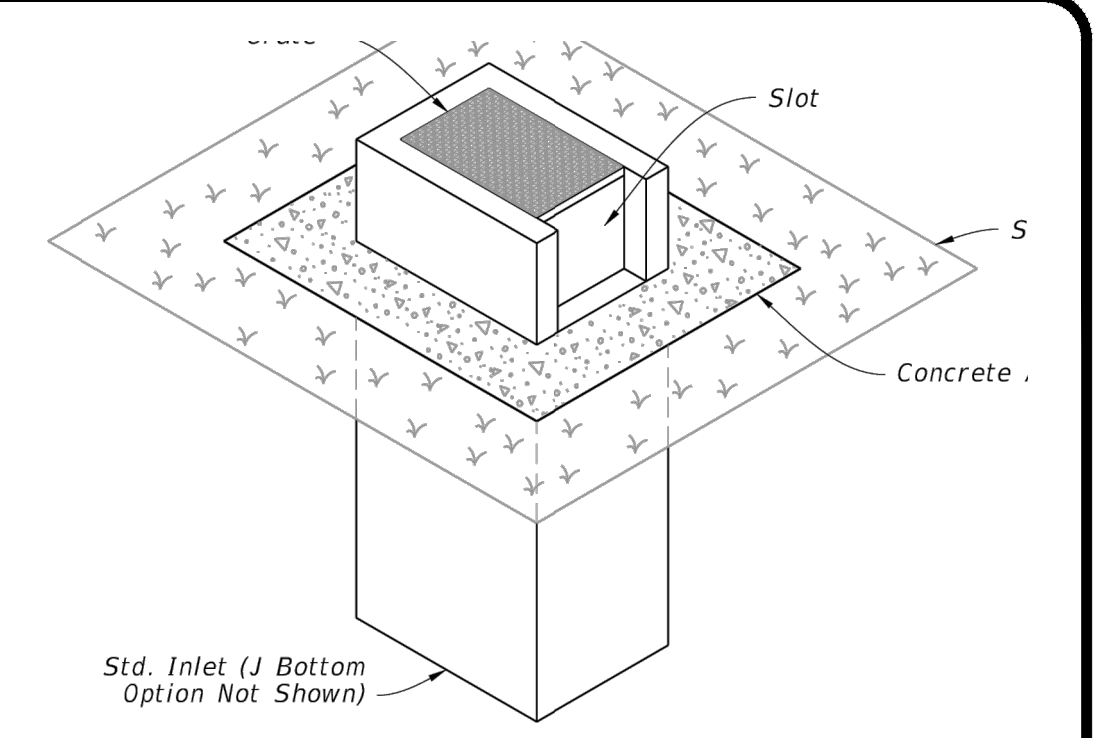
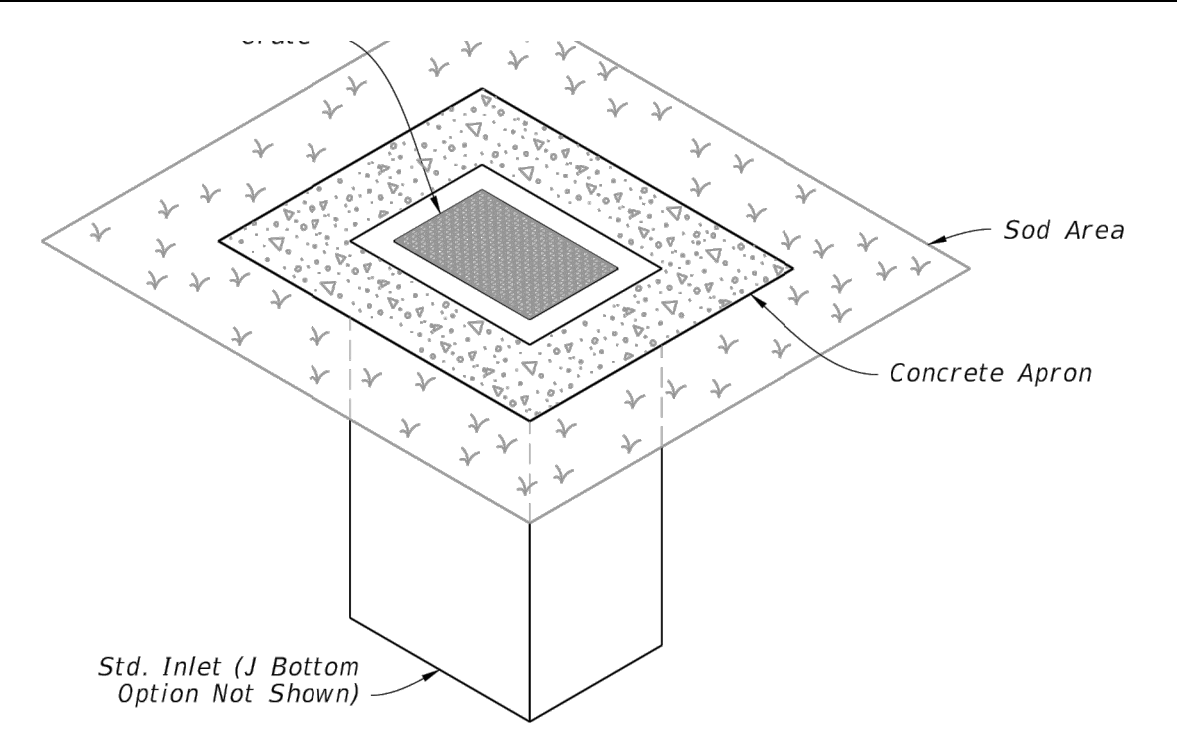
DETAILS

**GIANGRANDE ENGINEERING AND PLANNING**  
2081 SE OCEAN BLVD., SUITE 1A  
STUART, FLORIDA 34996  
PH. (772) 888-9076  
Cert. No. 30901

LEO D. GIANGRANDE, P.E.  
PROJECT #: 21-004  
D-1  
License No: 66387



- GENERAL NOTES:**
1. Work this Index with Index 425-001 and Index 425-010.
  2. Chamfer all exposed edges and corners 3/4" chamfer or tooled to 1/4" radius.
  3. All reinforcing is Grade 60 bars with 2" minimum cover unless otherwise noted. Cut or bend bars for 1 1/2" clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.
  4. Use Concrete Apron on inlets without slots and inlets with non-traversable slots only when called for in the Plans.
  5. Quantities are for informational and estimating purposes only.

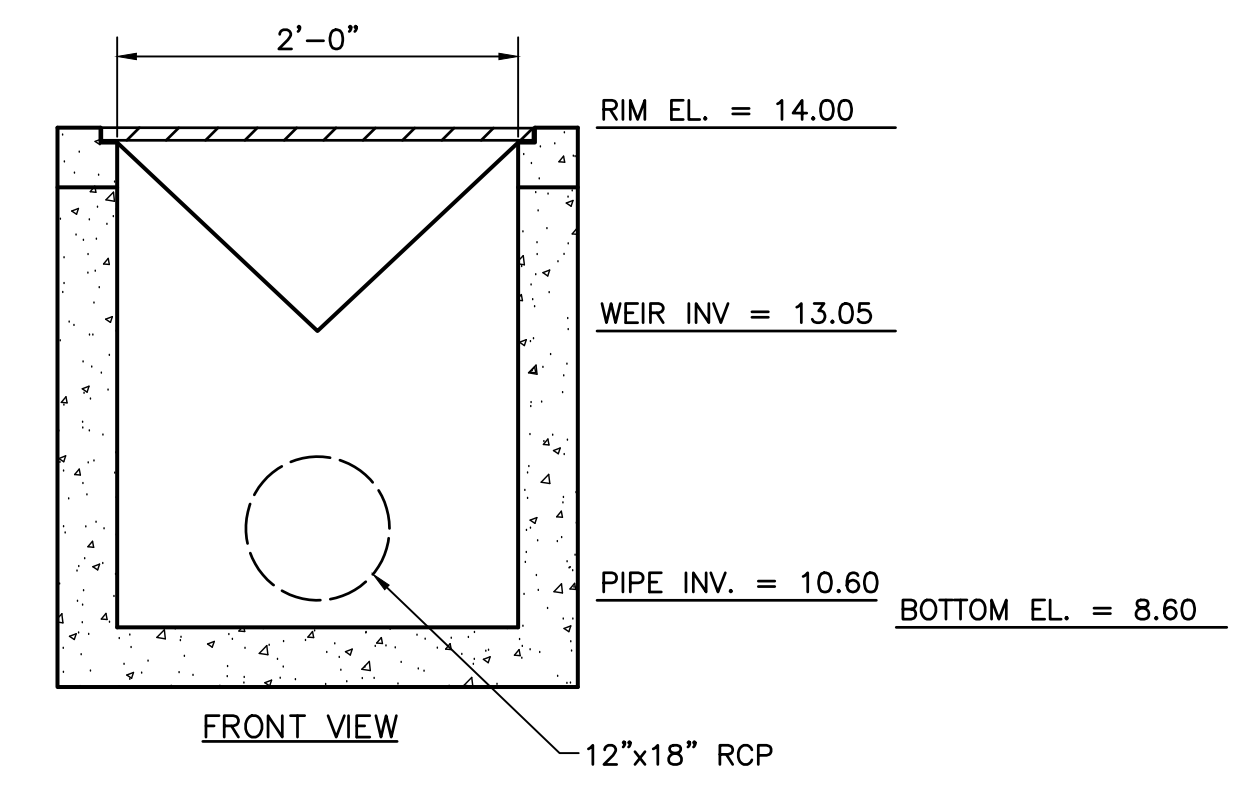
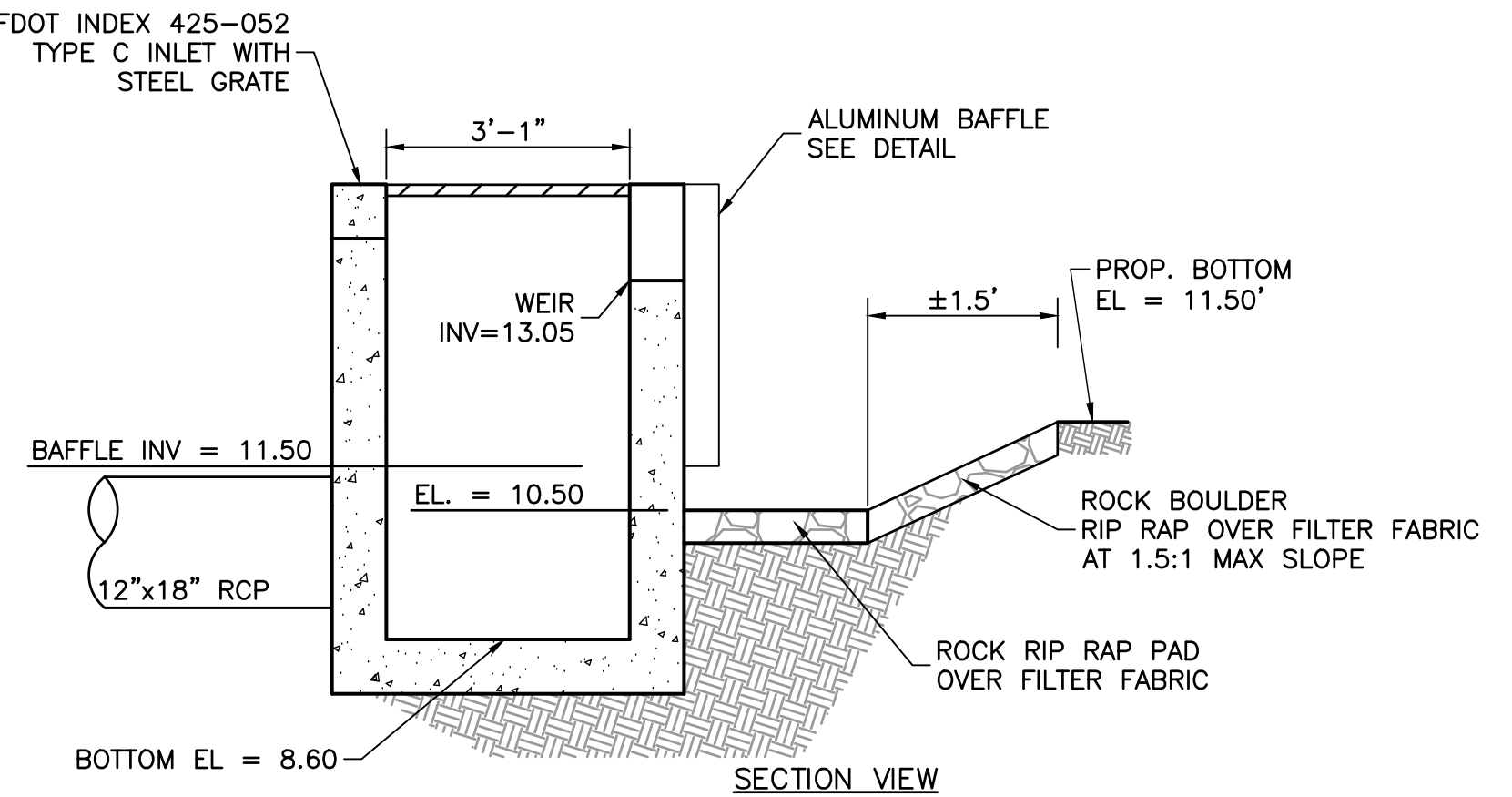


=====**DITCH BOTTOM INLET TYPE C TRAVERSABLE**=====

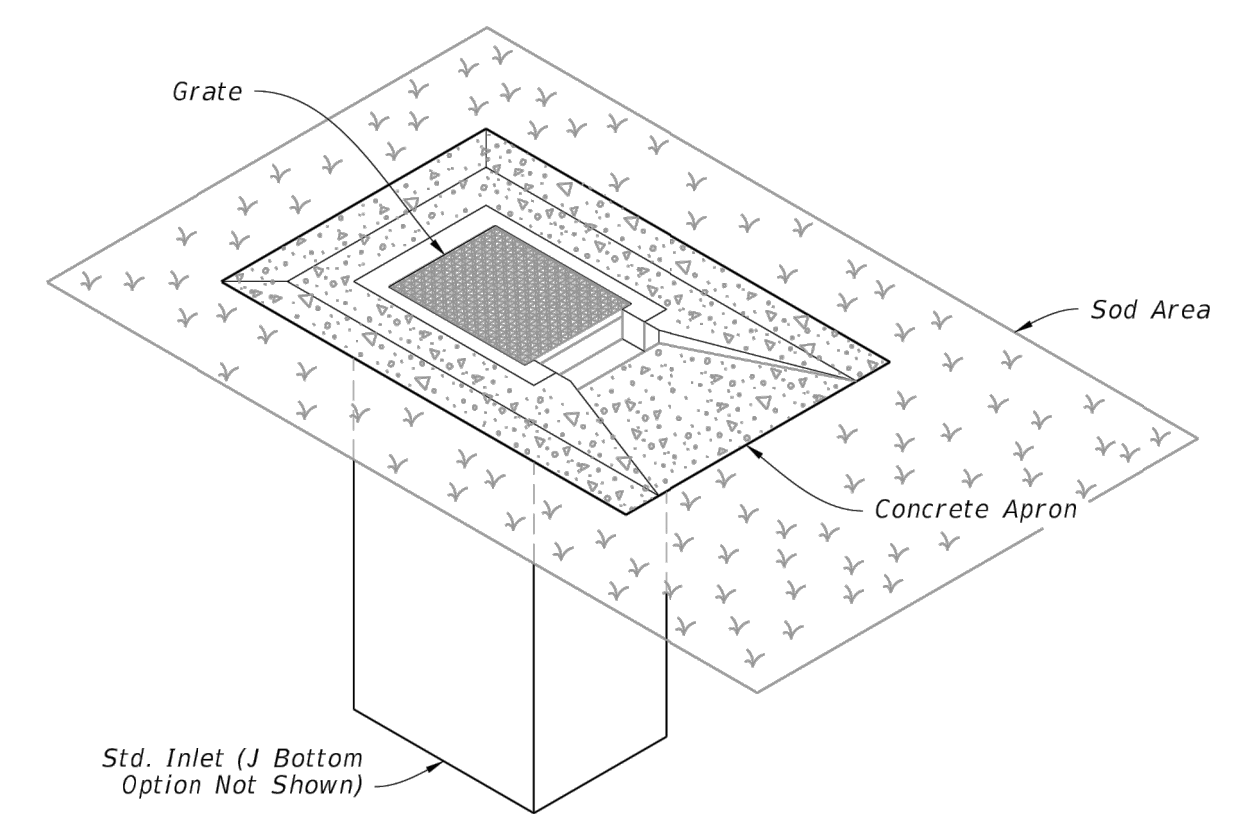
(Without Slot - Type D, E, and H Similar, Pipe Connection Not Shown)

=====**DITCH BOTTOM INLET TYPE C NON-TRAVERSABLE**=====

(Slot > 7" Shown - Type D, E, and H Similar, Pipe Connection Not Shown)

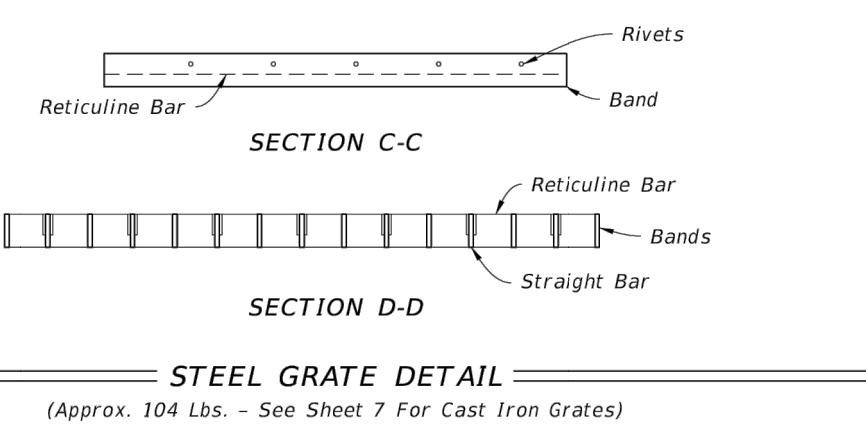
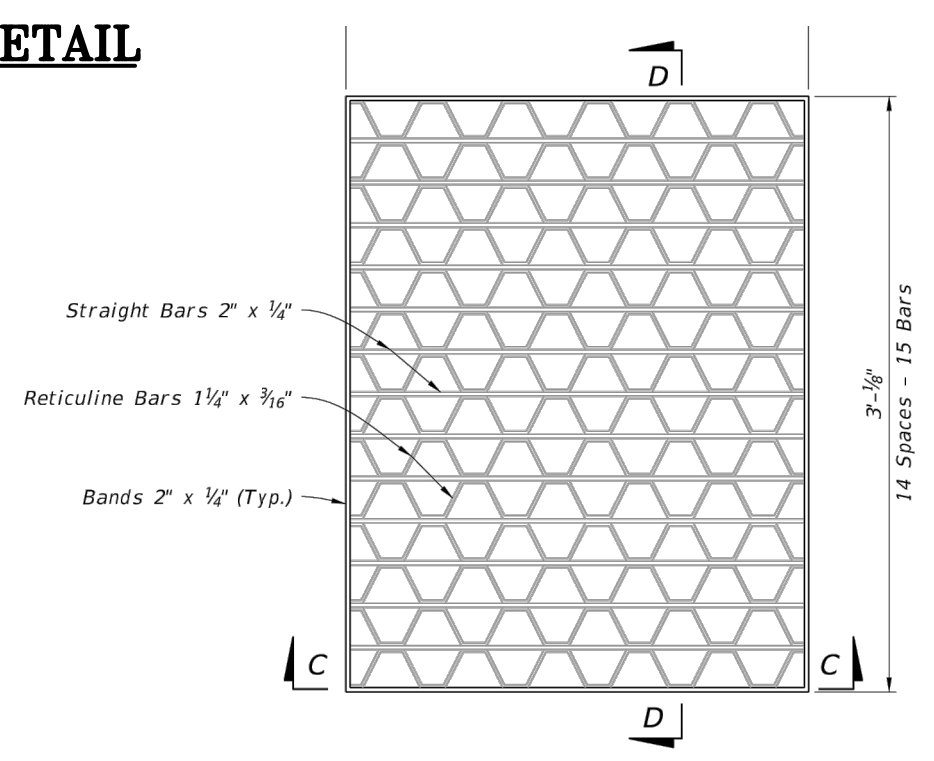
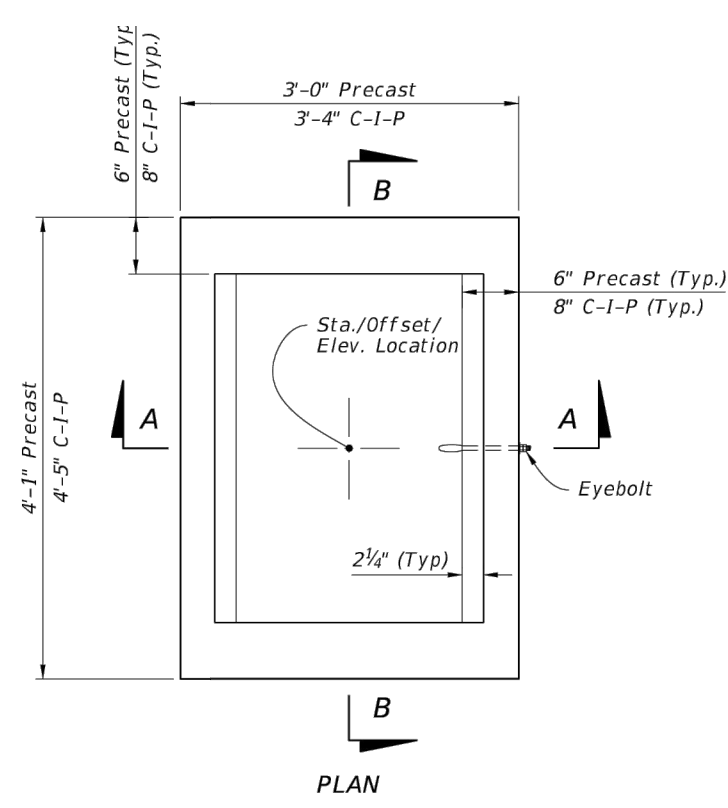


**CS-1 CONTROL STRUCTURE DETAIL**  
N.T.S.



=====**DITCH BOTTOM INLET TYPE C TRAVERSABLE**=====

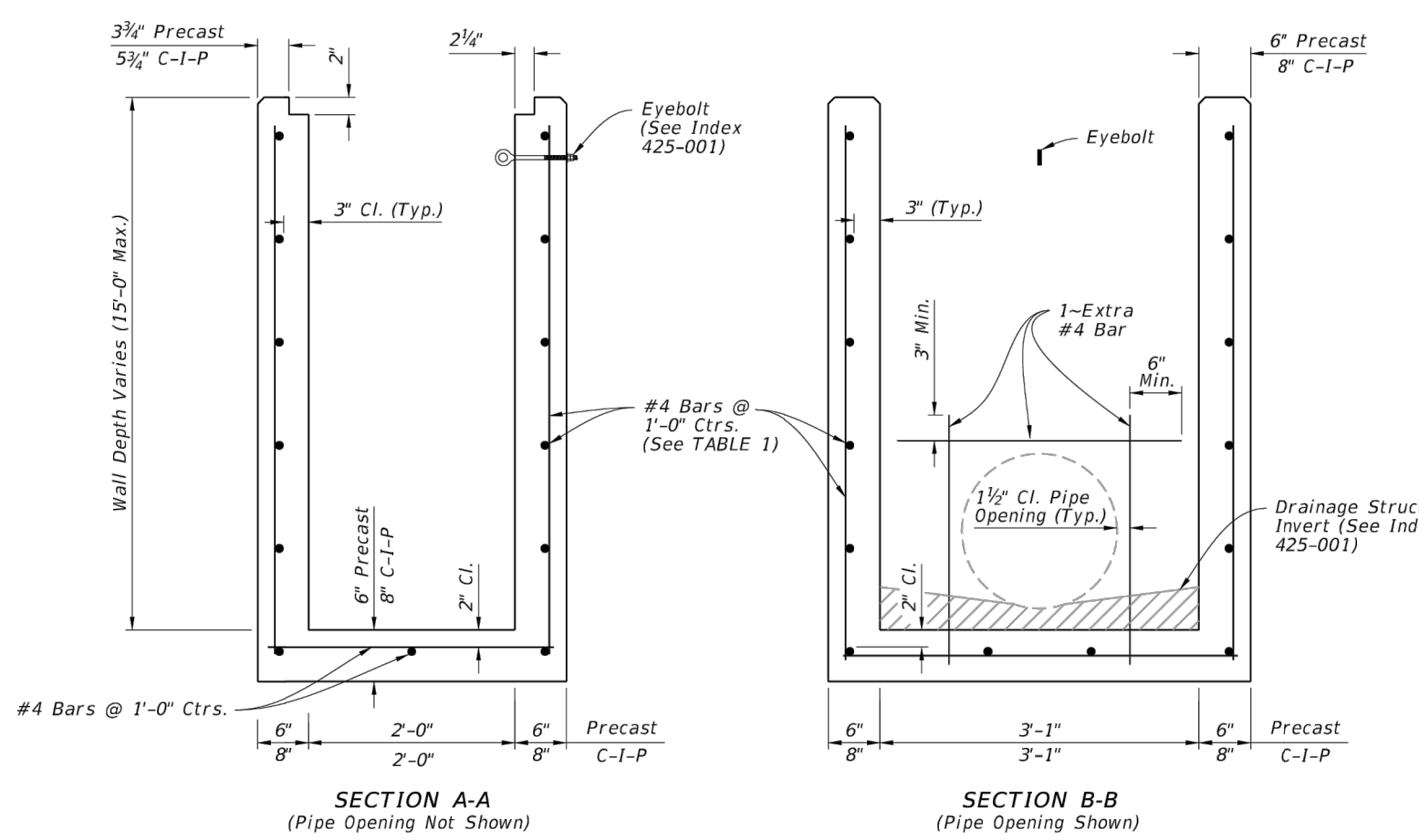
(Single Slot < 7" Shown, Double Slot, Type D, and E Similar, Pipe Connection Not Shown)



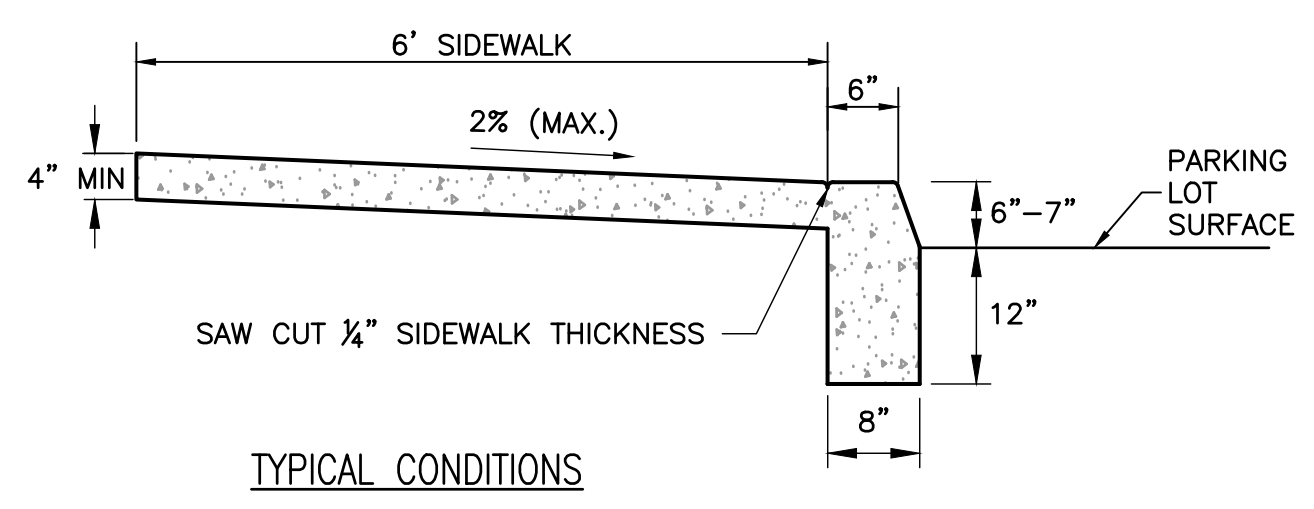
**TABLE 1**  
**HORIZONTAL WALL REINFORCING SCHEDULE**

WALL DEPTH	SCHEDULE	AREA (in. <sup>2</sup> /ft.)	MAX. SPACING BARS	WWF
0' - 15'	A12	0.20	12"	8"

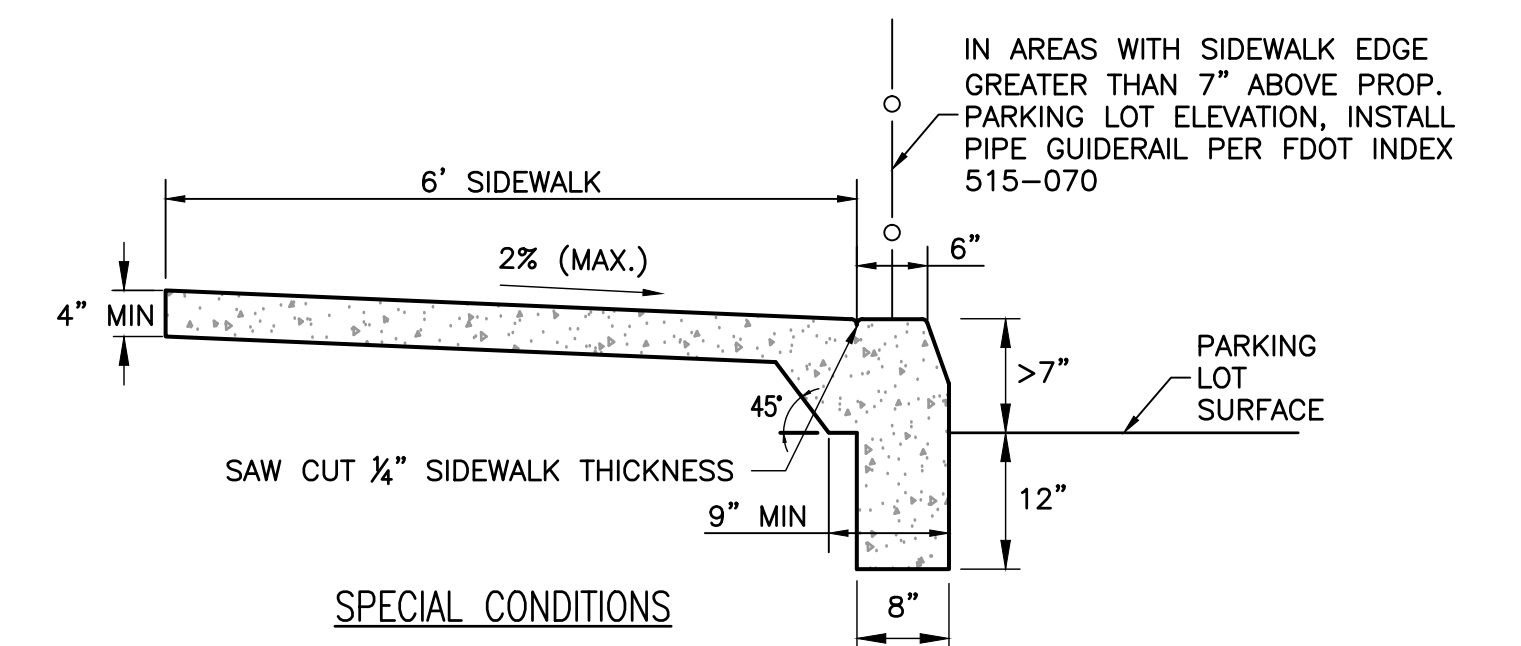
- NOTES:**
1. Grate, Concrete Apron, and Sod not shown on structure detail.
  2. See Sheet 8, 9, and 10 for Concrete Apron and Sodded Area details.



**DIMENSIONAL AND REINFORCING DETAILS**



**TYPICAL CONDITIONS**



**SPECIAL CONDITIONS**

- NOTES:**
1. SIDEWALK MATERIALS AND CONSTRUCTION SHOWN HEREIN SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT STANDARD SPECIFICATIONS 522 AND FDOT STANDARD PLANS INDEX 522.
  2. FIBER-REINFORCED CONCRETE FOR CURBS AND SIDEWALKS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS WITH A WATER TO CEMENT RATIO NOT MORE THAN 0.53 (LB/LB).
  3. THICKENED EDGE SHALL CONTAIN APPLICABLE SUBGRADE COMPACTED TO 98% OF MAXIMUM DRY DENSITY (AASHTO T-99)

=====**TYPE "D" CURB & SIDEWALK COMBINATION**=====

N.T.S.

=====**TYPE C - DIMENSIONAL, REINFORCING, AND STEEL GRATE DETAIL**=====

DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS
07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

Date: 06/30/2021  
Scale: #####  
Design By: CS  
Drawn By: AC  
Check By: LDG

FREEDOM RV STORAGE  
MIELE EQUITIES  
CITY OF STUART, FLORIDA

DETAILS

**GIANGRANDE ENGINEERING AND PLANNING**  
2081 SE OCEAN BLVD., SUITE 1A  
STUART, FLORIDA 34996  
PH. (772) 888-9076  
Cert. No. 30901

LEO D. GIANGRANDE, P.E.  
PROJECT #: 21-004  
**D-2**  
License No: 66387



**CITY OF STUART  
WATER DISTRIBUTION NOTES**

- ALL CONSTRUCTION MATERIAL, INSTALLATION AND TESTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE CITY OF STUART.
- WATER MAIN WHERE SPECIFIED AS POLYVINYL CHLORIDE (PVC) SHALL CONFORM TO AWWA C-900 OR C-905, PRESSURE CLASS 150 OR 235, DR (18).
- MIN. CLASS 50 WATER MAIN, WHERE SPECIFIED AS DUCTILE IRON PIPE, SHALL CONFORM TO ANSIAWWA C-150/A-21.50 OR ANSIAWWA C-151/A-21.51 AND SHALL BE PRESSURE CLASS 350 (MINIMUM).
- POLYVINYL CHLORIDE WATER MAIN SHALL BE BLUE IN COLOR. ALL PIPE REQUIRES THIN TRACER WIRE.
- FITTINGS SHALL BE CAST OR DUCTILE IRON, CONFORMING TO AWWA C-110 AND ANSI A21.11, CLASS 250 MINIMUM, CEMENT LINED, AND SEAL COATED.
- GATE VALVES SHALL BE RESILIENT WEDGE SEAT. VALVES SHALL CONFORM TO AWWA C-509, AS WELL AS THE CITY OF STUART'S APPROVED PRODUCTS LIST.
- WATER LINES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE CITY OF STUART'S DESIGN AND CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL SUBMIT CERTIFIED DENSITY TESTS AS REQUIRED BY THE CITY, THE COUNTY AND FDOT. IN CASES WHERE PAVED AREAS FALL WITHIN THE JURISDICTION OF LOCAL OR STATE AGENCIES, THE COMPACTON REQUIREMENTS SHALL NOT BE LESS THAN THE MINIMUM REQUIRED BY THE APPROPRIATE RESPONSIBLE AGENCY.
- NO FIELD CHANGES OR DEVIATIONS FROM THE DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER AND CITY/COUNTY/FOOT.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER, CITY OF STUART AND COUNTY/FOOT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- A PRE-CONSTRUCTION CONFERENCE BETWEEN THE ENGINEER, THE CONTRACTOR, THE CITY, COUNTY/FOOT AND ANY OTHER APPLICABLE AGENCIES SHALL BE MANDATORY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- TRAFFIC CONTROL, BARRICADES, ETC., SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS AND APPROVED BY THE CITY ENGINEER.
- MINIMUM COVER SHALL BE 36" FOR MAINS 4" IN DIAMETER OR LESS AND 48" FOR MAINS 10" IN DIAMETER OR MORE, EXCEPT AS APPROVED BY THE ENGINEER AND CITY/COUNTY/FOOT.
- DISTURBED AREAS SHALL BE RESTORED IN CONFORMANCE WITH THE APPLICABLE GOVERNING AGENCY REQUIREMENTS.
- EXISTING UTILITIES AND DRAINAGE SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION AND PROTECTED BY THE CONTRACTOR.
- WATER MAINS SHALL BE TESTED AND DISINFECTED IN ACCORDANCE WITH THE APPLICABLE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND AWWA C-601 FOR DISINFECTION.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	<b>WATER DISTRIBUTION NOTES</b>	
	DATE: OCTOBER 2021	SHEET NUMBER
FILE NAME: 2021 COS Std Details.dwg	1	

**CITY OF STUART  
WATER DISTRIBUTION NOTES  
(CONTINUED)**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EXISTING UTILITIES AND DRAINAGE.
  - THE CONTRACTOR SHALL FURNISH RECORD DRAWING INFORMATION TO THE ENGINEER INCLUDING LOCATIONS OF VALVES, FITTINGS, SERVICE BLOWOFFS, AIR RELEASE VALVES, AND ANY OTHER PERTINENT INFORMATION NECESSARY TO LOCATE ITEMS CONSTRUCTED UNDER THIS PROJECT. AS REQUIRED BY THE UTILITIES ENGINEER.
  - THE CONTRACTOR SHALL TAP EXISTING LINES UNDER THE SUPERVISION OF THE CITY OF STUART ONLY AFTER TESTING AND DISINFECTION HAS BEEN COMPLETED AND APPROVED ON THE TAPPING SLEEVE AND VALVE. REVERSE TAPS ARE STRICTLY PROHIBITED (TAPS ON MAIN ARE TO BE ON THE SAME SIDE AS THE PROPOSED METER LOCATION).
  - SAMPLE POINT TAPS SHALL BE PLACED APPROXIMATELY 3 FEET AWAY FROM GATE VALVES, AS SHOWN, FOR TESTING. FOLLOWING TESTING AND STERILIZATION OF WATER LINES, CONTRACTOR SHALL PLACE A BRASS PLUG IN CORPORATION STOPS, AND CURB STOPS SHALL BE REMOVED FROM TESTING LOCATIONS.
  - MECHANICAL RESTRAINTS TO BE USED ON ALL FITTINGS AND PLACED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND CITY OF STUART REQUIREMENTS. MORE STRINGENT SHALL APPLY.
  - ALL MAINS SHALL BE TESTED AT A MINIMUM OF 150 PSI. TESTING METHODS SHALL CONFORM TO AWWA C-600.
- $L = \frac{SDP \cdot P^2}{133,200}$  OR CURRENT AWWA STANDARD  
 L = LEAKAGE IN GPM  
 S = LENGTH OF PIPE IN FEET  
 D = PIPE DIAMETER IN INCHES  
 P = TESTING PRESSURE IN PSI
- PRIOR TO ANY TESTING, ALL MAINS 3 INCHES IN DIA. AND LARGER SHALL HAVE A LINE SIZE SWAB PASSED THROUGH THE ENTIRE LENGTH OF THE LINE. NOTE: SWAB SHOULD BE PLACED IN 1st JOINT OF NEW LINE. END OF MAIN SHOULD BE "TURNED UP" AT 45° AND EXTENDED SO THAT SWABBING AND A FULL BORE FLUSH CAN BE ACCOMPLISHED. BLOW-OFF ASSY. CAN THEN BE PLACED. WHERE LINES BRANCH, SWABS WILL BE PLACED IN BRANCH LINES AND SEQUENTIALLY SWABBED AND FLUSHED.
  - 10 FEET MINIMUM HORIZONTAL AND 12 INCHES MINIMUM VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND ANY WASTEWATER LINES. THE DISTANCE SHALL BE MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE OR STRUCTURE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE WASTEWATER PIPE JOINTS AND THE WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING, AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO (2) JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS.
  - WHERE A WATER MAIN IS TO BE INSTALLED BELOW A STORM DRAIN PIPE, A MINIMUM OF 6 INCHES OF VERTICAL CLEARANCE BETWEEN PIPES SHALL BE CONSTRUCTED OF DIP AT THE CROSSING, AND SHALL BE MECHANICALLY RESTRAINED WITHIN 20 FEET OF THE CROSSING.
  - CONTRACTOR SHALL COMPLY WITH FLORIDA TRENCH SAFETY ACT REQUIREMENTS.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	<b>WATER DISTRIBUTION NOTES</b>	
	DATE: OCTOBER 2021	SHEET NUMBER
FILE NAME: 2021 COS Std Details.dwg	2	

**CITY OF STUART  
WASTEWATER CONSTRUCTION NOTES**

- ALL CONSTRUCTION MATERIAL, INSTALLATION AND TESTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE CITY OF STUART.
- GRAVITY SEWER MAIN SHALL BE POLYVINYL CHLORIDE (PVC) SDR-26, GREEN IN COLOR.
- THE MANHOLE BASE SHALL BE SET ON A FIRM, DRY, AND STABLE OR COMPACTED BASE FOUNDATION. IF NECESSARY, THE CONTRACTOR SHALL UTILIZE ROCK TO PROVIDE A FIRM AND SUITABLE MANHOLE BASE FOUNDATION.
- WASTEWATER LINES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE CITY OF STUART DESIGN AND CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL SUBMIT CERTIFIED DENSITY TESTS AS REQUIRED BY THE CITY. IN CASES WHERE AREAS FALL WITHIN THE JURISDICTION OF LOCAL OR STATE AGENCIES, THE COMPACTON REQUIREMENTS SHALL NOT BE LESS THAN THE MINIMUM REQUIRED BY THE APPROPRIATE RESPONSIBLE AGENCY.
- A 1% MINIMUM SLOPE SHALL BE MAINTAINED ON ALL SANITARY SERVICE LATERALS.
- THE CONTRACTOR SHALL FURNISH RECORD DRAWING INFORMATION TO THE ENGINEER CONSISTING OF PIPE SIZES, LOCATION OF SERVICE TEE WYES, DIAMETER OF SERVICES, LOCATION OF ANY FITTINGS, FINAL RIM AND INVERT ELEVATION OF ALL MANHOLES AND ANY OTHER PERTINENT INFORMATION NECESSARY TO LOCATE ITEMS CONSTRUCTED UNDER THIS PROJECT.
- MAINTAIN 10 FEET HORIZONTAL DISTANCE BETWEEN WATER MAINS AND SEWER MAINS AS A MINIMUM.
- WASTEWATER FORCE MAINS, WASTEWATER COLLECTION LINES, AND STORM SEWERS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. A MINIMUM VERTICAL DISTANCE OF 12 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE SHALL BE PROVIDED WHENEVER POSSIBLE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE WASTEWATER PIPE JOINTS AND THE WATER PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING, AND THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO (2) JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS.
- A PRE-CONSTRUCTION CONFERENCE BETWEEN THE ENGINEER, THE CONTRACTOR, CITY OF STUART UTILITIES & ENGINEERING DEPT., COUNTY/FOOT AND ANY OTHER NECESSARY AGENCY SHALL BE MANDATORY PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- NO FIELD CHANGES OR DEVIATIONS FROM THE DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL FROM THE ENGINEER, CITY, OR COUNTY/FOOT.
- TRAFFIC CONTROL, BARRICADES, ETC. SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS.
- CONTRACTOR SHALL NOTIFY THE CITY OF STUART 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- WASTEWATER FORCE MAIN SHALL BE POLYVINYL CHLORIDE CONFORMING TO AWWA C-900, AND SHALL BE CLASS 150, DR-18 (12" AND SMALLER), OR DR-21, AWWA C-905 (14" AND LARGER).
- WASTEWATER FORCE MAIN SHALL BE GREEN IN COLOR. WASTEWATER FORCE MAIN SHALL HAVE THIN WIRE & LOCATOR TAPE WITH "SEWER" MARKED ON TAPE.
- FITTINGS SHALL BE CAST OR DUCTILE IRON, CONFORMING TO AWWA C-110 AND ANSI A21.11, CLASS 250 MINIMUM, CEMENT LINED, AND EPOXY COATED.
- WASTEWATER FORCE MAIN SHALL BE MARKED BY THE USE OF CONTINUOUS COPPER WIRE (GREEN IN COLOR) PERMANENTLY ATTACHED TO THE TOP OF THE FORCE MAIN.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	<b>WASTEWATER CONSTRUCTION NOTES</b>	
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**CITY OF STUART  
WASTEWATER CONSTRUCTION NOTES  
(CONTINUED)**

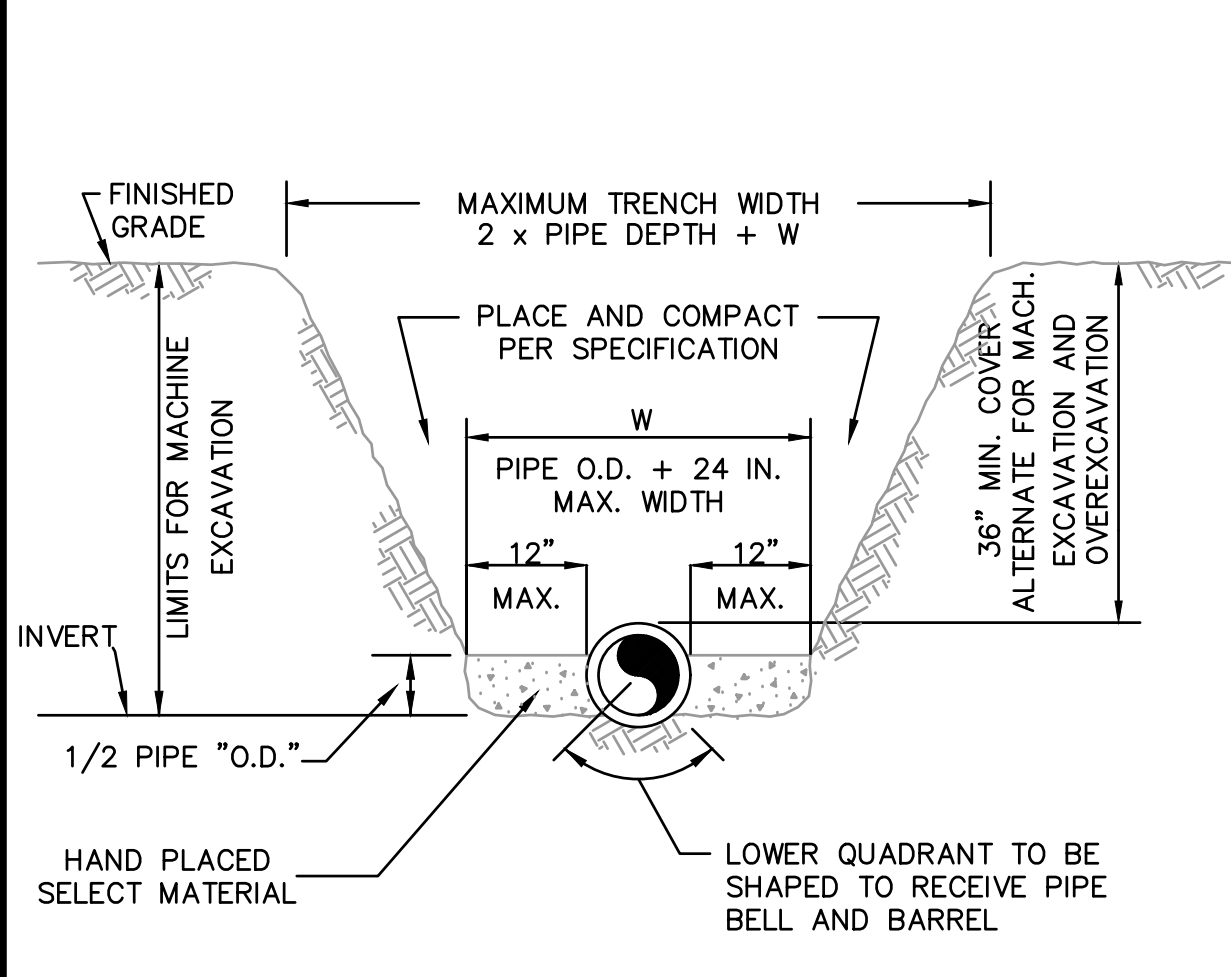
- MINIMUM COVER SHALL BE 48 INCHES. PIPES WITH LESS COVER REQUIRE PRIOR APPROVAL OF THE ENGINEER AND CITY OF STUART AND SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE.
- ALL MANHOLES SHALL HAVE SEWER RAIN GUARDS INSTALLED.
- THE CONTRACTOR SHALL COMPLY WITH THE FLORIDA TRENCH SAFETY ACT REQUIREMENTS.
- PRIOR TO ANY TESTING, ALL MAINS 3 INCHES IN DIA. AND LARGER SHALL HAVE A LINE SIZE SWAB PASSED THROUGH THE ENTIRE LENGTH OF THE LINE. NOTE: SWAB SHOULD BE PLACED IN 1st JOINT OF NEW LINE. END OF MAIN SHOULD BE "TURNED UP" AT 45° AND EXTENDED SO THAT SWABBING AND A FULL BORE FLUSH CAN BE ACCOMPLISHED. BLOW-OFF ASSY. CAN THEN BE PLACED. WHERE LINES BRANCH, SWABS WILL BE PLACED IN BRANCH LINES AND SEQUENTIALLY SWABBED AND FLUSHED.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	<b>WASTEWATER CONSTRUCTION NOTES</b>	
	DATE: OCTOBER 2021	SHEET NUMBER
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**STANDARD SEPARATION STATEMENT FOR  
WATER / SEWER CONFLICTS**

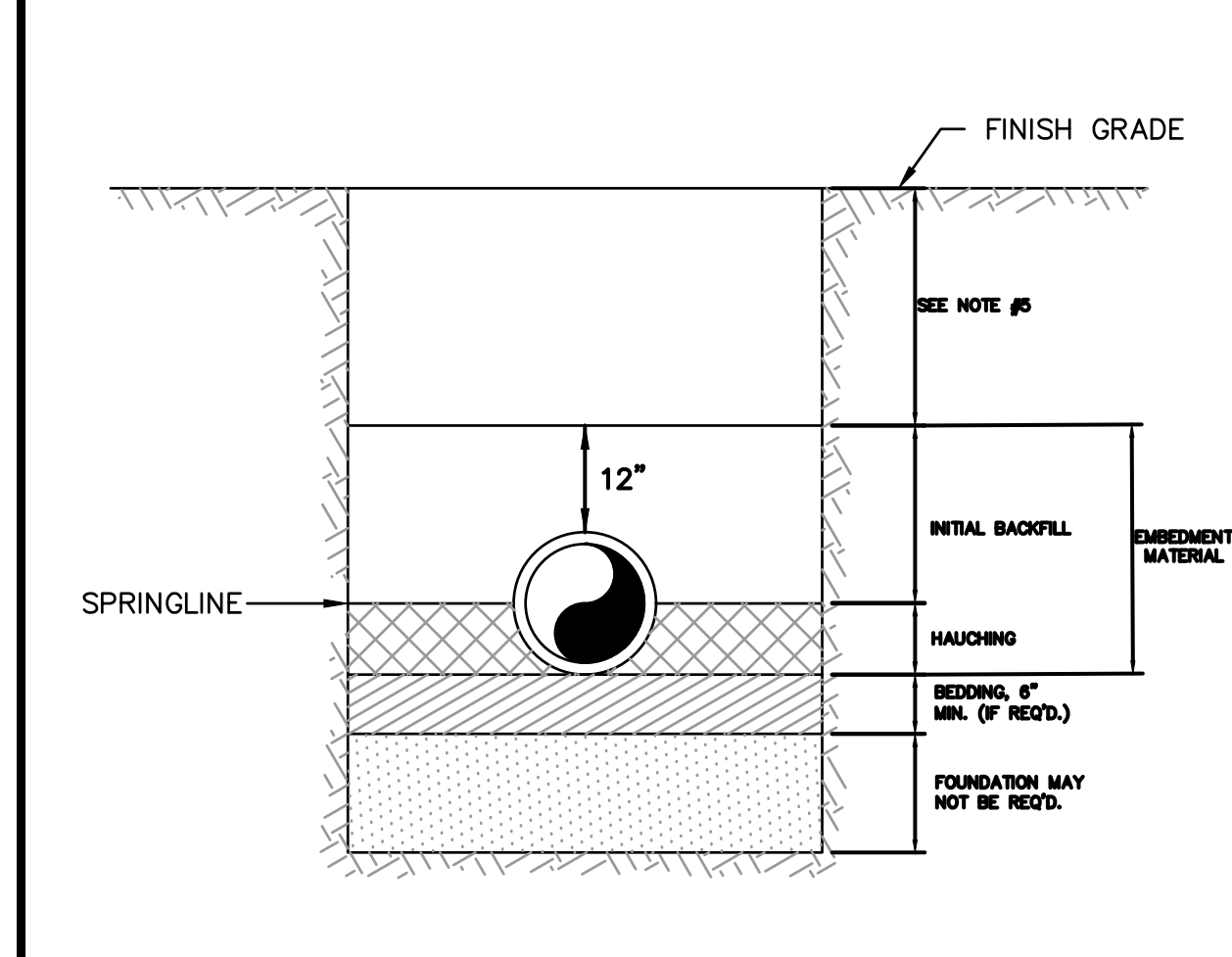
- SANITARY SEWER, FORCE MAINS, AND STORM SEWERS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. SANITARY SEWERS, FORCE MAINS AND STORM SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 12 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHENEVER POSSIBLE.  
  
WHERE SANITARY SEWER, FORCE MAINS, STORM SEWERS MUST CROSS A WATER MAIN LESS THAN 12 INCHES VERTICAL DISTANCE, BOTH THE SEWER AND WATER MAIN SHALL BE CONSTRUCTED OF DIP AT THE CROSSING. (DIP IS NOT REQUIRED FOR STORM SEWERS). SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS.  
  
ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING.  
  
WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 12 INCHES VERTICAL CLEARANCE, THE NEW PIPE SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWERS) AND NEW PIPES SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.
- A MINIMUM 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.  
  
IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.  
  
WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 18 INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWER) WITH A MINIMUM VERTICAL DISTANCE OF 6 INCHES. THE WATER MAIN SHOULD ALWAYS BE ABOVE THE SEWER. JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).
- ALL DIP SHALL BE PRESSURE CLASS 350, MINIMUM ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN ENGINEER.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	<b>WATER &amp; SEWER CONFLICT NOTES</b>	
	DATE: OCTOBER 2021	SHEET NUMBER
FILE NAME: 2021 COS Std Details.dwg	5	



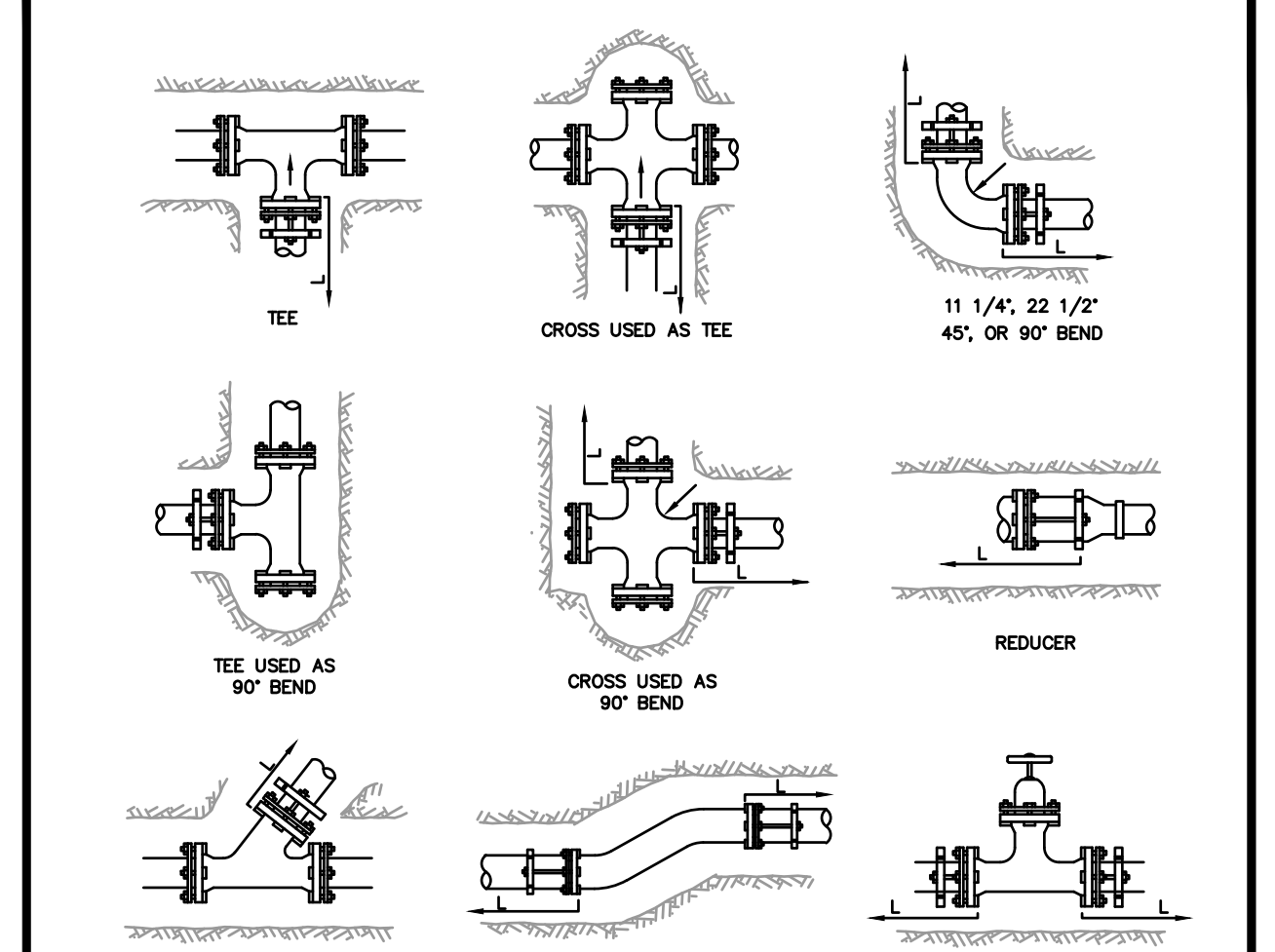
- NOTES:
- THE CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE FLORIDA TRENCH SAFETY ACT.
  - INITIAL BACKFILL SHALL BE HAND PLACED TO 12" ABOVE THE PIPE. BACKFILL SHALL BE MECHANICALLY TAMPED TO A MINIMUM OF 98% OF MAX. DENSITY AS DETERMINED BY AASHTO METHOD T-180.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	<b>TYPICAL TRENCH CONSTRUCTION</b>	
	DATE: OCTOBER 2021	SHEET NUMBER
FILE NAME: 2021 COS Std Details.dwg	10	



- NOTES:
- IN CERTAIN SOIL CONDITIONS A FOUNDATION MAY BE REQUIRED.
  - BEDDING IS REQUIRED PRIMARILY TO BRING THE TRENCH BOTTOM UP TO GRADE. BEDDING MATERIALS SHALL PROVIDE A UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE.
  - HAUNCHING MATERIAL SHALL BE HAND PLACED TO THE SPRINGLINE OF THE PIPE. MATERIAL SHALL BE CONSOLIDATED UNDER THE PIPE AND HAND TAMPED TO PROVIDE ADEQUATE SIDE SUPPORT.
  - INITIAL BACKFILL MATERIAL SHALL BE HAND PLACED TO 12" ABOVE THE TOP OF PIPE AND BE COMPACTED USING A HAND OPERATED TAMPING DEVICE.
  - BACKFILL SHALL BE COMPACTED TO 98% OF MAX. DENSITY AS PER AASHTO T-180.
  - DENSITY TEST SHALL BE PERFORMED AT AREAS DETERMINED BY THE DESIGN ENGINEER OR PERMIT AGENCY HAVING JURISDICTION.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	<b>BACKFILLING REQUIREMENTS</b>	
	DATE: OCTOBER 2021	SHEET NUMBER
FILE NAME: 2021 COS Std Details.dwg	11	



- MECHANICAL JOINT ANCHORING REQUIREMENTS
- DATE: OCTOBER 2021
- SHEET NUMBER
- FILE NAME: 2021 COS Std Details.dwg
- 12

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	<b>MECHANICAL JOINT ANCHORING REQUIREMENTS</b>	
	DATE: OCTOBER 2021	SHEET NUMBER
FILE NAME: 2021 COS Std Details.dwg	12	

12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS	Date: 06/30/2021
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS	Scale: ###
07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS	Design By: CS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS	Drawn By: AC
DATE	BY	REVISIONS	Check By: LDG

**FREEDOM RV STORAGE**  
**MIELE EQUITIES**  
**CITY OF STUART, FLORIDA**

**DETAILS**

**GIANGRANDE ENGINEERING AND PLANNING**  
 2081 SE OCEAN BLVD., SUITE 1A  
 STUART, FLORIDA 34996  
 PH. (772) 888-9076  
 Cert. No. 30901

LEO D. GIANGRANDE, P.E.  
 PROJECT #: 21-004  
**D-3**  
 License No: 66387

MIN. LENGTH (IN FEET) OF PIPE TO BE RESTRAINED																
(SOURCES: EBAA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1, AND SIPRA THRUST RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2)																
FITTING TYPE	PIPE SIZE															
	4"	6"	8"	10"	12"	16"	20"	24"								
90° HORIZ. BEND	14	20	25	30	35	45	54	62								
45° HORIZ. BEND	6	8	11	13	15	19	22	26								
22.5° HORIZ. BEND	3	4	5	6	7	9	11	12								
11.25° HORIZ. BEND	1	2	3	3	4	4	5	6								
90° VERT. OFFSET	UPPER BEND	29	41	53	64	74	95	115	134							
	LOWER BEND	7	10	13	16	19	25	30	35							
45° VERT. OFFSET	UPPER BEND	12	19	24	29	34	39	48	56							
	LOWER BEND	3	4	6	7	8	10	12	15							
22.5° VERT. OFFSET	UPPER BEND	6	9	12	14	17	19	23	27							
	LOWER BEND	1	2	4	4	4	5	6	7							
11.25° VERT. OFFSET	UPPER BEND	3	4	6	7	8	9	11	13							
	LOWER BEND	1	1	2	2	2	3	3	3							
PLUG (DEAD END)	32	45	59	70	83	107	129	151								
IN-LINE VALVE	4" x 4"	23	-	-	-	-	-	-	-							
	6" x 6"	21	35	-	-	-	-	-	-							
	8" x 8"	18	34	47	-	-	-	-	-							
	10" x 10"	16	32	46	58	-	-	-	-							
	12" x 12"	13	30	44	57	69	-	-	-							
	16" x 16"	7	26	41	55	67	90	-	-							
	20" x 20"	1	21	38	52	65	88	109	-	-						
	24" x 24"	1	18	34	49	62	86	108	129							
	30" x 30"	1	8	28	44	58	83	106	127							
	36" x 36"	1	1	22	39	54	80	103	124							
REDUCER (LARGER PIPE RESTRAINT)	42" x 1"	1	1	15	33	49	77	100	122							
	48" x 1"	1	1	7	27	44	73	97	120							
	6" x 6"	23	-	-	-	-	-	-	-							
	8" x 8"	38	25	-	-	-	-	-	-							
	10" x 10"	57	43	24	-	-	-	-	-							
	12" x 12"	72	60	44	41	-	-	-	-							

TEE (BRANCH RESTRAINT)

24" x 1"	1	18	34	49	62	86	108	129
30" x 1"	1	8	28	44	58	83	106	127
36" x 1"	1	1	22	39	54	80	103	124
42" x 1"	1	1	15	33	49	77	100	122
48" x 1"	1	1	7	27	44	73	97	120
6" x 6"	23	-	-	-	-	-	-	-
8" x 8"	38	25	-	-	-	-	-	-
10" x 10"	57	43	24	-	-	-	-	-
12" x 12"	72	60	44	41	-	-	-	-
16" x 16"	99	90	78	75	45	-	-	-
20" x 20"	123	116	107	105	81	45	-	-
24" x 24"	146	140	132	131	111	82	45	-

REDUCER (SMALLER PIPE RESTRAINT)

10" x 10"	57	43	24	-	-	-	-	-
12" x 12"	72	60	44	41	-	-	-	-
16" x 16"	99	90	78	75	45	-	-	-
20" x 20"	123	116	107	105	81	45	-	-
24" x 24"	146	140	132	131	111	82	45	-

NOTES:

- THE DATA IN THE ABOVE TABLE IS BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:  
SOIL TYPE: SAND SAFETY FACTOR: 1.5 MIN. PIPE LENGTH ALONG TEE  
TRENCH TYPE: 3 DEPTH OF BURY: 2  
TEST PRESSURE: 150 PSI VERTICAL OFFSET: 3'
- THE RESTRAINED PIPE LENGTHS APPLY TO TOP AND PVC PIPE.
- ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
- RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF VALVES AND FITTINGS.

STANDARD UTILITY DETAILS  
City of Stuart  
Utilities & Engineering Department  
121 S.W. Flagler Avenue, Stuart, Florida 34994

MECHANICAL JOINT REQUIREMENTS NOTES

DATE: OCTOBER 2021 SHEET NUMBER  
FILE NAME: 2021 COS Std Details.dwg 13

THRUST BLOCK SCHEDULE												
PIPE SIZE	HOLD DIMENSIONS	150 P.S.I. TEST PRESSURE										
		90°	45°	22 1/2°	11 1/4°	LAT.	TEE	PLUG				
INCHES	E MIN.	B	A	A	A	A	A	C	D	E		
4	10"	7"	10"	6"	3"	3"	7"	7"	10"	7"	8"	
6	16"	10"	15"	8"	4"	4"	10"	10"	12"	10"	8"	
8	20"	14"	18"	10"	5"	5"	14"	14"	14"	14"	12"	
10	28"	16"	24"	14"	7"	7"	16"	16"	16"	16"	14"	
12	30"	20"	26"	16"	8"	8"	20"	20"	18"	20"	20"	

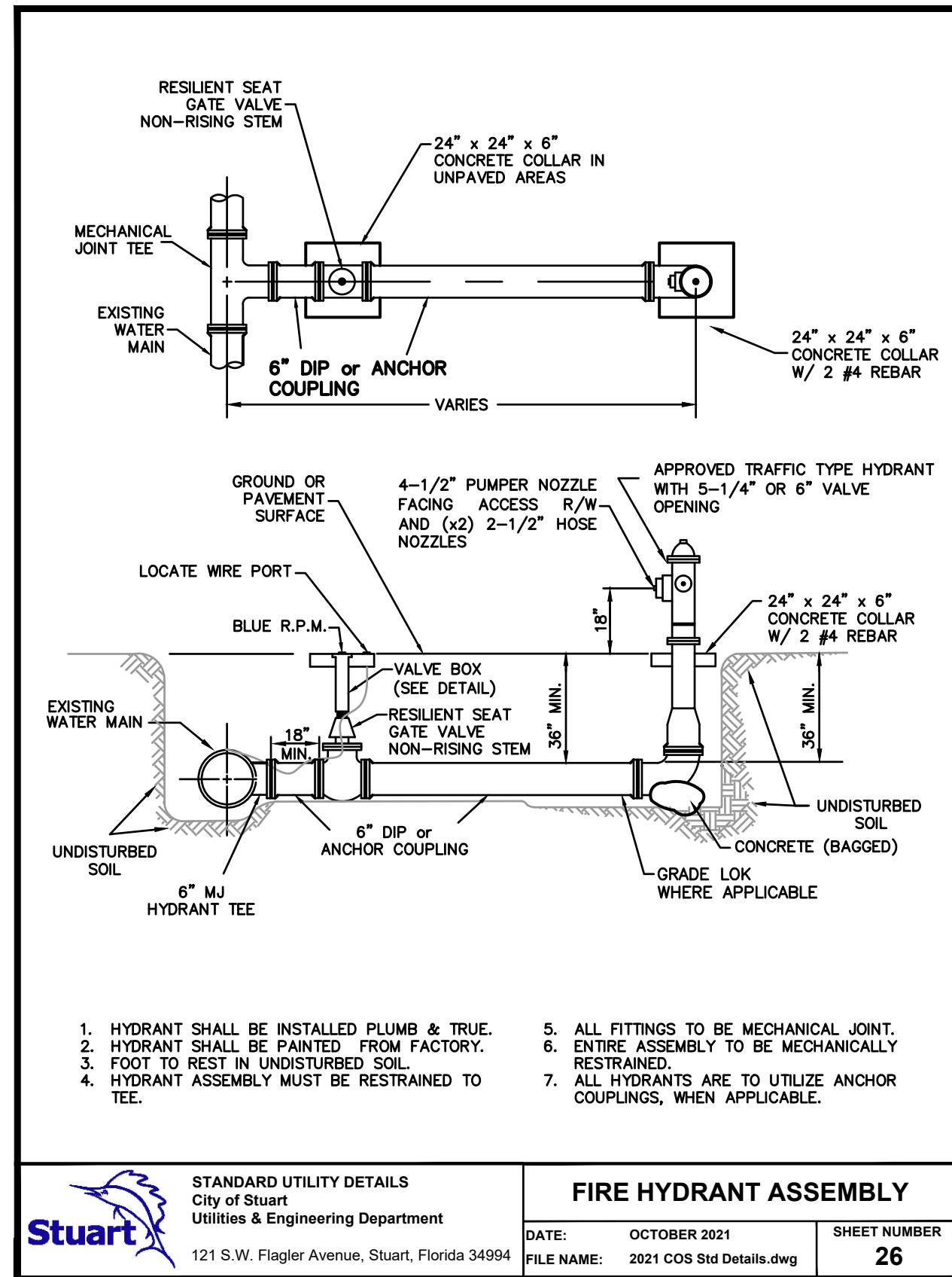
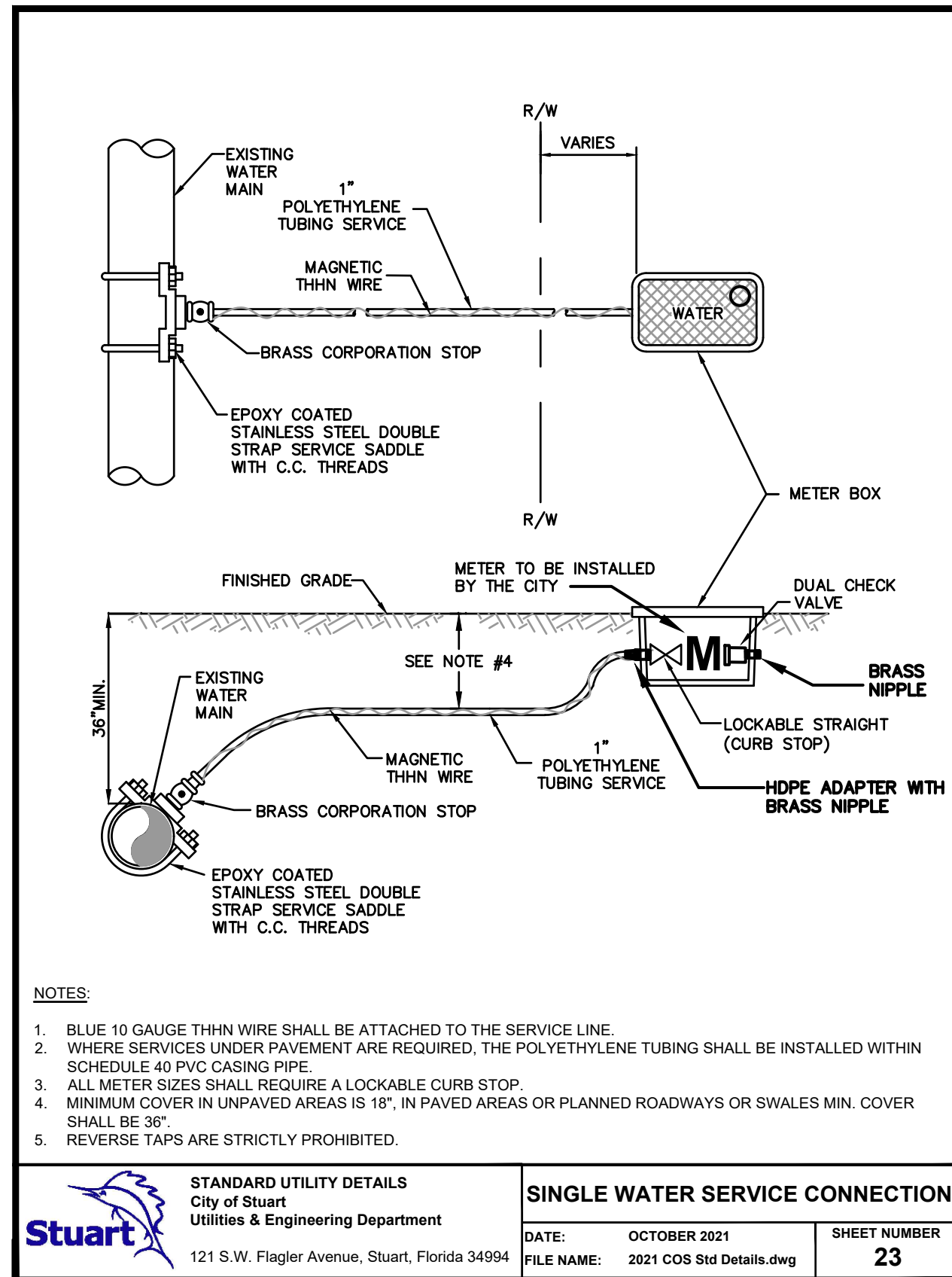
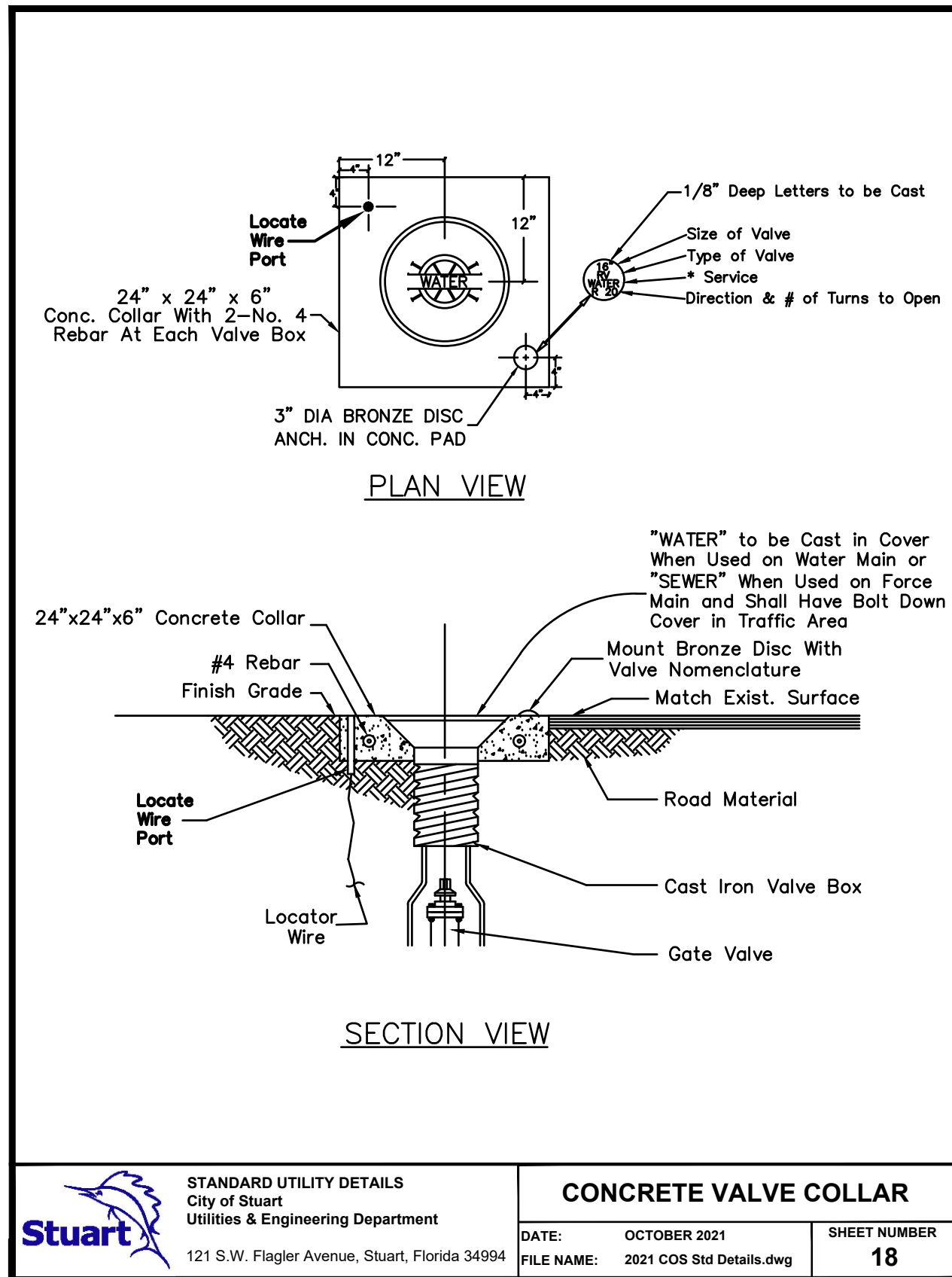
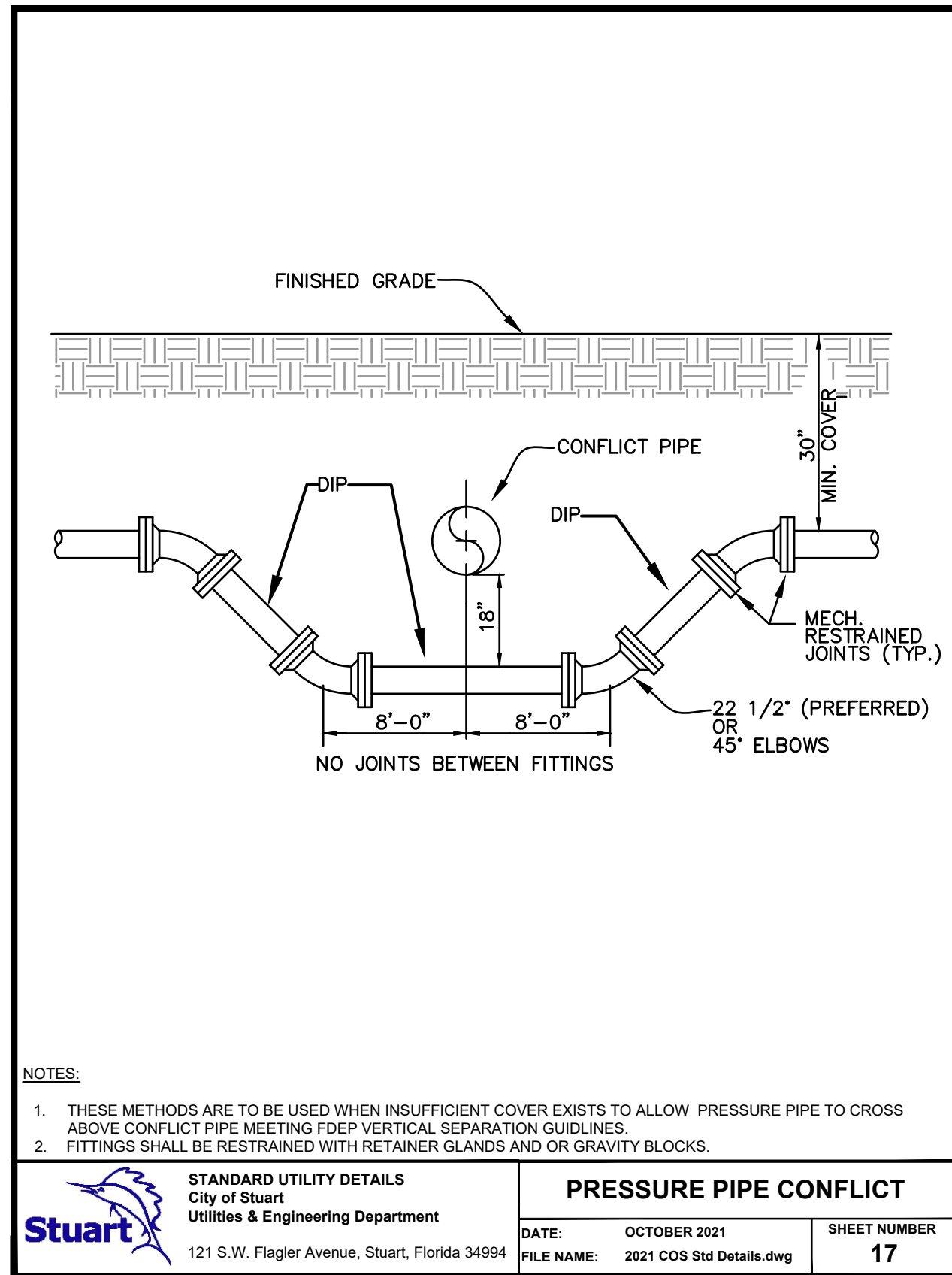
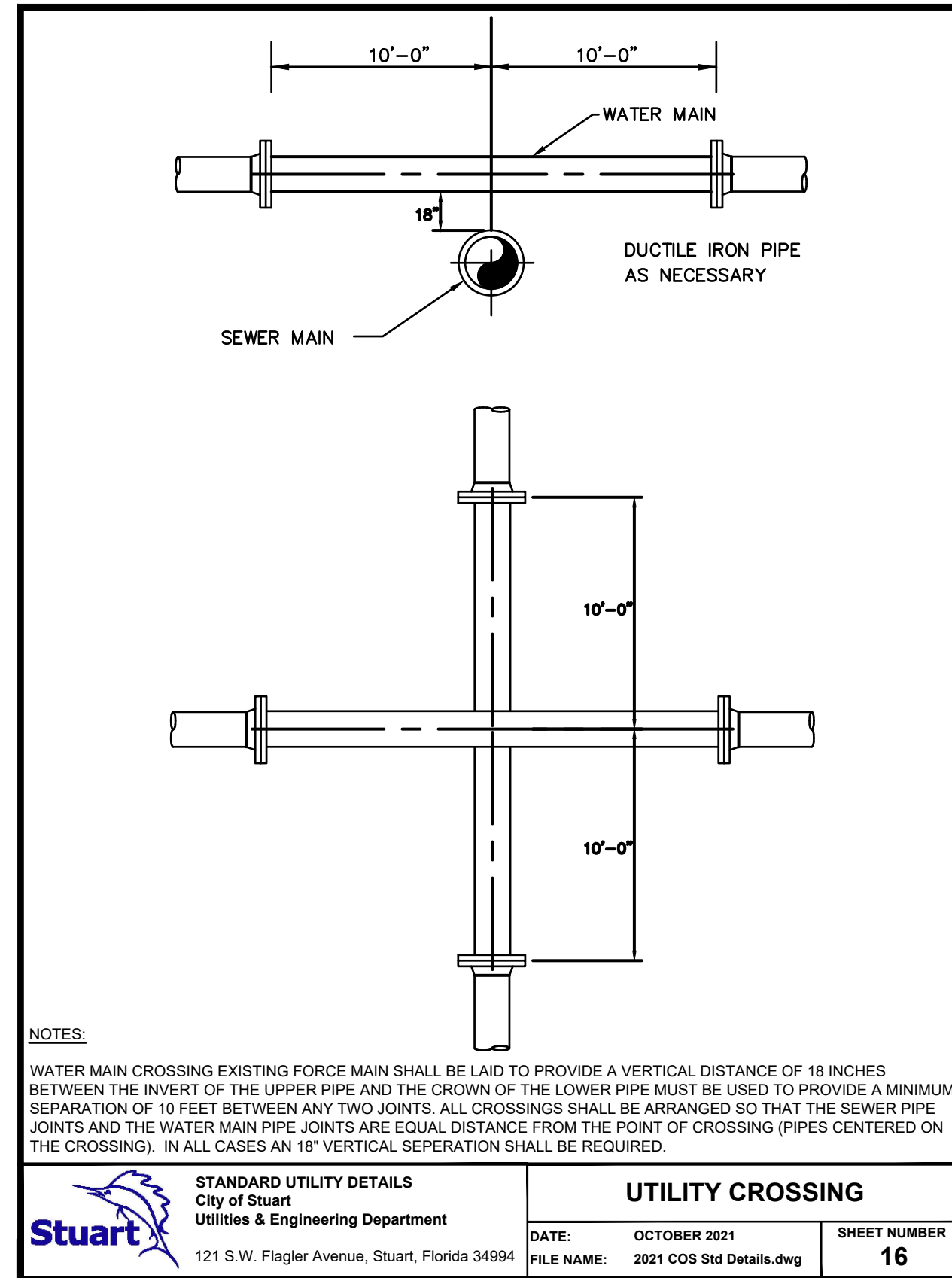
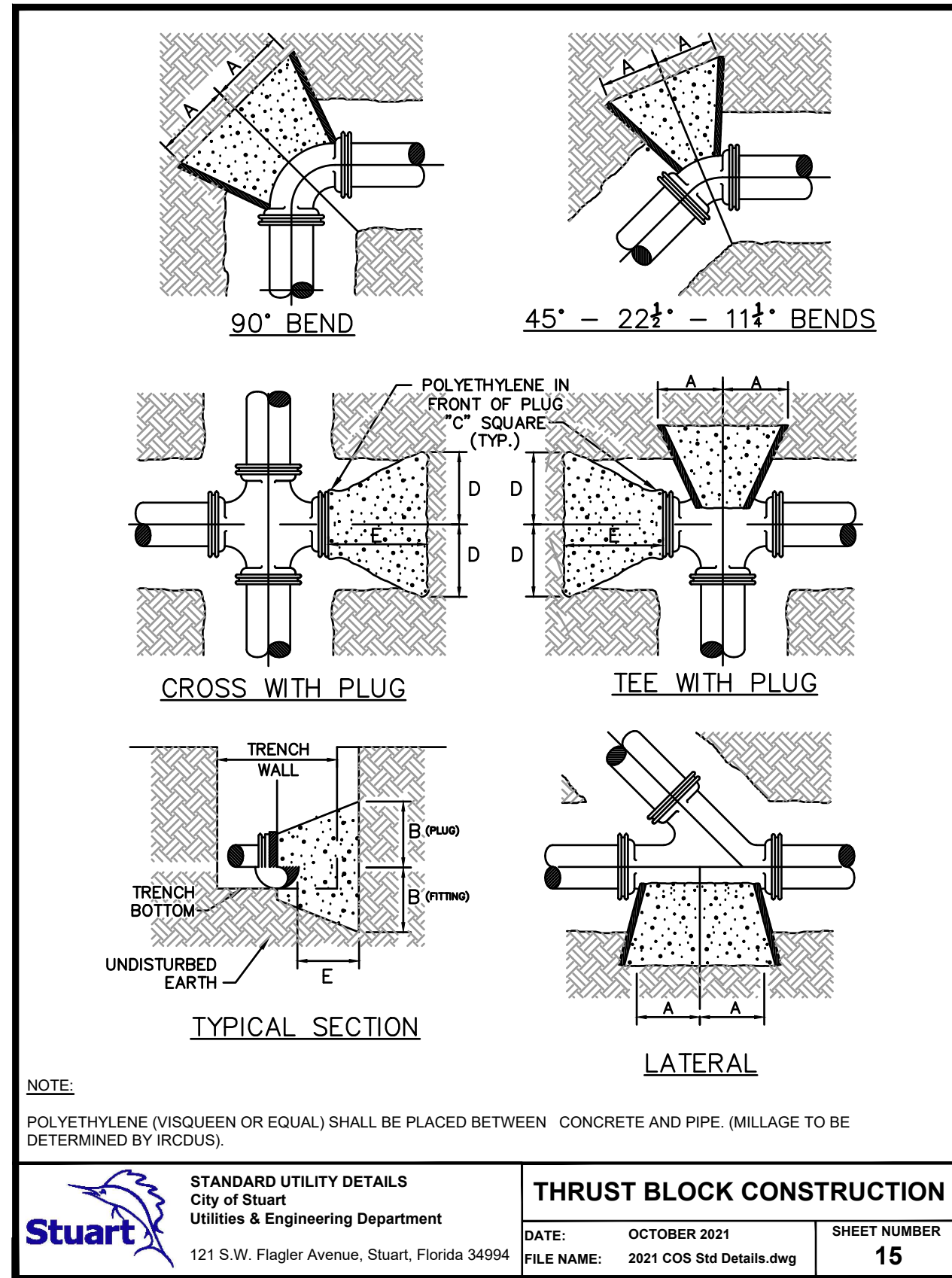
NOTES:

- THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED EXCAVATE ALL LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL.
- ON TEES AND BENDS EXTEND THRUST BLOCK THE FULL LENGTH AND PUT WOOD BLOCKING IN FRONT OF ALL PLUGS BEFORE POURING CONCRETE.
- ALL WOOD UTILIZED FOR FORMS SHALL BE PRESSURE TREATED WOOD.
- BACKFILL SHALL CONSIST ENTIRELY OF CLEAN SAND AND SMALL ROCK FRAGMENTS. ANY MUCK FOUND AROUND THE EXCAVATION SHALL BE REPLACED WITH COMPACTED ACCEPTABLE MATERIAL.
- ALL THRUST BLOCKS SHALL BE CAST IN PLACE WITH 2,500 PSI CONCRETE.
- ALL PIPES GREATER THAN 12" IN DIAMETER SHALL HAVE RESTRAINED JOINTS IN ACCORDANCE WITH RESTRAINED JOINT SPECIFICATION DETAILED IN SHEET #13.
- PIPES SMALLER THAN 4" SHALL USE THRUST BLOCKS SIZED FOR 4" PIPES.

STANDARD UTILITY DETAILS  
City of Stuart  
Utilities & Engineering Department  
121 S.W. Flagler Avenue, Stuart, Florida 34994

THRUST BLOCK SCHEDULE

DATE: OCTOBER 2021 SHEET NUMBER  
FILE NAME: 2021 COS Std Details.dwg 14



DATE	BY	REVISIONS
12/21/2021	DCM	REVISED PER CITY OF STUART COMMENTS
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS
07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

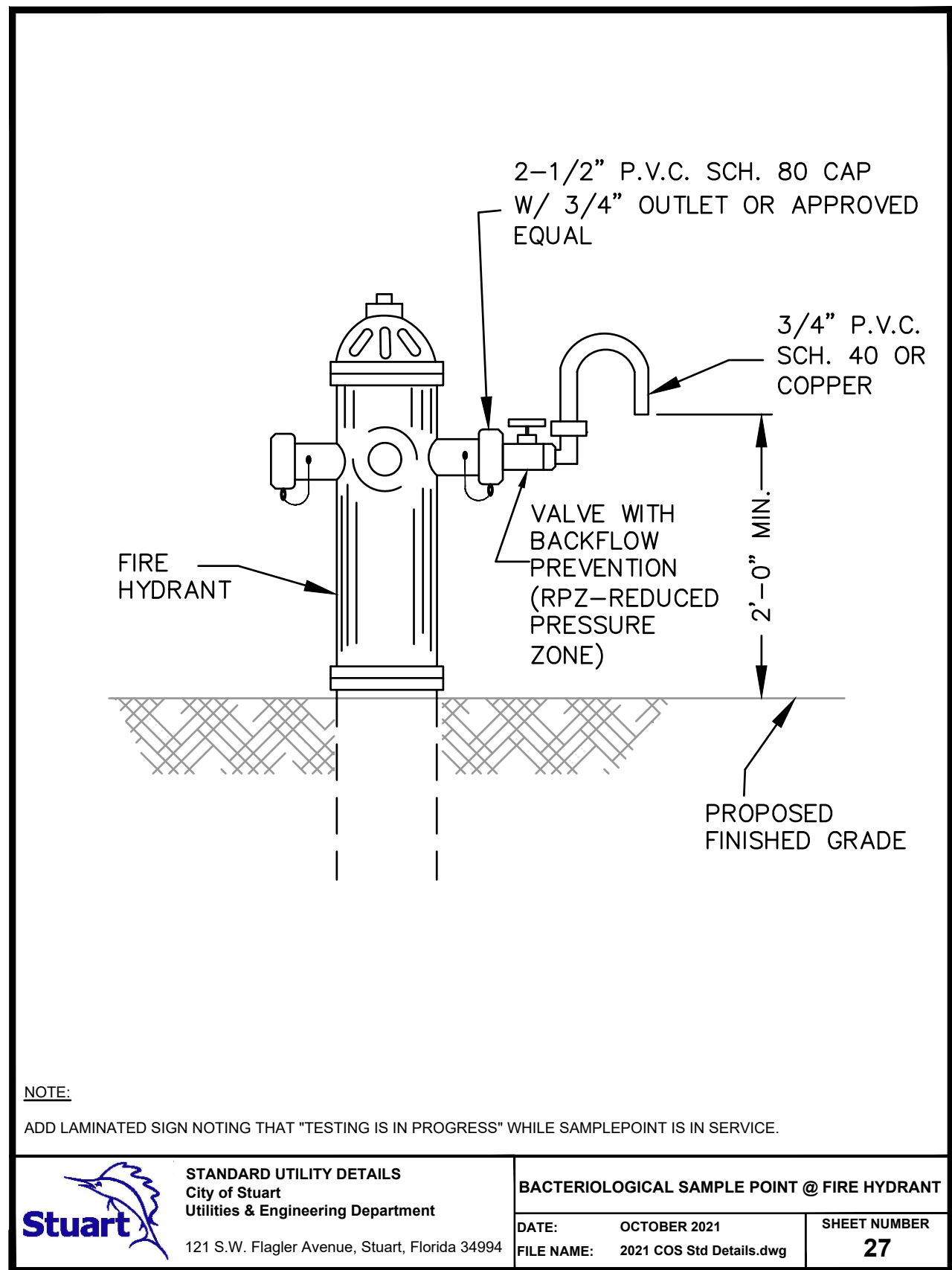
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Scale: #####  
Design By: CS  
Drawn By: AC  
Check By: LDG

FREEDOM RV STORAGE  
MIELE EQUITIES  
CITY OF STUART, FLORIDA

DETAILS

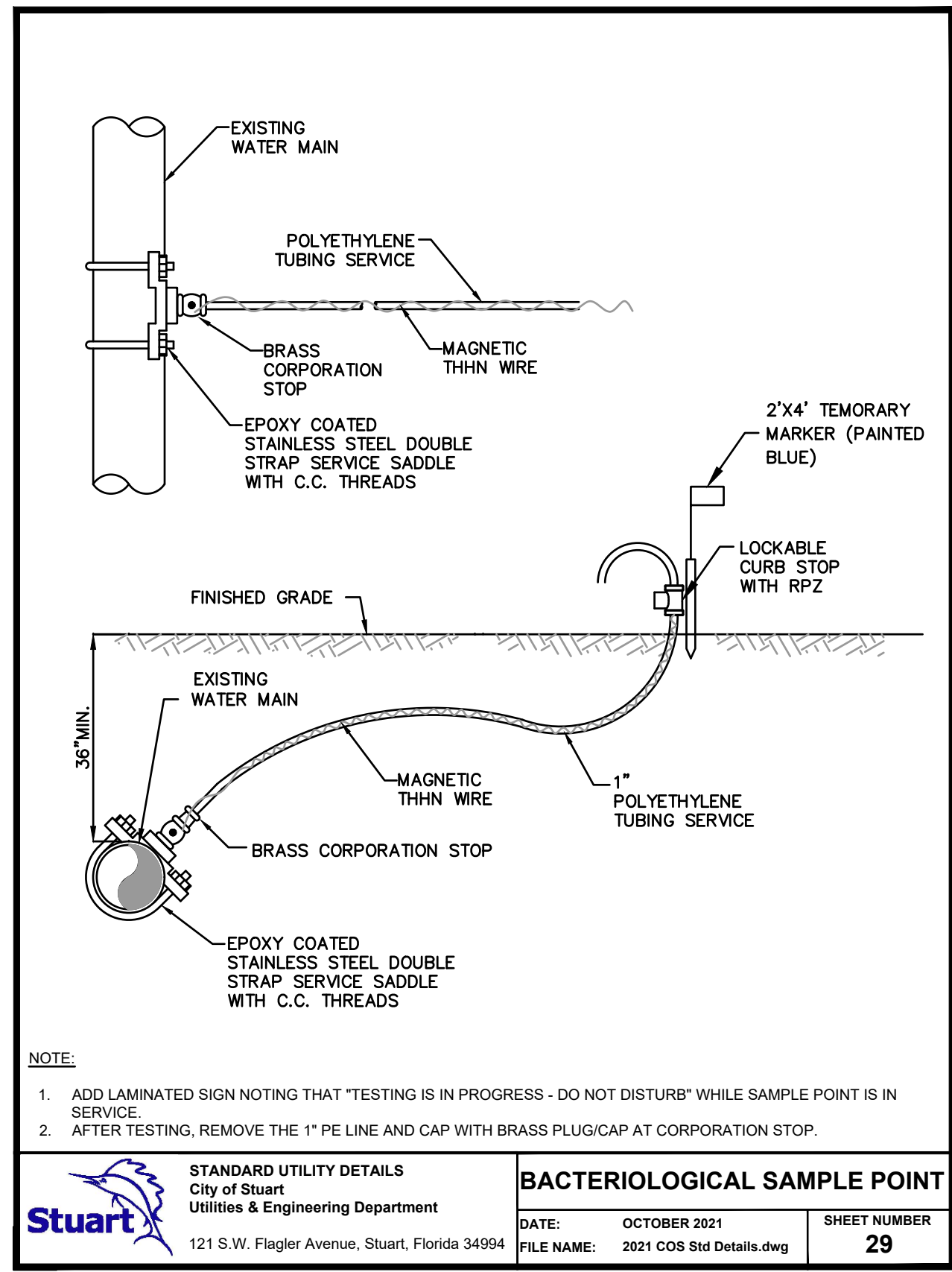
GIANGRANDE ENGINEERING AND PLANNING  
2081 SE OCEAN BLVD., SUITE 1A  
STUART, FLORIDA 34996  
PH. (772) 888-9076  
Cert. No. 30901

LEO D. GIANGRANDE, P.E.  
PROJECT #: 21-004  
D-4  
License No: 66387



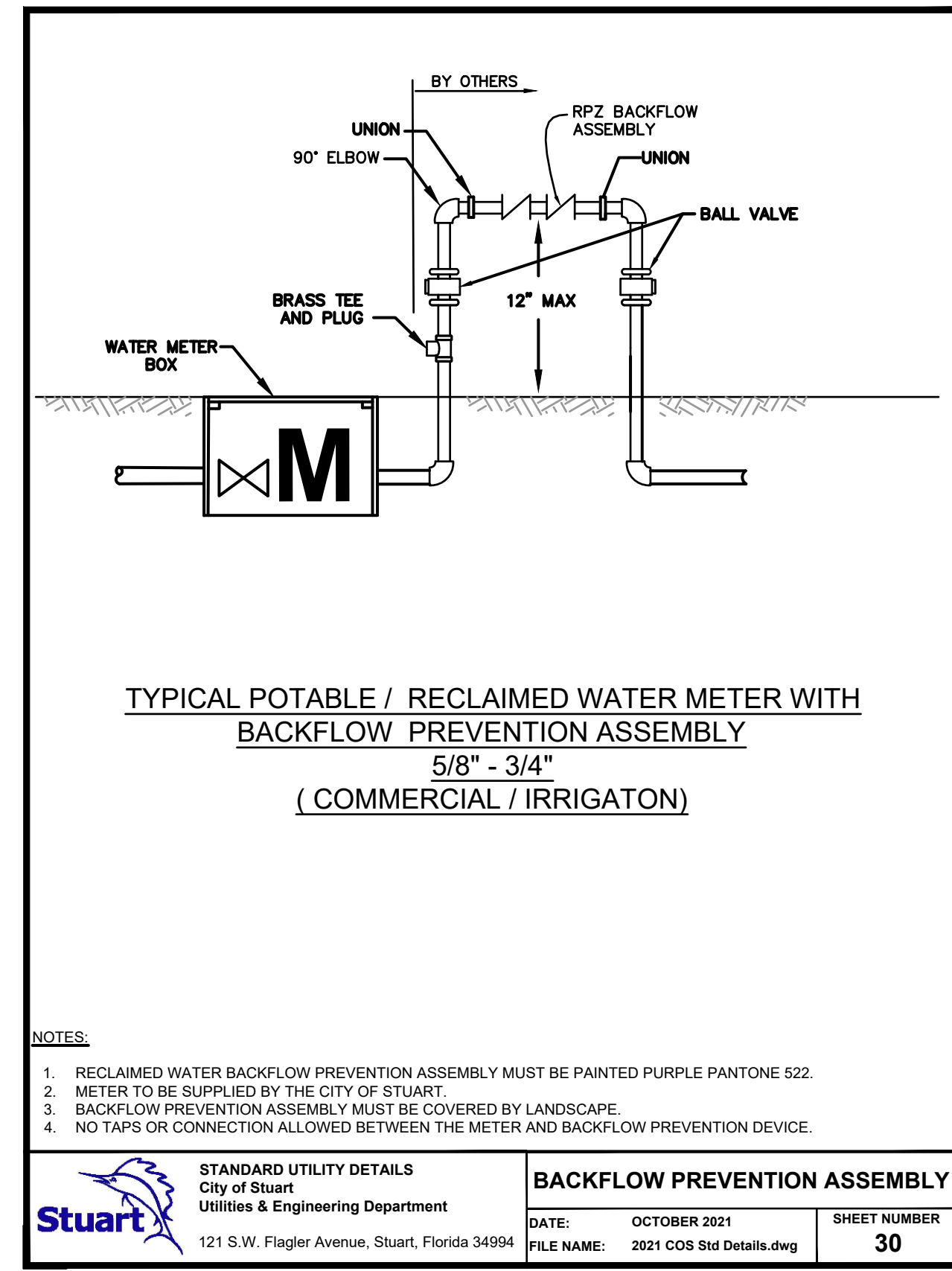
NOTE:  
ADD LAMINATED SIGN NOTING THAT "TESTING IS IN PROGRESS" WHILE SAMPLE POINT IS IN SERVICE.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	BACTERIOLOGICAL SAMPLE POINT @ FIRE HYDRANT	DATE: OCTOBER 2021	SHEET NUMBER: 27
FILE NAME: 2021 COS Std Details.dwg			



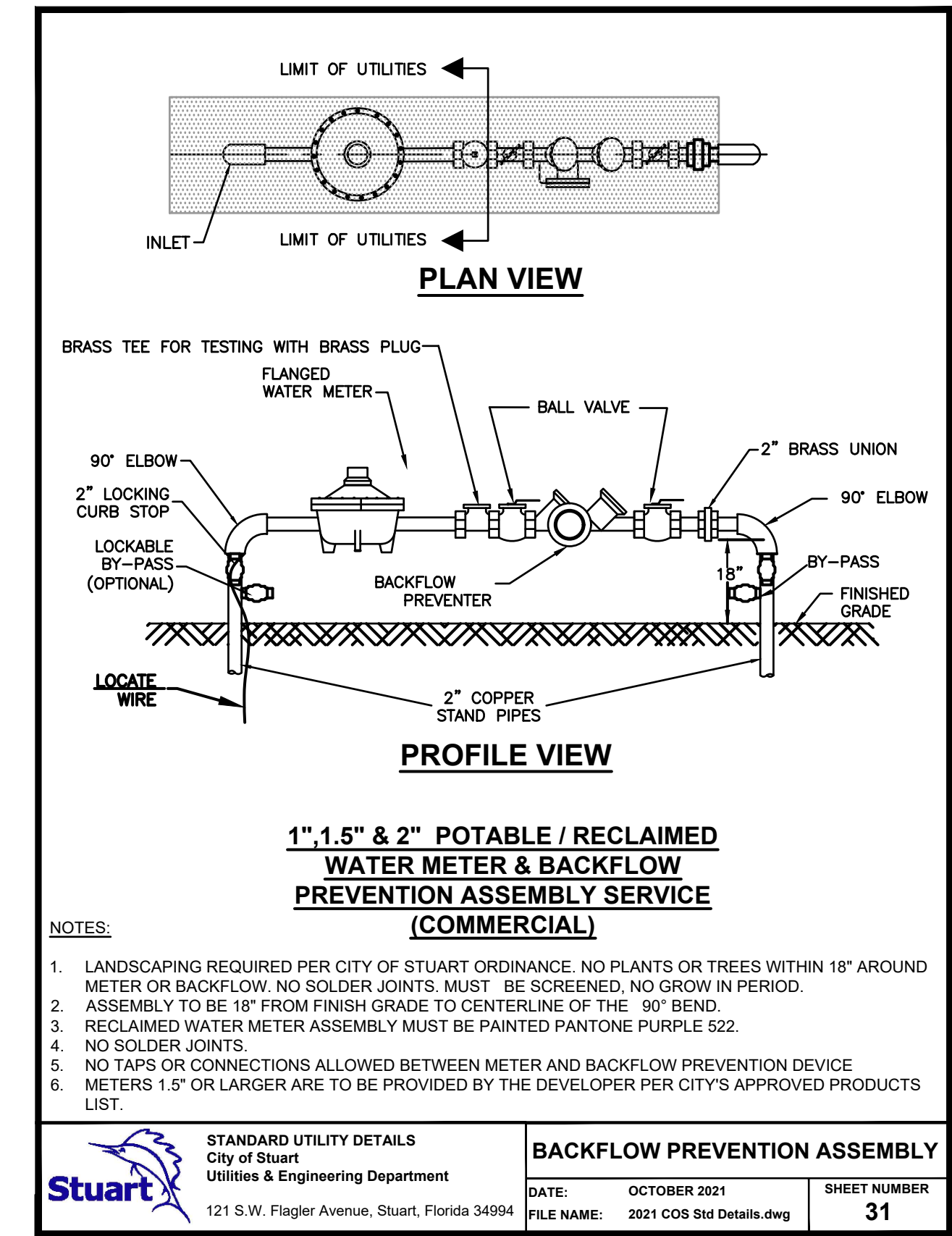
NOTE:  
1. ADD LAMINATED SIGN NOTING THAT "TESTING IS IN PROGRESS - DO NOT DISTURB" WHILE SAMPLE POINT IS IN SERVICE.  
2. AFTER TESTING, REMOVE THE 1\"/>

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	BACTERIOLOGICAL SAMPLE POINT	DATE: OCTOBER 2021	SHEET NUMBER: 29
FILE NAME: 2021 COS Std Details.dwg			



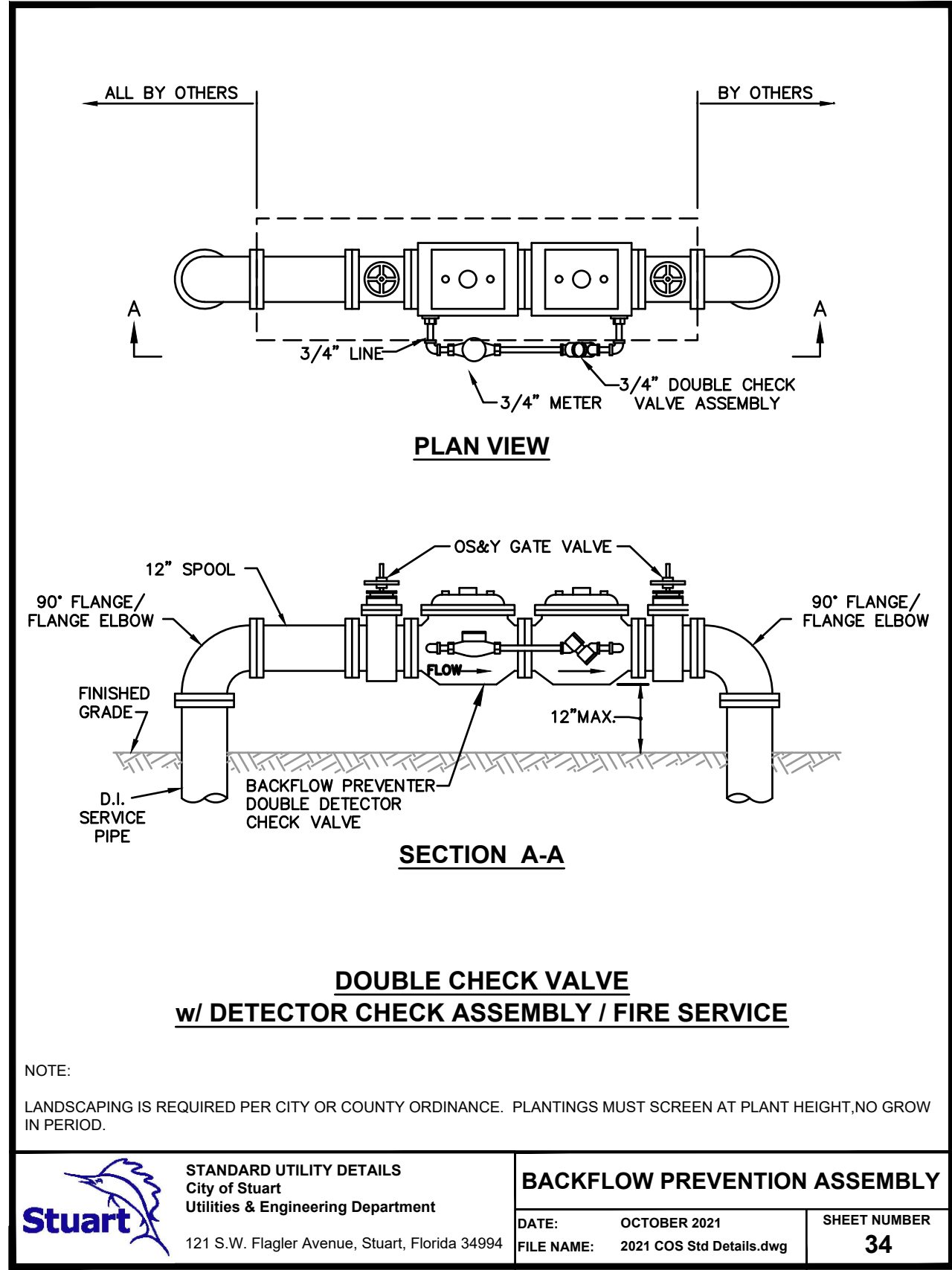
NOTE:  
1. RECLAIMED WATER BACKFLOW PREVENTION ASSEMBLY MUST BE PAINTED PURPLE PANTONE 522.  
2. METER TO BE SUPPLIED BY THE CITY OF STUART.  
3. BACKFLOW PREVENTION ASSEMBLY MUST BE COVERED BY LANDSCAPE.  
4. NO TAPS OR CONNECTION ALLOWED BETWEEN THE METER AND BACKFLOW PREVENTION DEVICE.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	BACKFLOW PREVENTION ASSEMBLY	DATE: OCTOBER 2021	SHEET NUMBER: 30
FILE NAME: 2021 COS Std Details.dwg			



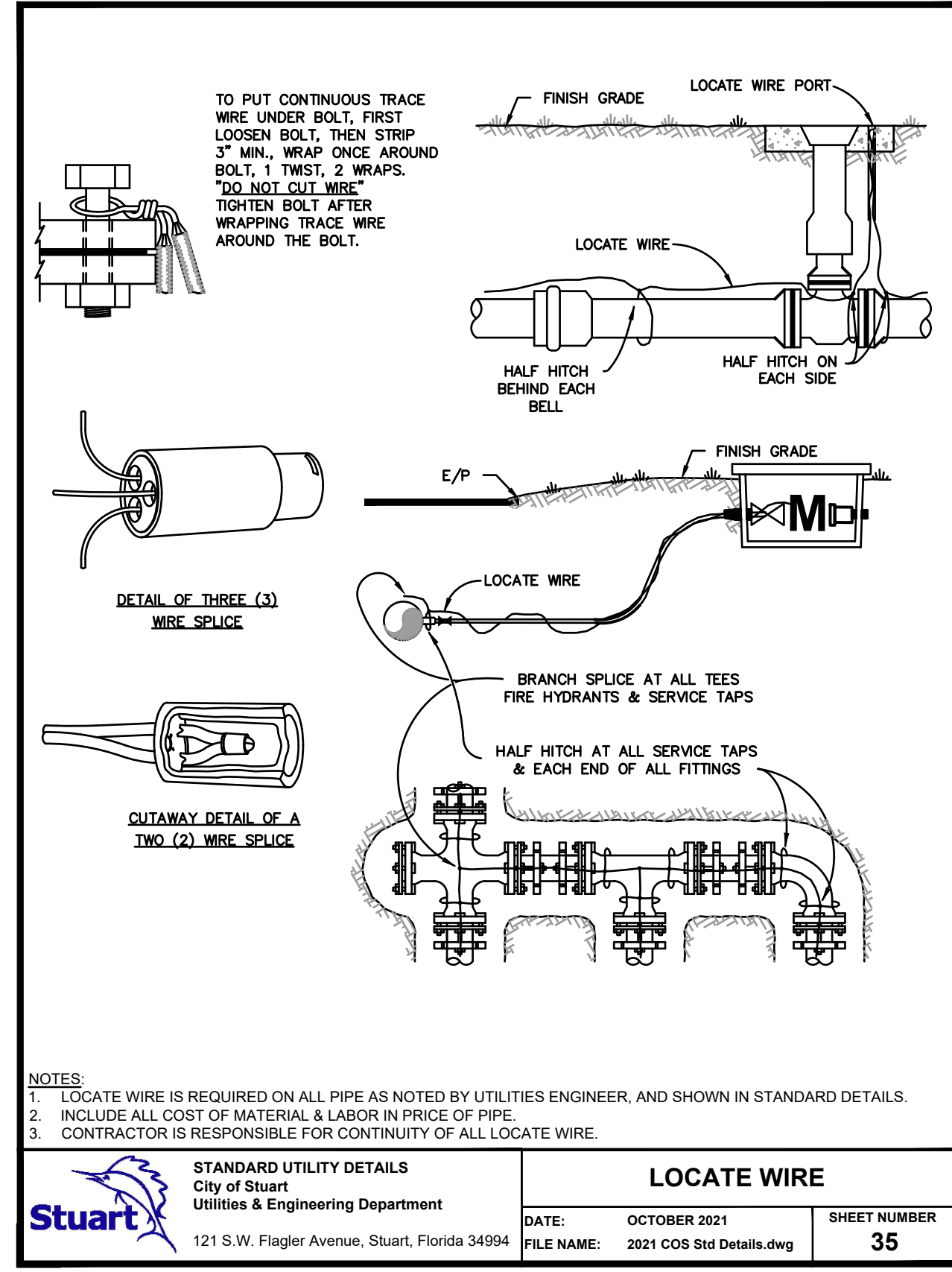
NOTE:  
1. LANDSCAPING REQUIRED PER CITY OF STUART ORDINANCE. NO PLANTS OR TREES WITHIN 18\"/>

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	BACKFLOW PREVENTION ASSEMBLY	DATE: OCTOBER 2021	SHEET NUMBER: 31
FILE NAME: 2021 COS Std Details.dwg			



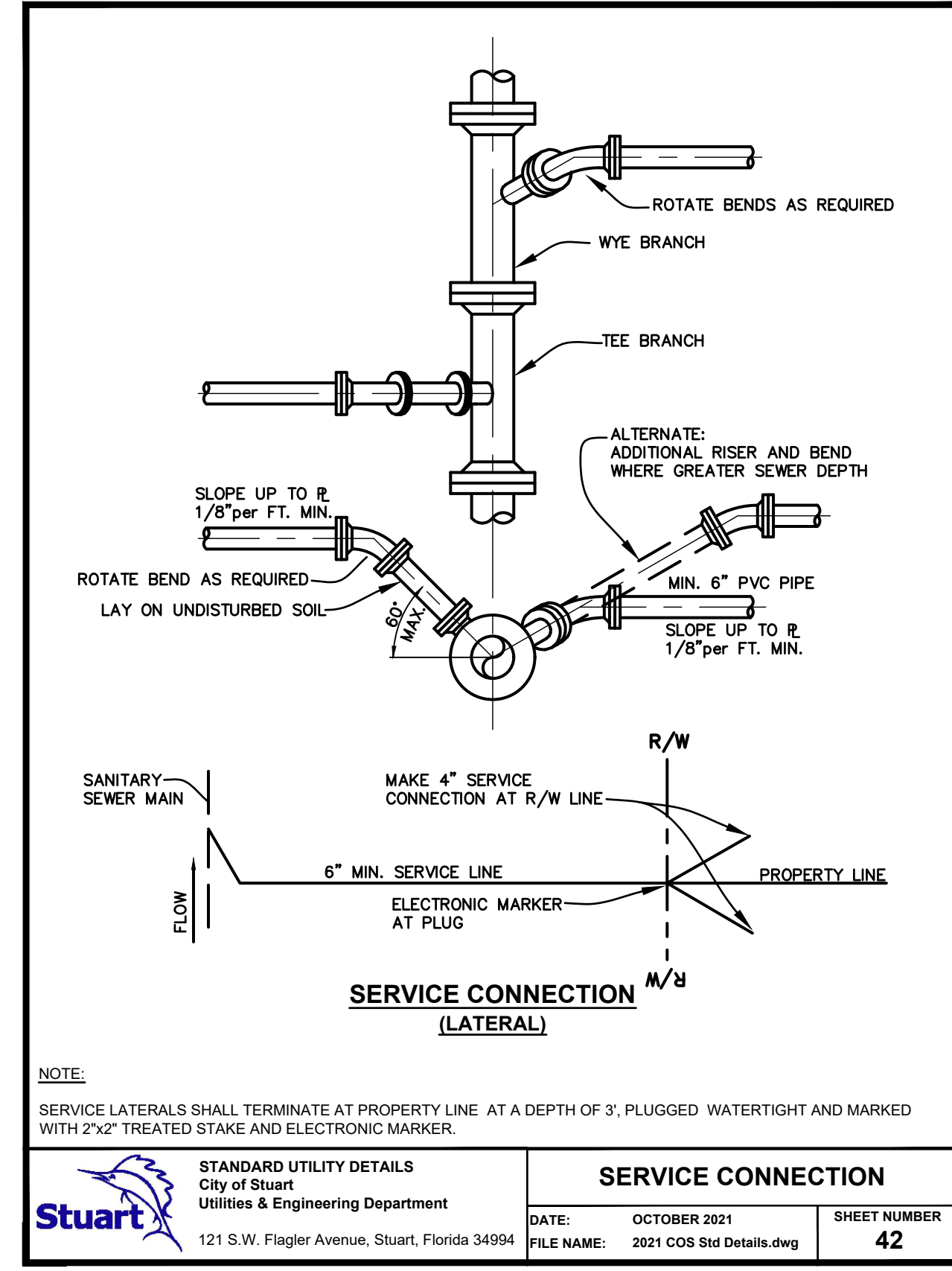
NOTE:  
LANDSCAPING IS REQUIRED PER CITY OR COUNTY ORDINANCE. PLANTINGS MUST SCREEN AT PLANT HEIGHT, NO GROW IN PERIOD.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	BACKFLOW PREVENTION ASSEMBLY	DATE: OCTOBER 2021	SHEET NUMBER: 34
FILE NAME: 2021 COS Std Details.dwg			



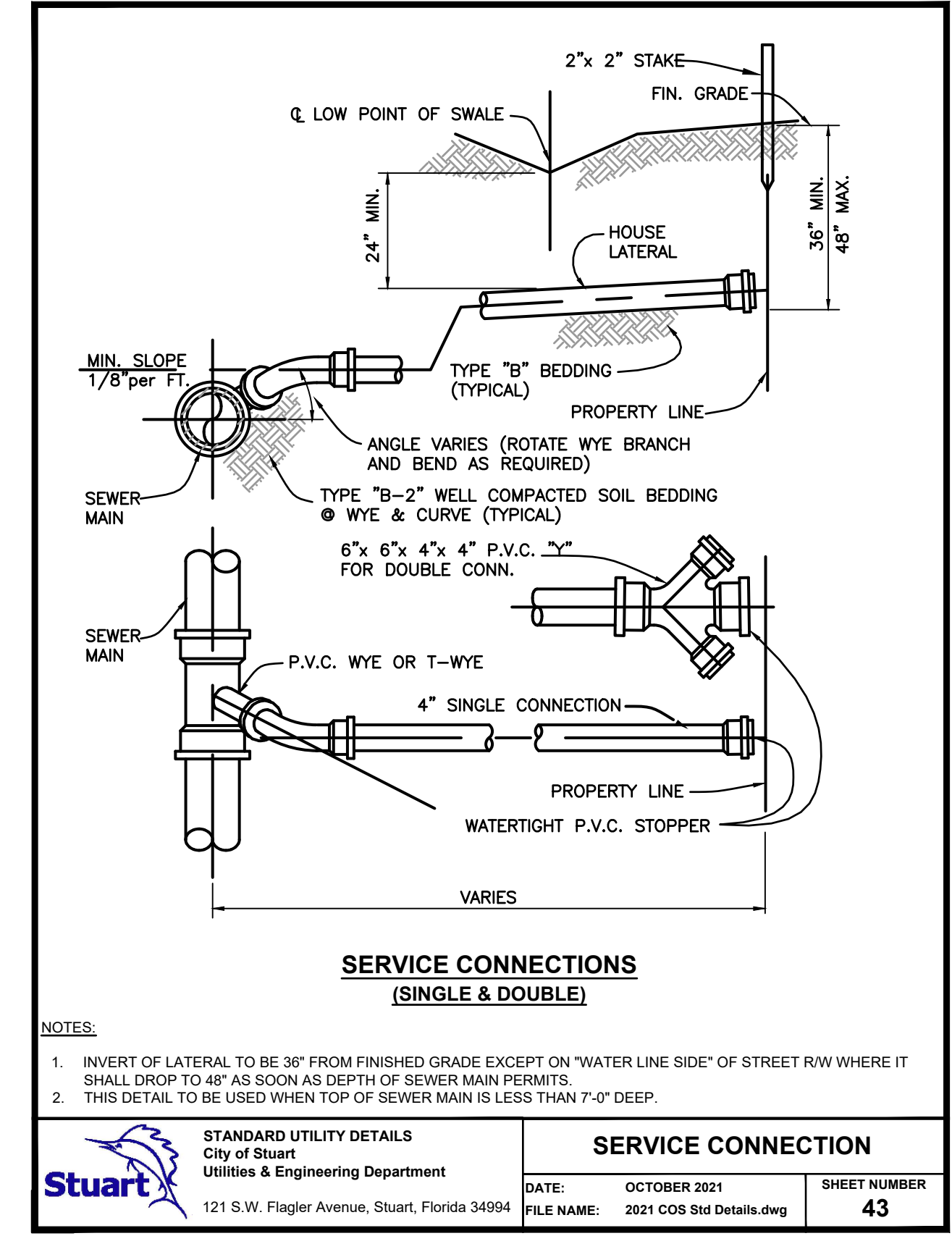
NOTE:  
1. LOCATE WIRE IS REQUIRED ON ALL PIPE AS NOTED BY UTILITIES ENGINEER, AND SHOWN IN STANDARD DETAILS.  
2. INCLUDE ALL COST OF MATERIAL & LABOR IN PRICE OF PIPE.  
3. CONTRACTOR IS RESPONSIBLE FOR CONTINUITY OF ALL LOCATE WIRE.

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	LOCATE WIRE	DATE: OCTOBER 2021	SHEET NUMBER: 35
FILE NAME: 2021 COS Std Details.dwg			



NOTE:  
SERVICE LATERALS SHALL TERMINATE AT PROPERTY LINE AT A DEPTH OF 3', PLUGGED, WATERTIGHT AND MARKED WITH 2\"/>

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	SERVICE CONNECTION	DATE: OCTOBER 2021	SHEET NUMBER: 42
FILE NAME: 2021 COS Std Details.dwg			



NOTE:  
1. INVERT OF LATERAL TO BE 36\"/>

STANDARD UTILITY DETAILS City of Stuart Utilities & Engineering Department 121 S.W. Flagler Avenue, Stuart, Florida 34994	SERVICE CONNECTION	DATE: OCTOBER 2021	SHEET NUMBER: 43
FILE NAME: 2021 COS Std Details.dwg			

Drawing Name: S:\Shared\Bids\GEP - projects\2021\21-004 - Freedom RV Storage\Design\21-004 - Publications Layout - Name: B-5 - Date: 10/26/2023 - 2:14 PM - Plotted by: GEP - Plotter: HP DesignJet 5000

DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS
07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

Date: 06/30/2021  
Scale: #####  
Design By: CS  
Drawn By: AC  
Check By: LDG

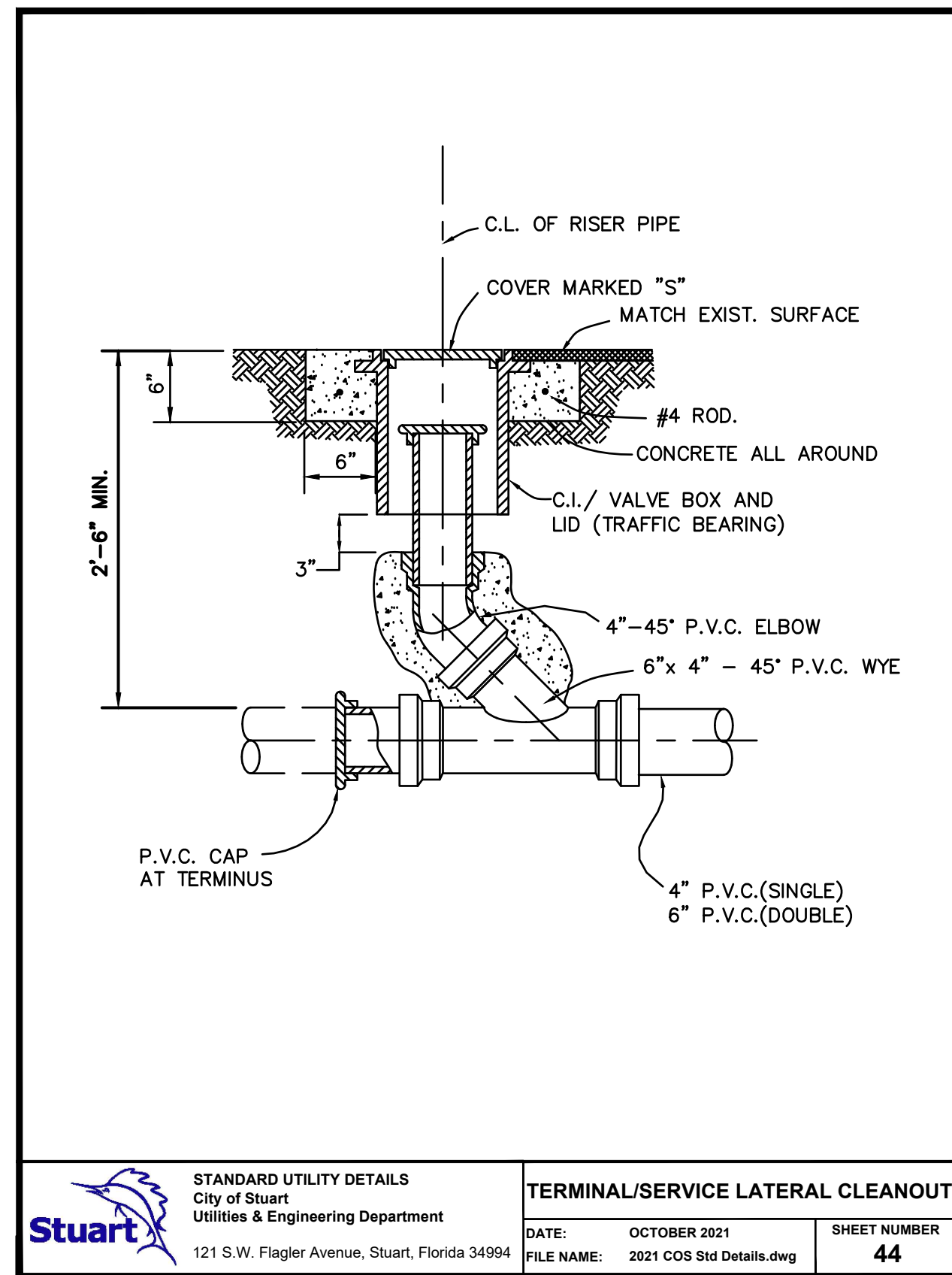
FREEDOM RV STORAGE  
MIELE EQUITIES  
CITY OF STUART, FLORIDA

DETAILS

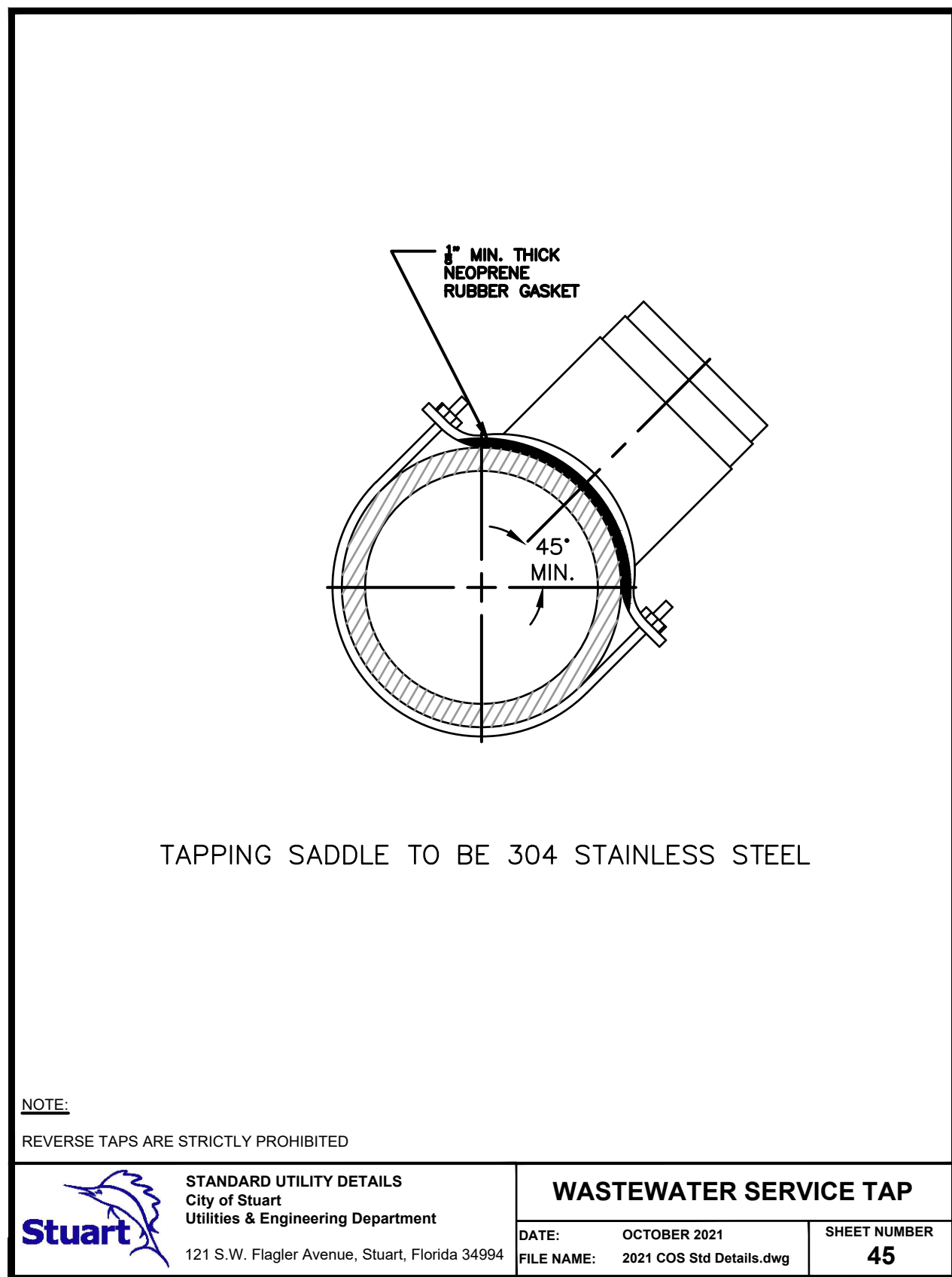
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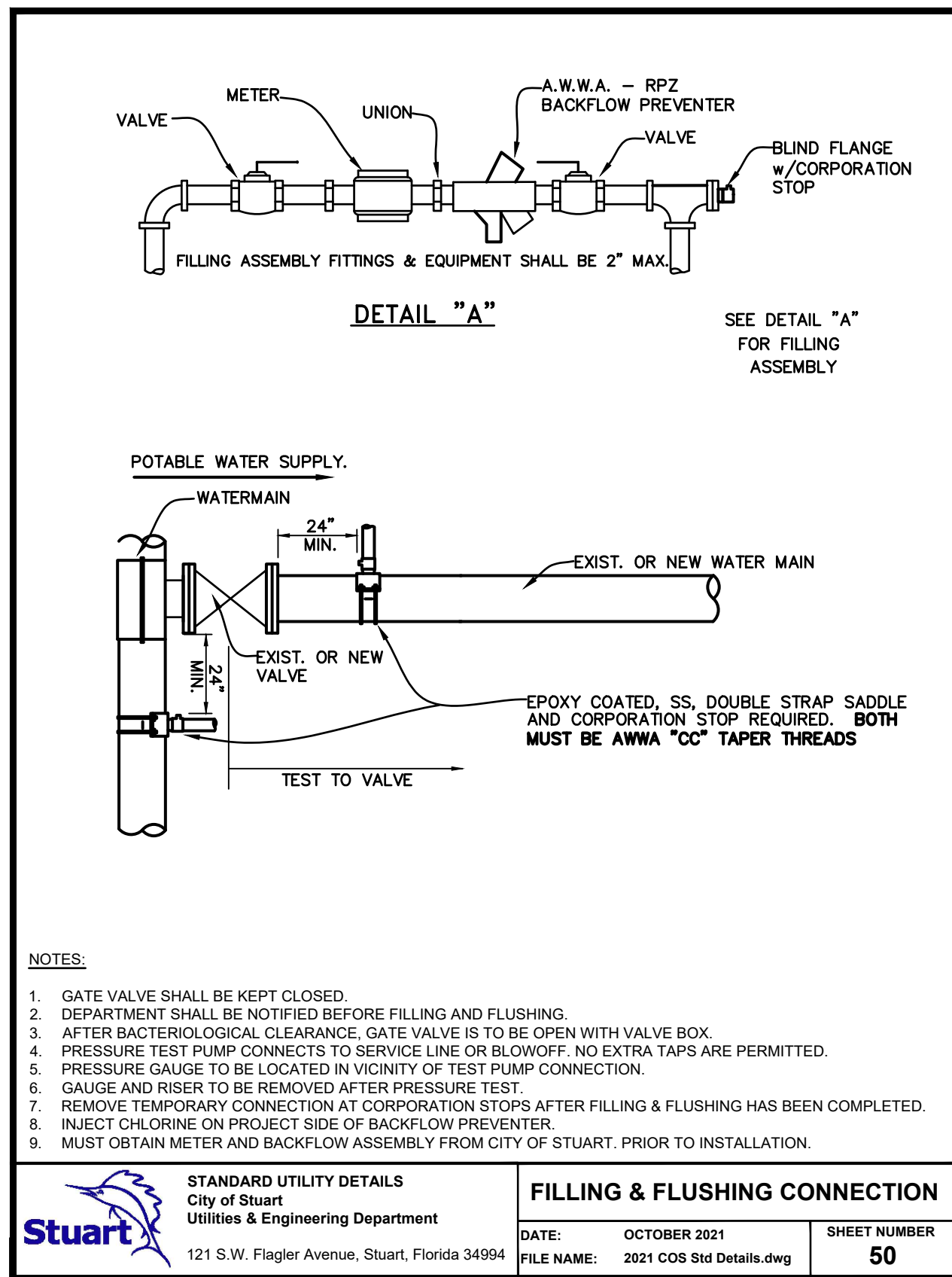
PROJECT #: 21-004  
D-5



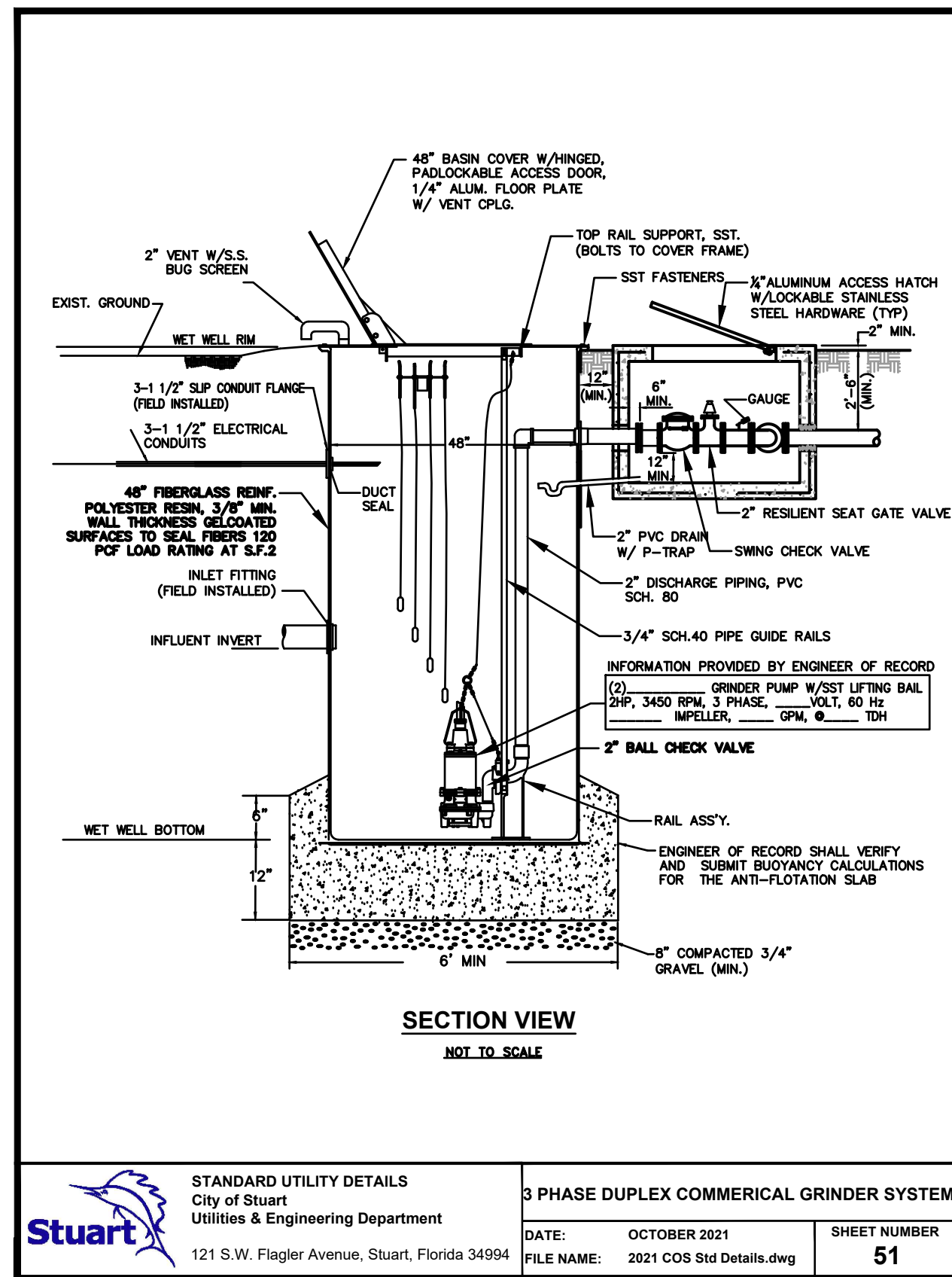
**TERMINAL/SERVICE LATERAL CLEANOUT**  
 DATE: OCTOBER 2021  
 SHEET NUMBER: 44



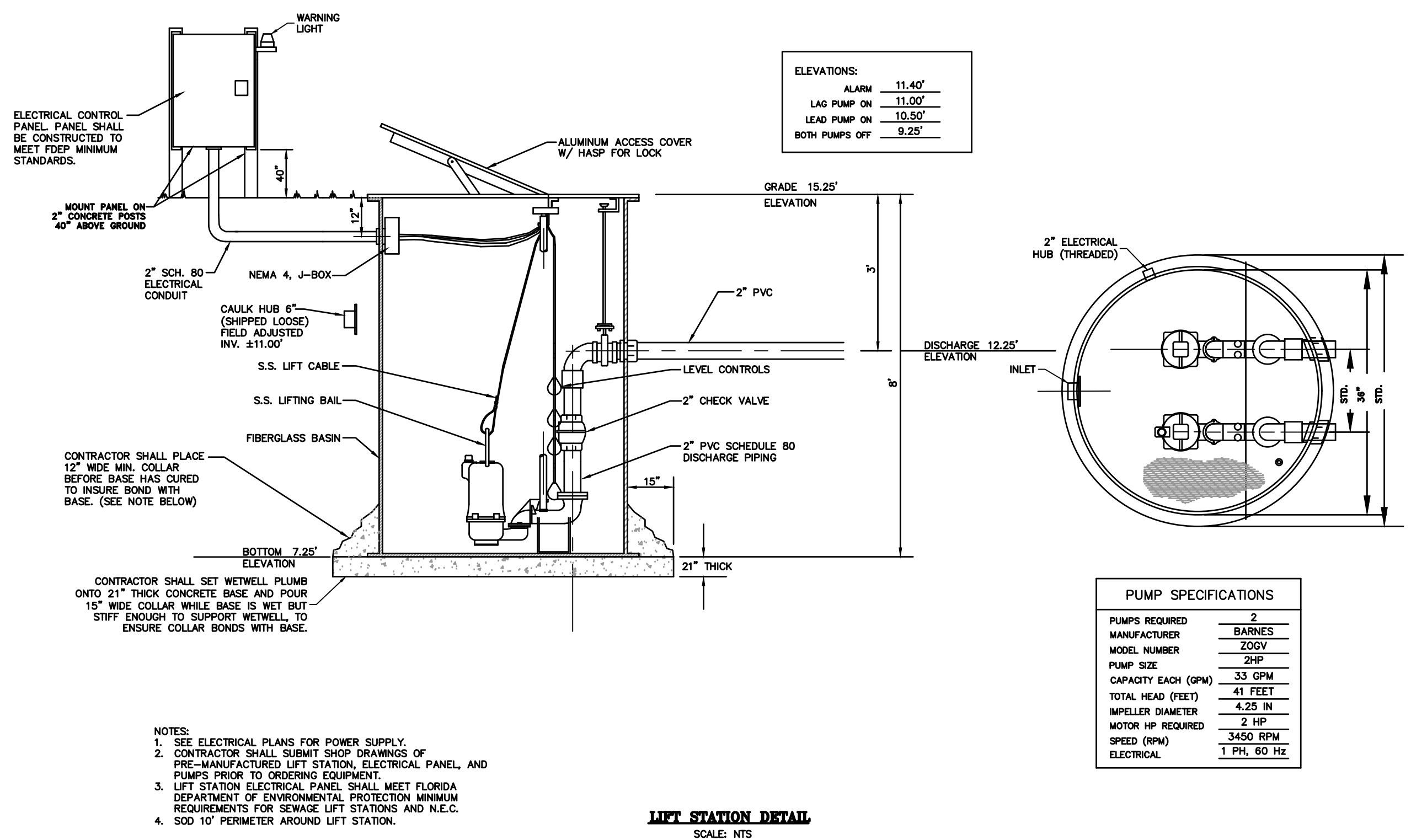
**WASTEWATER SERVICE TAP**  
 DATE: OCTOBER 2021  
 SHEET NUMBER: 45



**FILLING & FLUSHING CONNECTION**  
 DATE: OCTOBER 2021  
 SHEET NUMBER: 50



**3 PHASE DUPLEX COMMERCIAL GRINDER SYSTEM**  
 DATE: OCTOBER 2021  
 SHEET NUMBER: 51



**ELEVATIONS:**  
 ALARM 11.40'  
 LAG PUMP ON 11.00'  
 LEAD PUMP ON 10.50'  
 BOTH PUMPS OFF 9.25'

**PUMP SPECIFICATIONS**  
 PUMPS REQUIRED 2  
 MANUFACTURER BARNES  
 MODEL NUMBER Z06V  
 PUMP SIZE 2HP  
 CAPACITY EACH (GPM) 33 GPM  
 TOTAL HEAD (FEET) 41 FEET  
 IMPELLER DIAMETER 4.25 IN  
 MOTOR HP REQUIRED 2 HP  
 SPEED (RPM) 3450 RPM  
 ELECTRICAL 1 PH, 60 HZ

**NOTES:**  
 1. SEE ELECTRICAL PLANS FOR POWER SUPPLY.  
 2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PRE-MANUFACTURED LIFT STATION, ELECTRICAL PANEL, AND PUMPS PRIOR TO ORDERING EQUIPMENT.  
 3. LIFT STATION ELECTRICAL PANEL SHALL MEET FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION MINIMUM REQUIREMENTS FOR SEWAGE LIFT STATIONS AND N.E.C.  
 4. SOD 10' PERIMETER AROUND LIFT STATION.

**LIFT STATION DETAIL**  
 SCALE: NTS

DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS
07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

Date: 06/30/2021  
 Scale: #####  
 Design By: CS  
 Drawn By: AC  
 Check By: LDG

FREEDOM RV STORAGE  
 MIELE EQUITIES  
 CITY OF STUART, FLORIDA

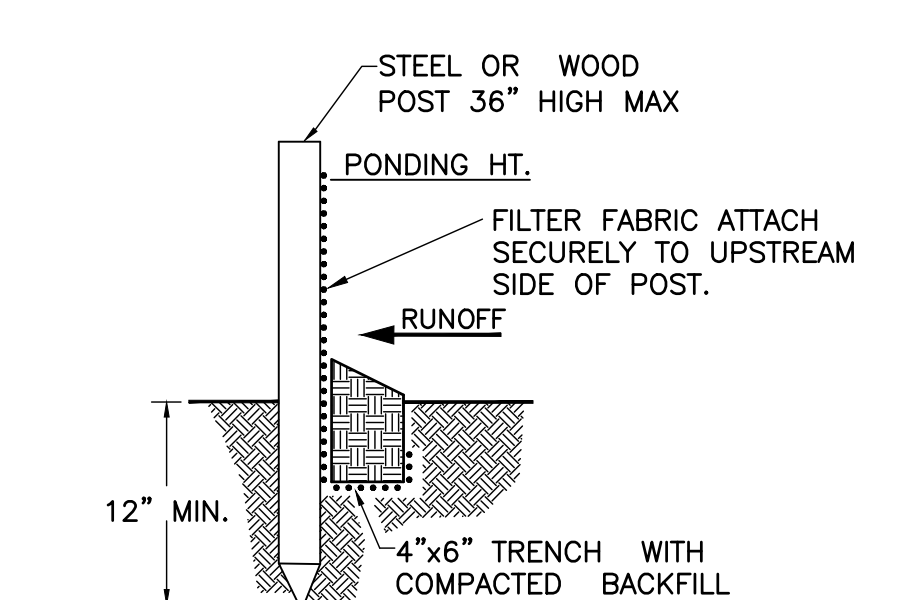
LIFT STATION DETAILS

**GIANGRANDE ENGINEERING AND PLANNING**  
 2081 SE OCEAN BLVD., SUITE 1A  
 STUART, FLORIDA 34996  
 PH. (772) 888-9076  
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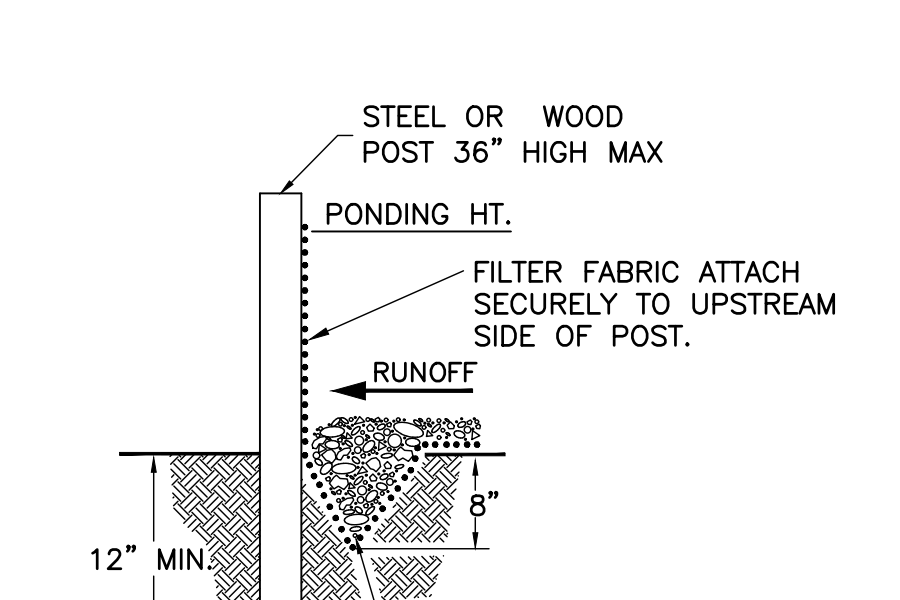
LEO D. GIANGRANDE, P.E.  
 License No: 66387

PROJECT #: 21-004  
**D-6**

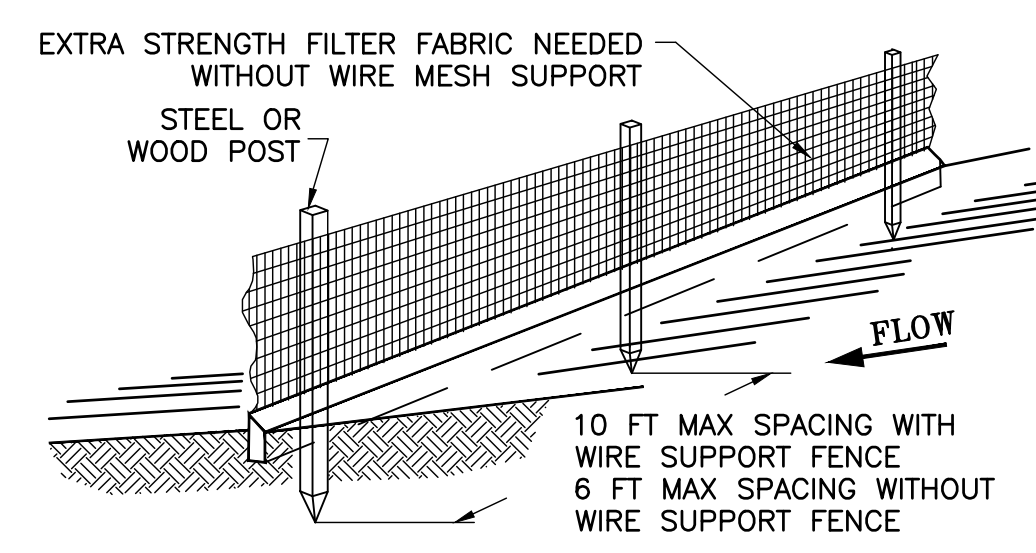
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**STANDARD DETAIL**  
TRENCH WITH NATIVE BACKFILL

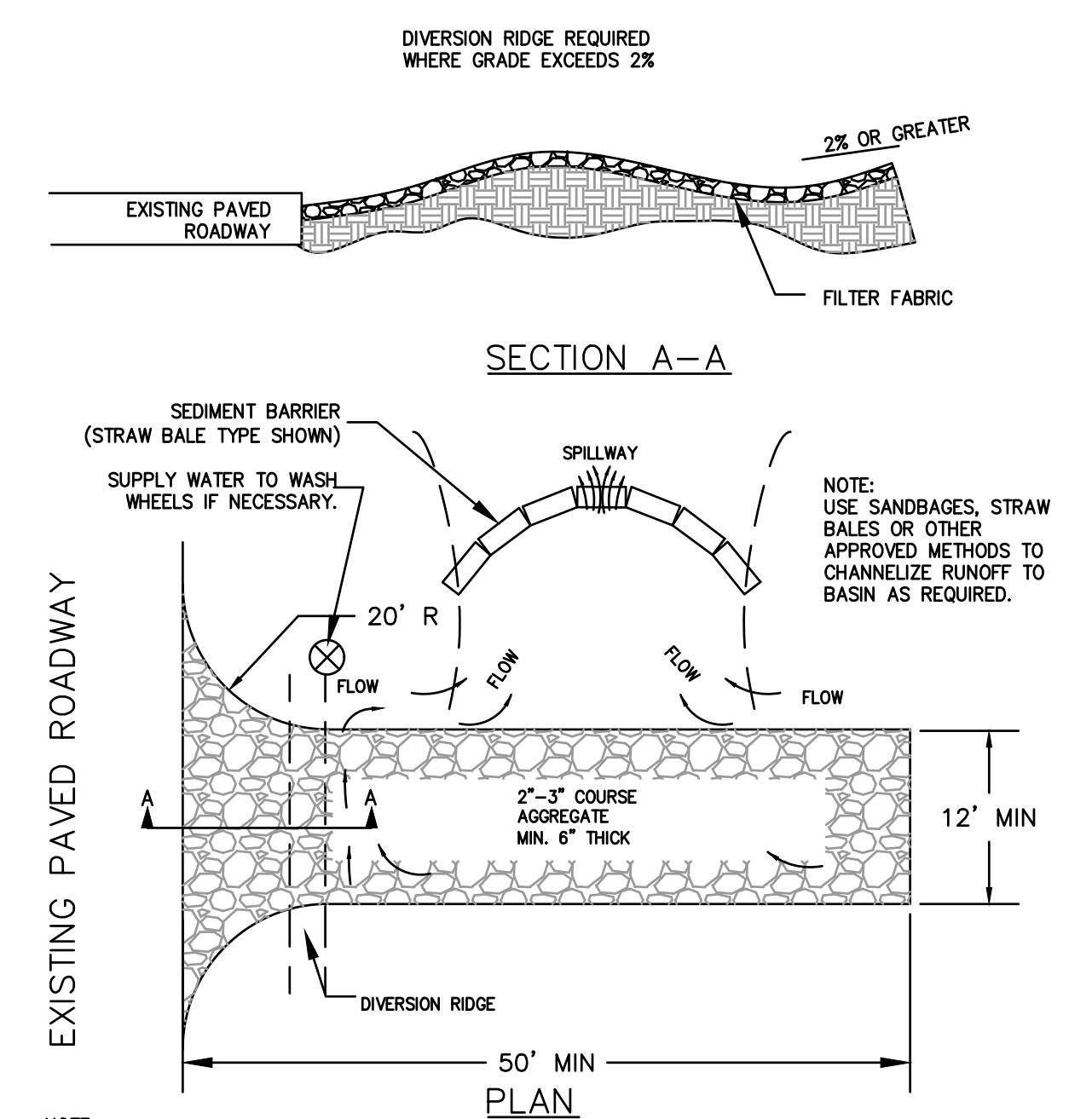


**ALTERNATE DETAIL**  
TRENCH WITH GRAVEL



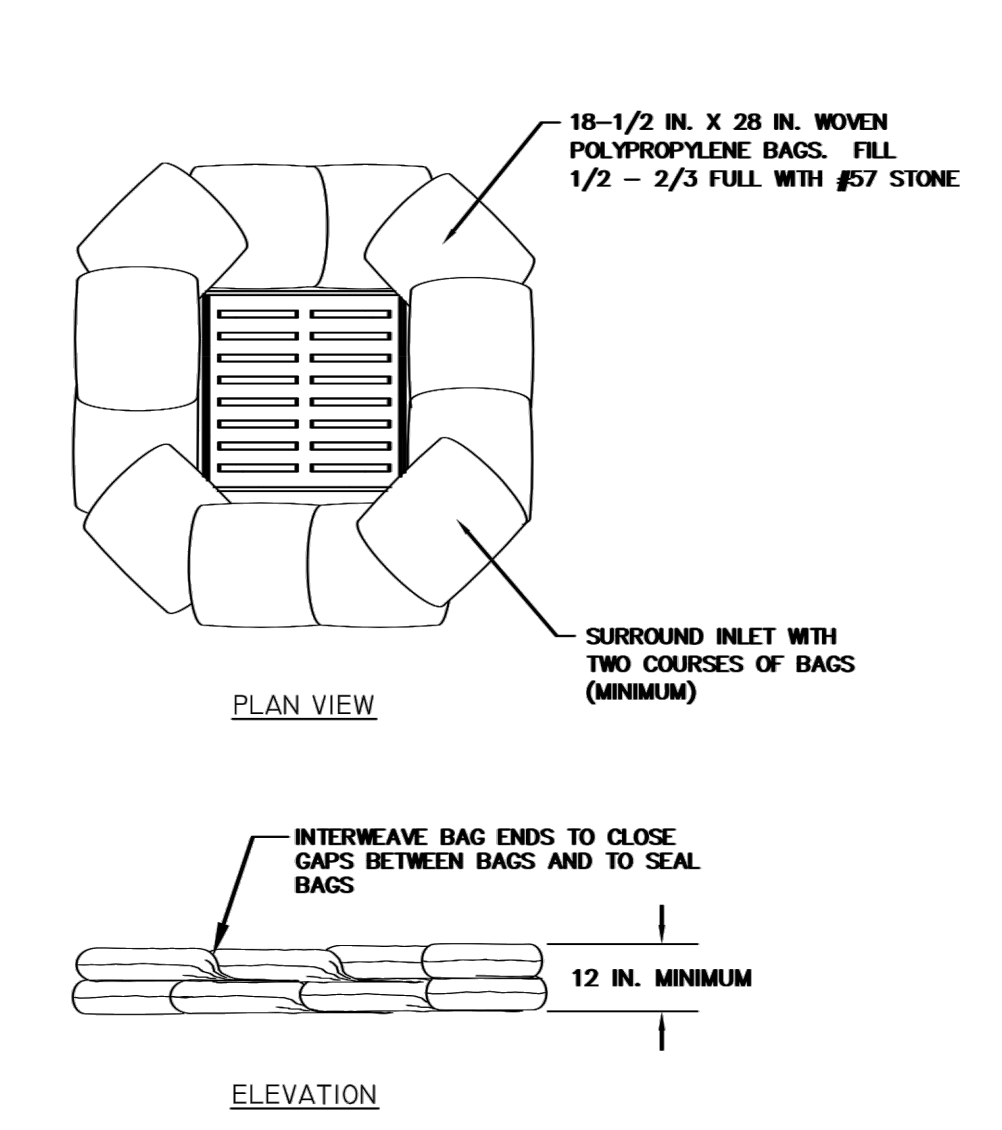
**SILT FENCE DETAIL**  
N.T.S.

- NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
  2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
  3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOUR TO MAXIMIZE PONDING EFFICIENCY.
  4. OVERLAP ALL JOINTS AT LEAST 6 FEET.



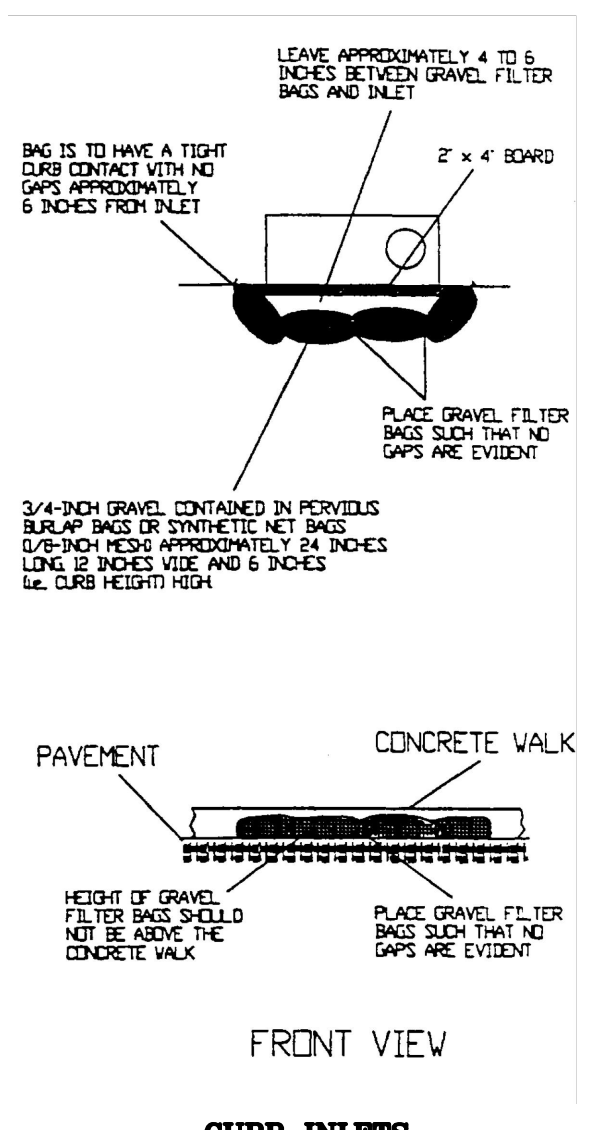
**TEMPORARY GRAVEL CONSTRUCTION ENTRANCE**  
N.T.S.

- NOTE:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. 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 RIGHTS-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.

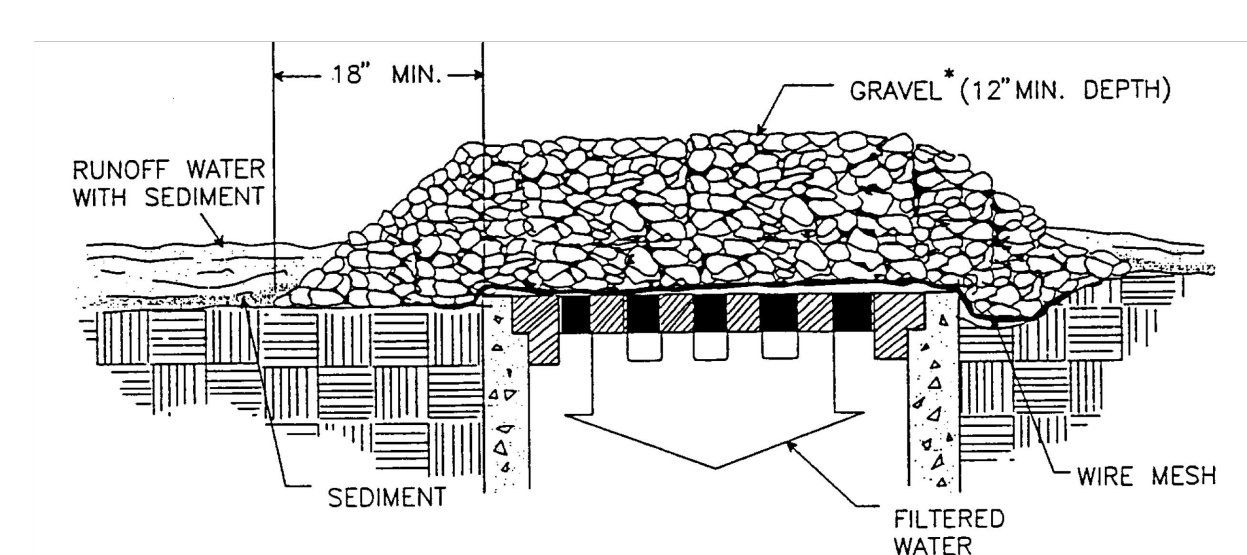


**GRAVEL FILTER BAGS INLET PROTECTION DETAIL**  
N.T.S.

- NOTES:
1. STONE FILL BAGS SHALL BE WOVEN POLYPROPYLENE BAGS WITH APPROXIMATE DIMENSIONS OF 18-1/2 INCHES BY 28 INCHES.
  2. THE BAGS SHALL BE FILLED 1/2 TO 2/3 FULL WITH FDOT NO. 57 STONE. TIE THE ENDS OF FILLED BAGS USING EITHER DRAW STRINGS OR WIRE TIES.
  3. INTERWEAVE THE LOOSE ENDS OF THE BAGS SO THAT THE GAPS BETWEEN BAGS ARE FILLED AND THE ENDS OF THE BAGS ARE SEALED.
  4. COMPLETELY SURROUND THE INLET WITH A MINIMUM OF TWO (2) ROWS OF BAGS TO A MINIMUM OF 12 INCHES IN HEIGHT.

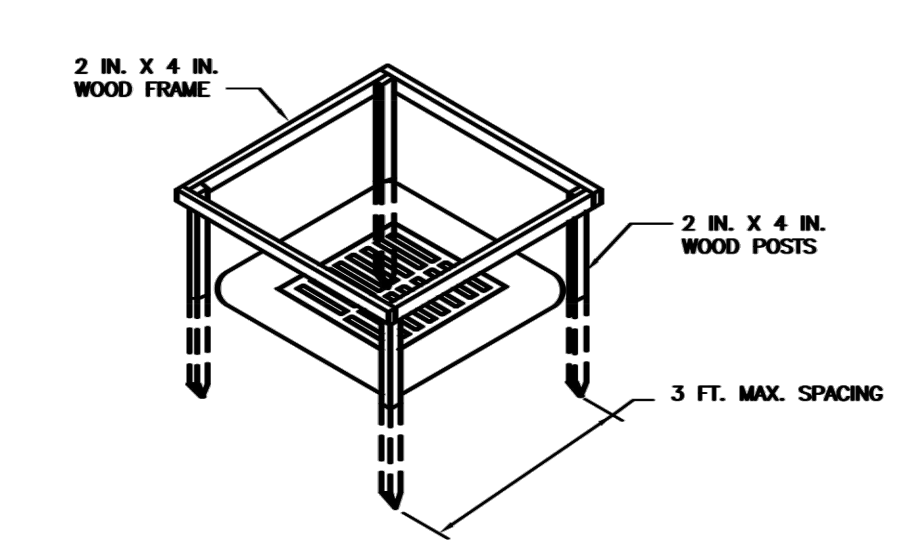


**GRAVEL & WIRE MESH INLET PROTECTION DETAIL**  
N.T.S.

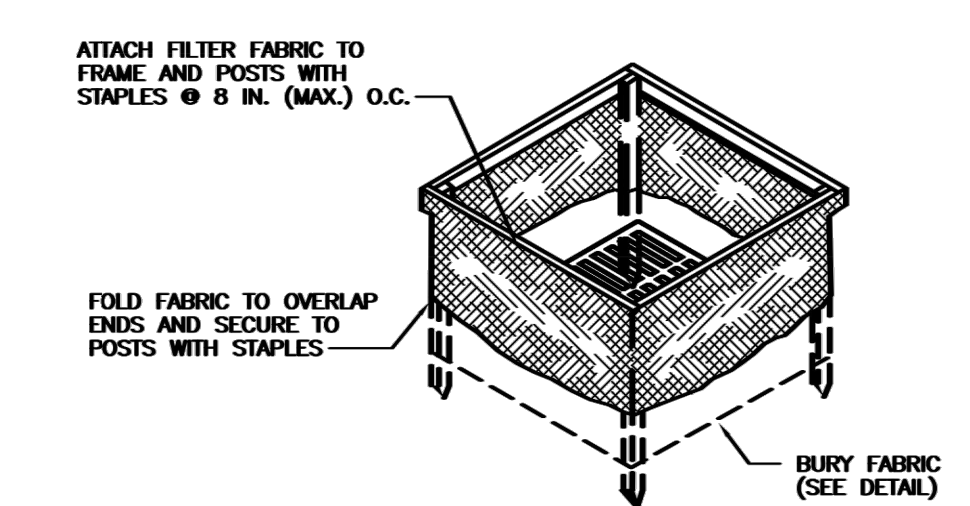


- NOTES:
1. GRAVEL AND MESH FILTERS CAN BE USED WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED AND SUBJECT TO DISTURBANCE BY SITE TRAFFIC. GRAVEL AND MESH FILTERS SHOULD NOT BE USED WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS. GRAVEL AND MESH FILTERS HAVE NO OVERFLOW MECHANISM, THEREFORE PONDING IS LIKELY ESPECIALLY IF SEDIMENT IS NOT REMOVED REGULARLY. GRAVEL AND MESH FILTERS MUST NEVER BE USED WHERE OVERFLOW MAY ENDANGER AN EXPOSED FILL SLOPE.
  2. WIRE MESH SHALL BE LAID OVER THE DROP INLET SO THAT THE WIRE EXTENDS A MINIMUM OF 1-FOOT BEYOND EACH SIDE OF THE INLET STRUCTURE. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS SHALL BE USED. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, THE STRIPS SHALL BE OVERLAPPED.
  3. FDOT NO. 1 COARSE AGGREGATE (1.5" TO 3" STONE) SHALL BE PLACED OVER THE WIRE MESH AS INDICATED. THE DEPTH OF STONE SHALL BE AT LEAST 12-INCHES OVER THE ENTIRE INLET OPENING. THE STONE SHALL EXTEND BEYOND THE INLET OPENING AT LEAST 18-INCHES ON ALL SIDES.
  4. IF THE STONE BECOMES CLOGGED WITH SEDIMENT, THE STONES MUST BE PULLED AWAY FROM THE INLET, CLEANED, AND REPLACED.

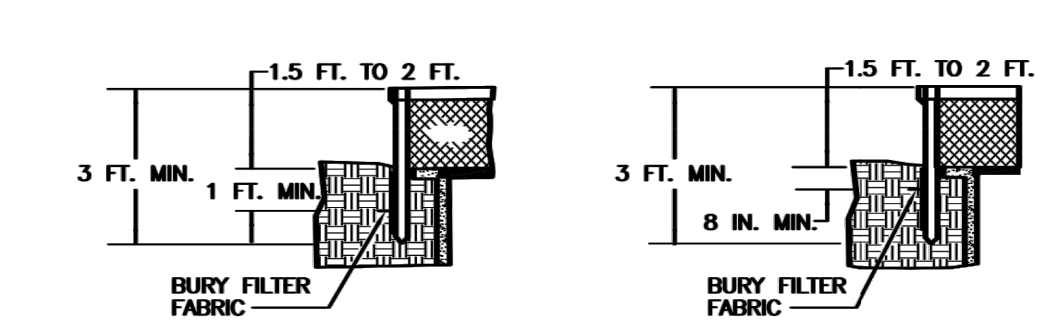
**GRAVEL & WIRE MESH INLET PROTECTION DETAIL**  
N.T.S.



**WOOD FRAME CONSTRUCTION DETAIL**



**FILTER FABRIC INSTALLATION DETAIL**



**FILTER FABRIC BURIAL OPTIONS**  
**SEDIMENT BARRIER INLET PROTECTION DETAIL**  
N.T.S.

DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS
07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

Date:	06/30/2021
Scale:	###
Design By:	CS
Drawn By:	AC
Check By:	LDG

FREEDOM RV STORAGE  
MIELE EQUITIES  
CITY OF STUART, FLORIDA

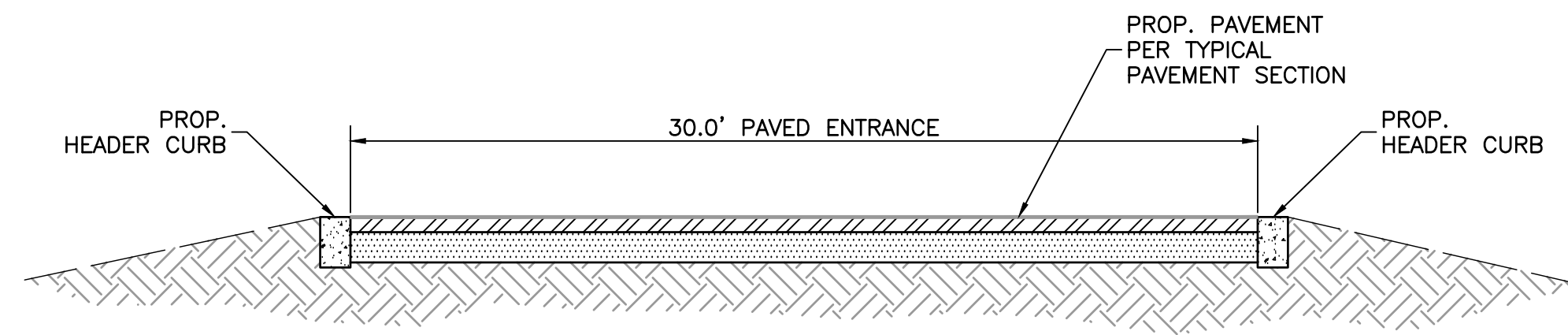
DETAILS

**GIANGRANDE ENGINEERING AND PLANNING**  
2081 SE OCEAN BLVD., SUITE 1A  
STUART, FLORIDA 34996  
PH. (772) 888-9076  
Cert. No. 30901

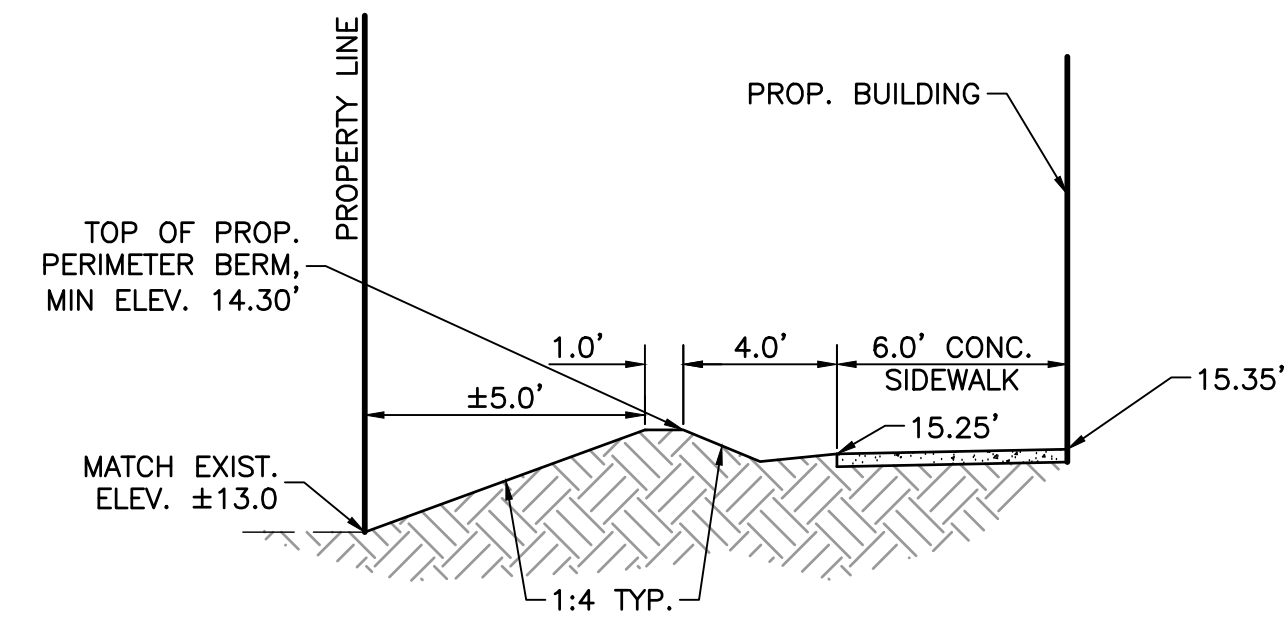
LEO D. GIANGRANDE, P.E.  
License No. 66387

PROJECT #: 21-004

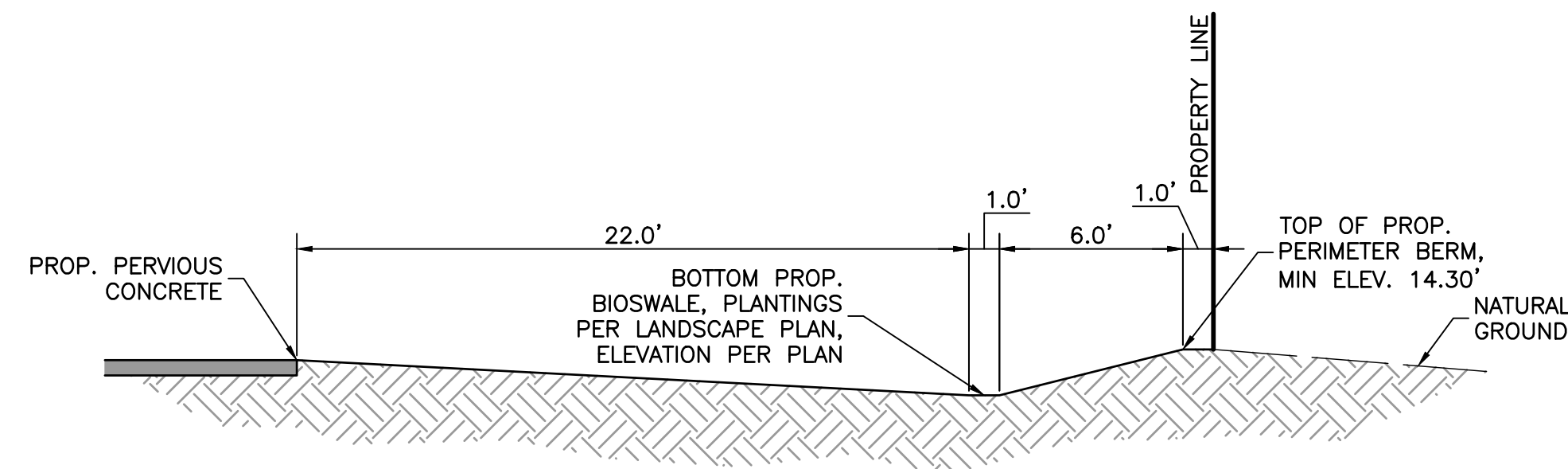
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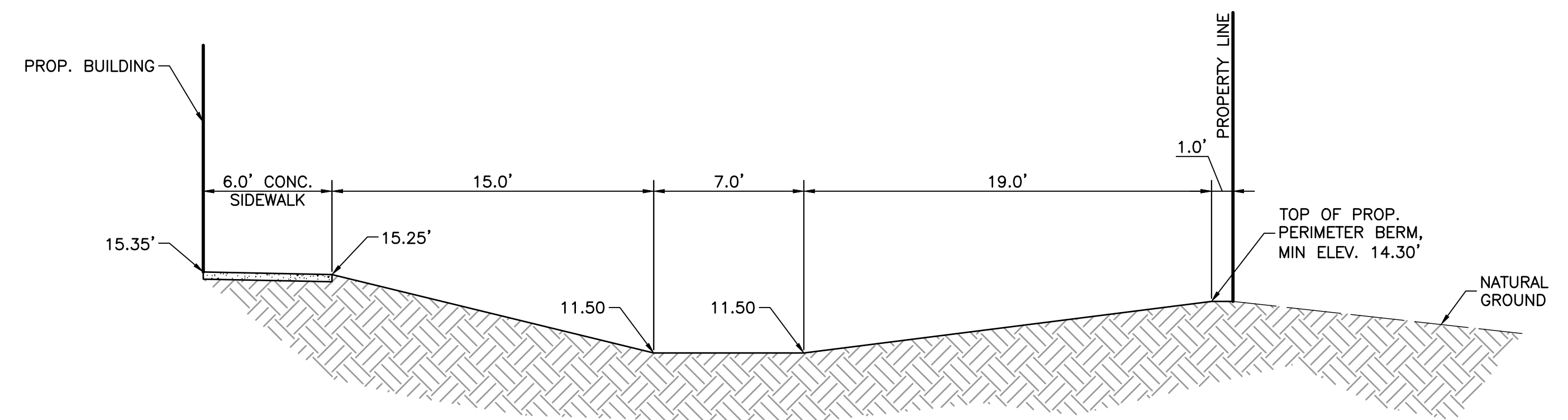
**SECTION A-A**  
SCALE: N.T.S.



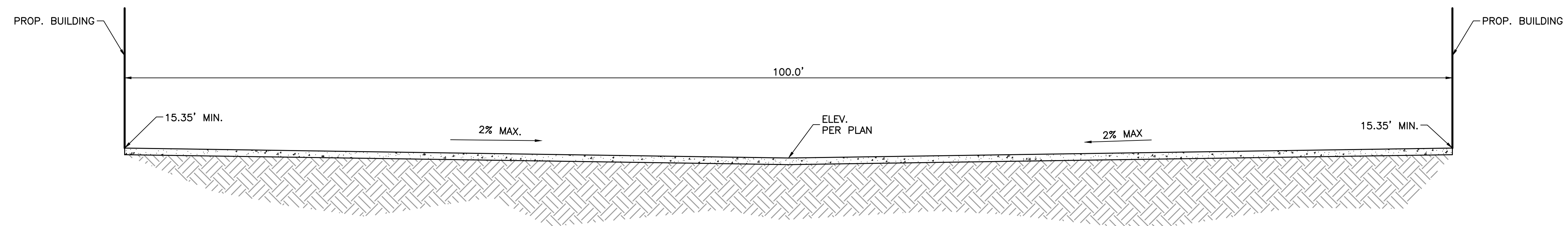
**SECTION B-B**  
SCALE: N.T.S.



**SECTION C-C**  
SCALE: N.T.S.



**SECTION D-D**  
SCALE: N.T.S.



**SECTION E-E**  
SCALE: N.T.S.


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DATE	BY	REVISIONS
12/21/2022	DCM	REVISED PER CITY OF STUART COMMENTS
10/10/2022	LDG	REVISED PER CITY OF STUART COMMENTS
07/27/2022	JLS	REVISED PER CITY OF STUART COMMENTS
02/04/2022	AC	REVISED PER CITY OF STUART COMMENTS

Date:	06/30/2021
Scale:	####
Design By:	CS
Drawn By:	AC
Check By:	LDG

FREEDOM RV STORAGE  
MIELE EQUITIES  
CITY OF STUART, FLORIDA

CROSS SECTIONS

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PROJECT #: 21-004  
**XS-1**