

PAVING AND DRAINAGE PLANS

SECTION 20 T44S-R43E

DEMOLITION NOTES

7. BEFORE PROCEEDING WITH REMOVAL WORK CHECK WITH OWNER'S REPRESENTATIVE IF ANY ITEMS INDICATED TO BE REMOVED IS TO BE SALVAGED. CAREFULLY REMOVE THESE ITEMS AND TRANSFER TO STORAGE AREAS AS DIRECTED BY OWNER'S REPRESENTATIVE

SITE NOTES:

6. SEQUENCE OF CONSTRUCTION SHALL BE SUCH THAT ALL UNDERGROUND UTILITIES SHALL BE INSTALLED, TESTED, INSPECTED AND APPROVED PRIOR TO ROAD CONSTRUCTION.

CONTACT PERSON INFORMATION

E-MAIL ADDRESS: *ar.tyg.75704@gmail.com*



PROPERTY
SUBJECT

LOCATION MAP

N.T.S

DRAWINGS INDEX

SHEET DESCRIPTION

<u>SHEET No.</u>	<u>SHEET DESCRIPTION</u>
C-001	COVER SHEET
C-101	PAVING, GRADING & DRAINAGE PLAN
C-102	EROSION AND SEDIMENT CONTROL PLAN
C-103	STRIPING AND SIGNAGE PLAN
C-301	EROSION CONTROL NOTES & DETAILS
C-302	STANDARD DETAILS
C-303	STANDARD DETAILS

GENERAL NOTES:

- 17.- EXISTING TOPOGRAPHIC AND TREE LOCATION INFORMATION HAS BEEN OBTAINED FROM THE SKETCH OF TOPOGRAPHIC SURVEY PERFORMED BY MILLER LAND SURVEYING Date: 02/10/2020

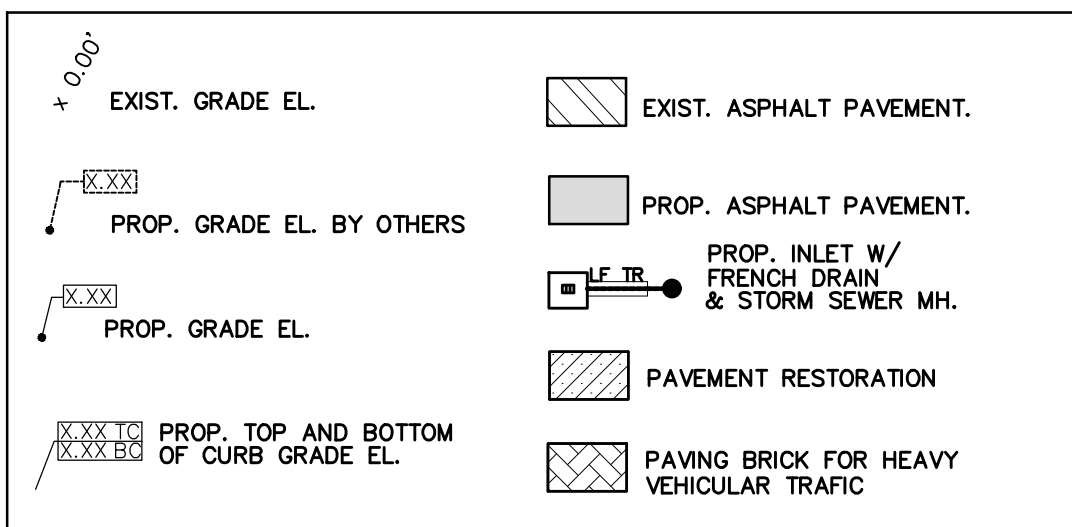
UNDERGROUND CONTRACTORS:

- B. ENGINEER IS NOT RESPONSIBLE FOR THE SAFETY OF THE EXCAVATION OR DESIGN AND CONSTRUCTION OF ANY SHORING.

ENGINEER CERTIFICATION NOTE:

THIS PLAN WAS PREPARED UNDER MY DIRECTION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLIES WITH THE INTENT OF THE "MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE STATE OF FLORIDA LEGISLATURE, CHAPTER 72-328.FS.

LEGEND.



This item has been digitally signed and sealed by Alexander Rojas, PE on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

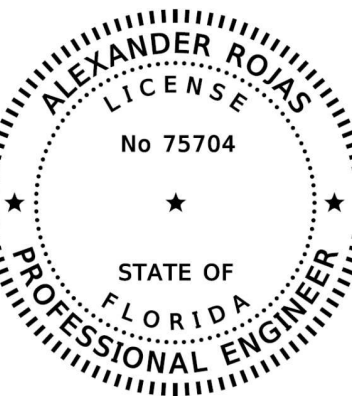
EMAIL:ar.tyg.75704@gmail.com

<i>No.</i>	<i>DESCRIPTION</i>	<i>BT</i>	<i>APP.</i>
<u>1</u>	LAKE WORTH BEACH COMMENTS 09/22/20	GR	FI
<u>2</u>	LAKE WORTH BEACH COMMENTS 11/24/20	GR	FI
<u>3</u>	LAKE WORTH BEACH COMMENTS 04/09/21	GR	FI

RECORD OF REVISION

3322 BOUTWELL
3322 BOUTWELL RD. LAKE WORTH, FL 33461
COVER SHEET

S E A L



ALEXANDER ROJAS, PE
REGISTERED ENGINEER NO. 75704
STATE OF FLORIDA

SCALE: AS SHOWN

DESIGNED : F. I.

DRAWN: G. R.

CHECKED: A. R.

DATE: 02/14/20

30.001

SHEET:

C-001

1 OF 7



Consulting
Engineering LLC
C.A. #32294

3921 NEW VALENCIA,
GREENACRES, FL 33467
(561) 891-5124

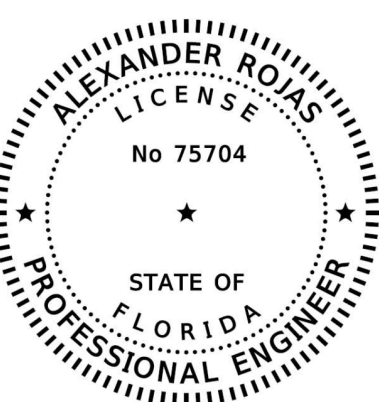
EMAIL: or.ryg.75704@gmail.com

BY	APP.	DESCRIPTION
GR	FI	LAKE WORTH BEACH COMMENTS 09/22/20
GR	FI	LAKE WORTH BEACH COMMENTS 11/24/20
GR	FI	LAKE WORTH BEACH COMMENTS 04/09/21

RECORD OF REVISION

3322 BOUTWELL
3322 BOUTWELL RD. LAKE WORTH, FL 33461
PAVING, GRADING & DRAINAGE PLAN

S E A L



ALEXANDER ROJAS, PE
REGISTERED ENGINEER NO. 75704
STATE OF FLORIDA

SCALE: 1" = 10'

DESIGNED: F. I.

DRAWN: G. R.

CHECKED: A. R.

DATE: 02/14/20

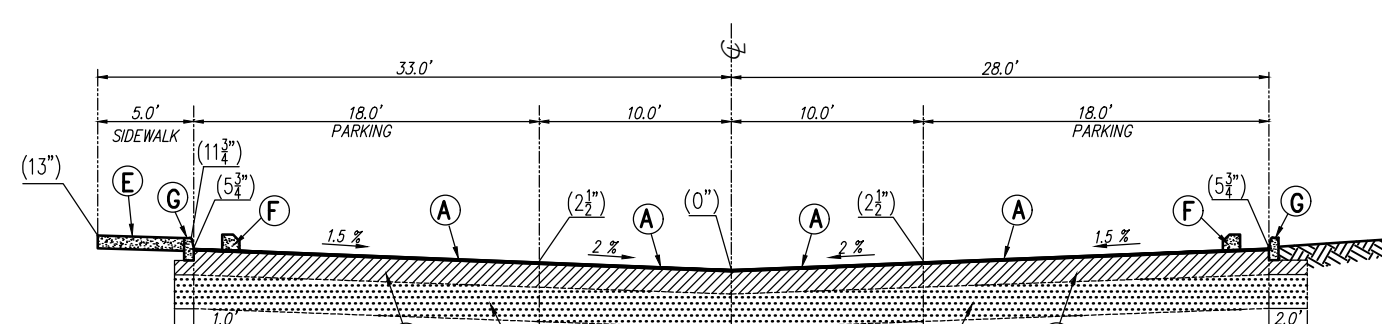
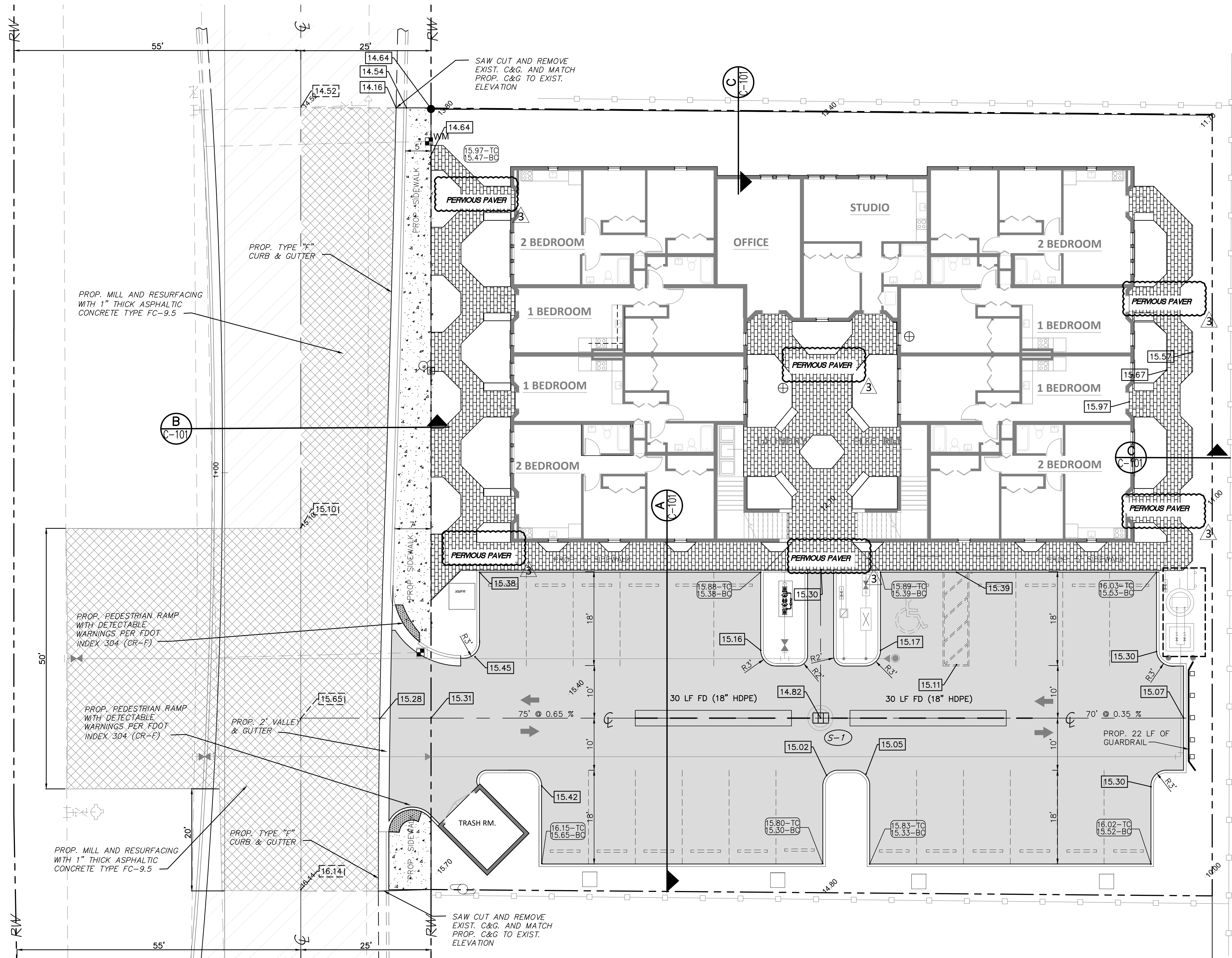
PROJECT NO:

20-001

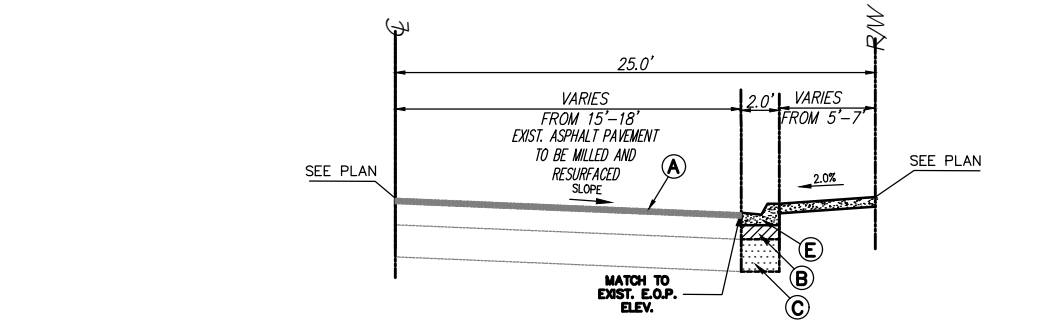
SHEET:

C-101

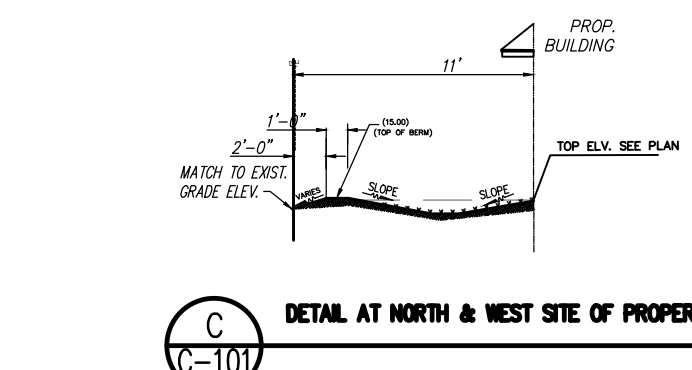
2 OF 7



- Ⓐ ASPHALTIC CONCRETE SURFACE COURSE 1 1/2" THICK ((2) 3/4" LIFT (SP-9.5))
- Ⓑ 8" BASE COURSE (LBR 100), PRIMED ENTIRE WIDTH, COMPACTED TO 98% MAX. DENSITY PER AASHTO T-180
- Ⓒ 12" STABILIZED SUBGRADE (LBR 40) COMPACTED TO 95% MAX. DENSITY PER FM 5-515
- Ⓓ SOLID SOD
- Ⓔ PROP. CONC. SIDEWALK
- Ⓕ CONCRETE WHEEL STOP
- Ⓖ PROP. TYPE "D" CURB



- Ⓐ EXIST. ASPHALT PAVEMENT TO BE MILLED AND RESURFACED
- Ⓑ 8" BASE COURSE (LBR 100), PRIMED ENTIRE WIDTH, COMPACTED TO 98% MAX. DENSITY PER AASHTO T-180
- Ⓒ 12" STABILIZED SUBGRADE (LBR 40) COMPACTED TO 95% MAX. DENSITY PER FM 5-515
- Ⓓ PROP. CONC. SIDEWALK
- Ⓔ PROP. CURB & GUTTER (TYPE "F")



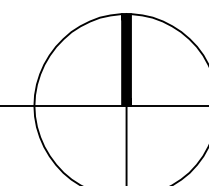
DETAIL AT NORTH & WEST SITE OF PROPERTY LINE

This item has been digitally signed and sealed by Alexander Rojas, PE on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

INLET STRUCTURES TABULATION									
STRUCTURE S NUMBER	GRATE OR RM	SOLID PIPE		SOLID PIPE DIA. (INCH)		FRENCH DRAIN	FLOOR ELV.	GREASE BAFFLE	FRAME TYPE
		ELV.	DIRECTION			ELV.	DIRECTION		
S-1	14.82					11.32	E.W	7.82	4700-6223
									18"
									TYPE "A" (R48")
									TOTAL
									60

PAVING, GRADING + DRAINAGE PLAN

SCALE: 1" = 10'





Consulting
Engineering LLC
C.A. #32294

3921 NEW VALENCIA,
GREENACRES, FL 33467
(561) 891-5124

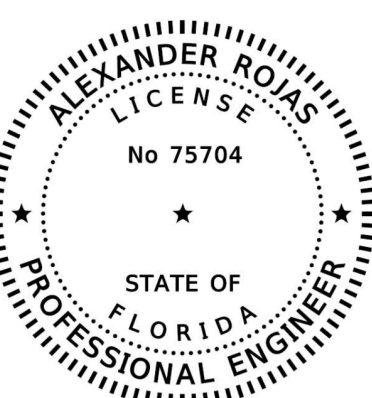
EMAIL: ar.ryg.75704@gmail.com

BY	APP.	DESCRIPTION
GR	FI	LAKE WORTH BEACH COMMENTS 09/22/20
GR	FI	LAKE WORTH BEACH COMMENTS 11/24/20
GR	FI	LAKE WORTH BEACH COMMENTS 04/09/21

RECORD OF REVISION

3322 BOUTWELL
3322 BOUTWELL RD. LAKE WORTH, FL 33461
EROSION AND SEDIMENT CONTROL PLAN

S E A L



ALEXANDER ROJAS, PE
REGISTERED ENGINEER NO. 75704
STATE OF FLORIDA

SCALE: 1" = 10'

DESIGNED: F. I.

DRAWN: G. R.

CHECKED: A. R.

DATE: 02/14/20

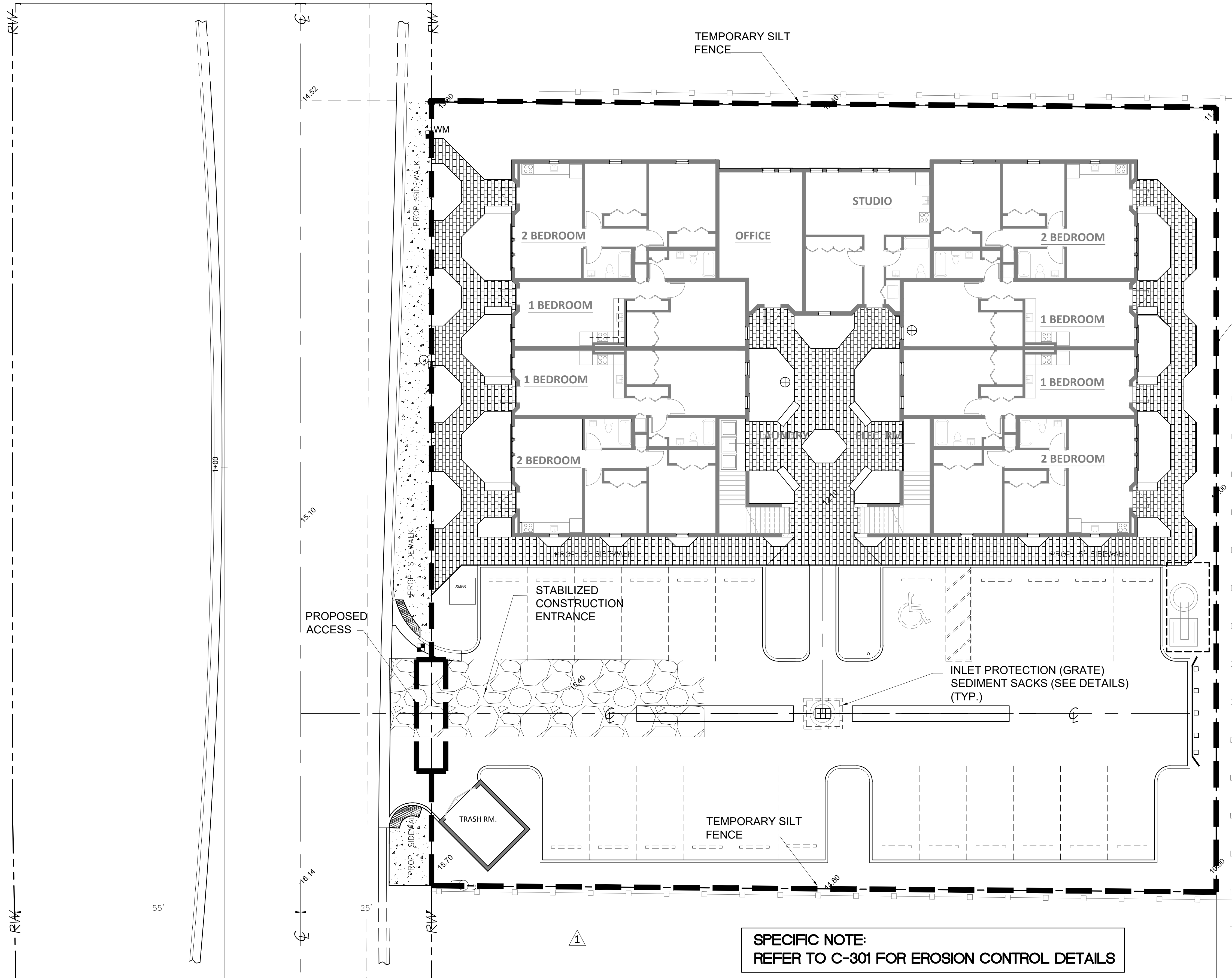
PROJECT NO:

20-001

SHEET:

C-102

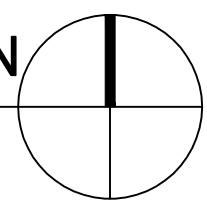
3 OF 7



SPECIFIC NOTE:
REFER TO C-301 FOR EROSION CONTROL DETAILS

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 10'



- GENERAL NOTES:**
- 1.- ALL APPLICABLE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY GRADING OPERATION AND/OR INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES
 - 2.- SYNTHETIC BALES SHALL BE TRENCHED 3" TO 4" AND ANCHORED WITH 2- 1" X 2" (OR 1" DIAM.) X 4" WOOD STAKES. STAKES OF OTHER MATERIAL OR SHAPE PROVIDING EQUIVALENT STRENGTH MAY BE USED IF APPROVED BY THE ENGINEER.
 - 3.- ADJACENT BALES SHALL BE BUTTED FIRMLY TOGETHER. UNAVOIDABLE GAPS SHALL BE PLUGGED WITH HAY OR STRAW TO PREVENT SILT FROM PASSING.
 - 4.- GEOHAY SYNTHETIC FIBER BALE SHALL BE ANCHORED WITH MIN. 2" X 2" WOOD STAKES OR 1.25# STEEL STAKES. SEDIMENT SACKS SHALL BE INSTALLED AT ALL NEW AND EXISTING INLETS DURING CONSTRUCTION.
 - 5.- INLET(S)/OUTFALLS SHALL BE PROTECTED WITH FILTER FABRIC AND PROPERLY INSTALLED GEOHAY INLET FILTERS OR SEDIMENT SACKS WITH THE SAME INSTALLATION AS INDICATED UNDER THE BEST MANAGEMENT PRACTICES.
 - 6.- FOR ADDITIONAL STRENGTH FILTER FABRIC MATERIAL CAN BE ATTACHED TO A 6" (MAX.) MESH WIRE SCREEN WHICH HAS BEEN FASTENED TO THE POSTS.
 - 7.- ENTRANCE TO THE PROJECT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT INTO PUBLIC RIGHT-OF-WAY. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE OF PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED ROCK THAT DRAINS INTO A SEDIMENT TRAP
 - 8.- THE FABRIC MATERIAL AND THE WIRE MESH SHALL NOT EXTEND MORE THAN 36" (90 CM) ABOVE THE ORIGINAL GROUND SURFACE.
 - 9.- SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
 - 10.- AFTER CONSTRUCTION IS COMPLETE ALL STORM DRAIN SYSTEMS ASSOCIATED WITH THIS PROJECT SHALL BE INSPECTED AND CLEARED OF ACCUMULATED SEDIMENTS AND DEBRIS

This item has been digitally signed and sealed by Alexander Rojas, PE on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



Consulting
Engineering LLC
C.A. #32294

3921 NEW VALENCIA,
GREENACRES, FL 33467
(561) 891-5124

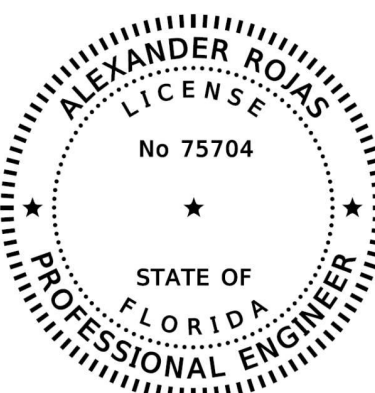
EMAIL: ar.ryg.75704@gmail.com

BY	APP.	DESCRIPTION
GR	FI	LAKE WORTH BEACH COMMENTS 09/22/20
GR	FI	LAKE WORTH BEACH COMMENTS 11/24/20
GR	FI	LAKE WORTH BEACH COMMENTS 04/09/21

RECORD OF REVISION

3322 BOUTWELL
3322 BOUTWELL RD. LAKE WORTH, FL 33461
STRIPING AND SIGNAGE PLAN

S E A L



ALEXANDER ROJAS, PE
REGISTERED ENGINEER NO. 75704
STATE OF FLORIDA

SCALE: 1" = 10'

DESIGNED: F.I.

DRAWN: G.R.

CHECKED: A.R.

DATE: 02/14/20

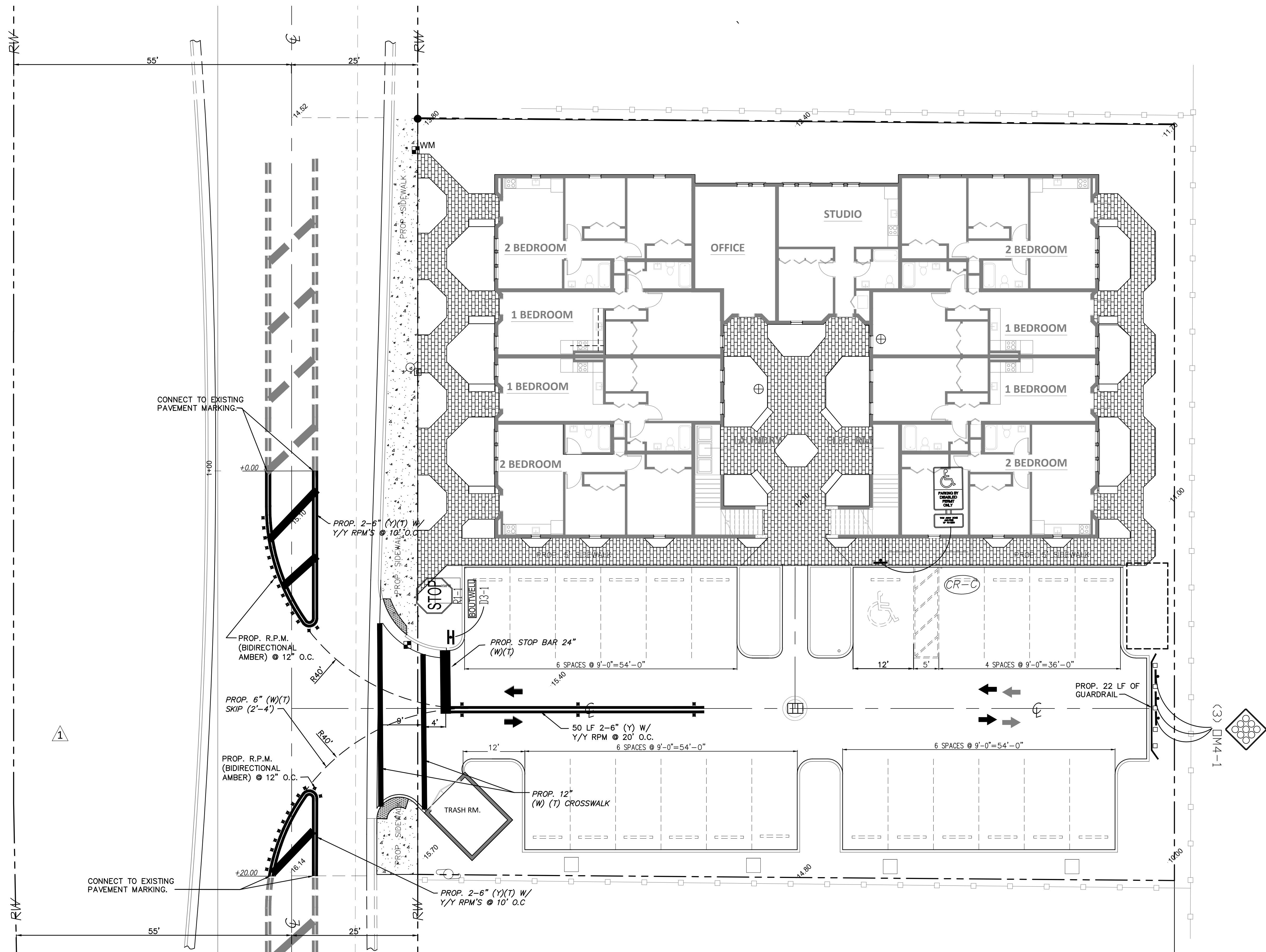
PROJECT NO:

20-001

SHEET:

C-103

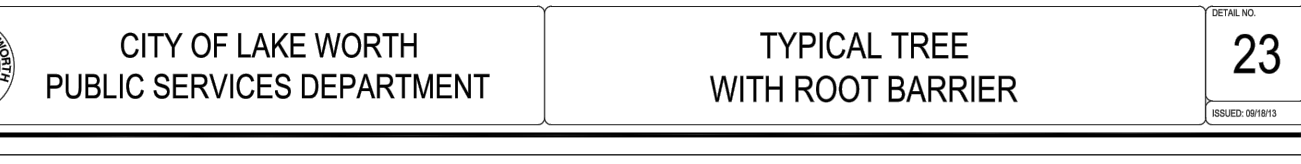
4 OF 7




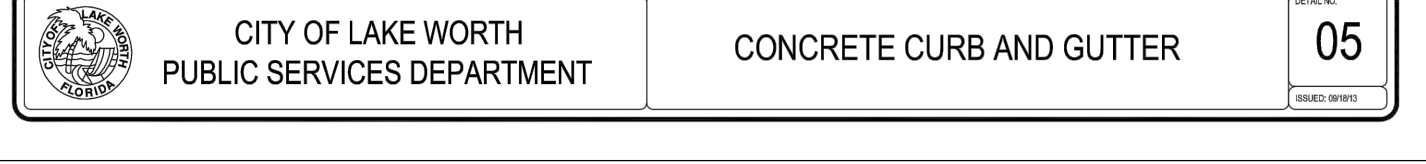
STRIPING AND SIGNAGE PLAN


SCALE: 1" = 10'

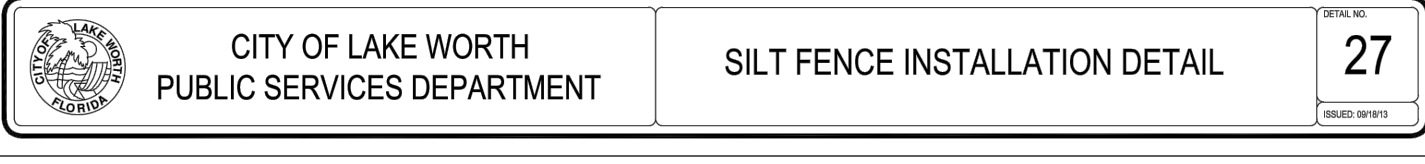
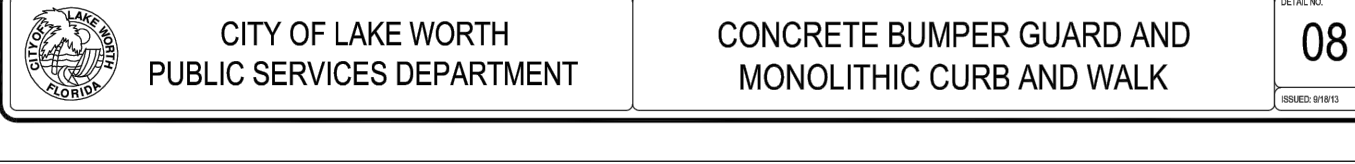
- | | | |
|---|---|---|
|  <p>CITY OF LAKE WORTH
PUBLIC SERVICES DEPARTMENT</p> | <p>EROSION CONTROL NOTES
DETAIL</p> | <p>DATE: 06/16/20</p> <p>25</p> <p>ISSUED: 06/16/20</p> |
| | | <p>REVISIONS:</p> |




- | | | |
|--|--|---|
|  <p>CITY OF LAKE WORTH
PUBLIC SERVICES DEPARTMENT</p> | <p>TYPICAL TREE
WITH ROOT BARRIER</p> | <div style="border: 1px solid black; padding: 2px;"> <small>DATE PLANTED</small>
 <div style="font-size: 24pt; font-weight: bold;">23</div> <small>ISSUED 08/01/21</small> </div> |
|--|--|---|




- | | | |
|--|---|----------------------------|
|  <p>CITY OF LAKE WORTH
PUBLIC SERVICES DEPARTMENT</p> | <p>CONCRETE BUMPER GUARD AND
MONOLITHIC CURB AND WALK</p> | <p>08</p> |
| | | <p>ISSUED BY: 11/11/11</p> |



- | | | |
|--|---------------------------------------|---|
|  <p>CITY OF LAKE WORTH
PUBLIC SERVICES DEPARTMENT</p> | <p>SILT FENCE INSTALLATION DETAIL</p> | <p>DETAIL NO.</p> <p>28</p> <p>ISSUED SHEETS</p> |
| | | |

- | | | |
|--|--|---|
|  <p>CITY OF LAKE WORTH
PUBLIC SERVICES DEPARTMENT</p> | <p>STABILIZED CONSTRUCTION
ENTRANCE DETAIL</p> | <p>DATE: 01/20/2023</p> <p>29</p> <p>ISSUED: 01/20/2023</p> |
| | | |

- | | | |
|--|----------------------------|-----------------------------|
|  <p>CITY OF LAKE WORTH
PUBLIC SERVICES DEPARTMENT</p> | <p>INLET FILTER DETAIL</p> | <p>DETAIL NO.</p> <p>26</p> |
| | | <p>ISSUED: 02/19/13</p> |

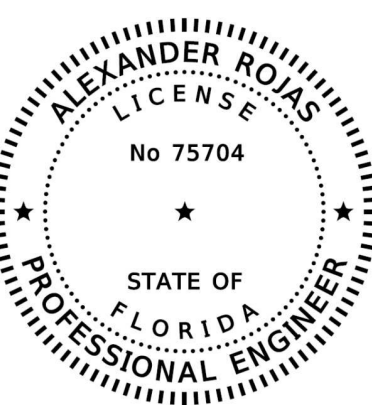
- 5 OF 7

No.	DESCRIPTION	BY	APP.
<u>1</u>	LAKE WORTH BEACH COMMENTS 09/22/20	GR	FI
<u>2</u>	LAKE WORTH BEACH COMMENTS 11/24/20	GR	FI
<u>3</u>	LAKE WORTH BEACH COMMENTS 04/09/21	GR	FI

RECORD OF REVISION

3322 BOUTWELL
3322 BOUTWELL RD. LAKE WORTH, FL 33461
COVER SHEET

S E A L



ALEXANDER ROJAS, PE
REGISTERED ENGINEER NO. 75704
STATE OF FLORIDA

SCALE: AS SHOWN

DESIGNED : F. I.

DRAWN: G. R.

CHECKED: A. R.

DATE: 02/14/20

PROJECT NO:

20-001

SHEET: _____

C-WS001

1 OF 6

L E G E N D		
ABBREVIATION	SYMBOL	DEFINITION
		ALUMINUM LIGHT POLE
		BELLSOUTH MANHOLE
		BELLSOUTH TELEPHONE BOX
		BENCHMARK
		CABLE BOX
		CATCH BASIN
€		CENTERLINE
		CLEAN OUT VALVE
CL.R.		CLEAR
C.L.F.		CHAIN LINK FENCE
CONC.		CONCRETE
C.B.S.		CONCRETE BLOCK STRUCTURE
		CONCRETE LIGHT POLE
		CONCRETE POWER POLE
		CONTROL VALVE
		DRAINAGE MANHOLE
		DRILL HOLE
		DUAL POLE SIGN
E.W.O.H.		ELECTRIC BOX
ELEV.		ELECTRIC METER
ELEV.		ELECTRIC WIRE OVERHEAD
FF.		ELEVATION (EXISTING)
		ELEVATION (PROPOSED)
		FINISHED FLOOR
		FIRE HYDRANT
		FIRE MAIN VALVE
		FLUORID POWER AND LIGHT COMPANY MANHOLE
FND.		FORCE MAIN VALVE
GAR.		FOUND
		GARAGE
		GAS MANHOLE
		GAS METER
		GAS VALVE
		GUARD POST
LP.		IRON FENCE
LP.		IRON PIPE
L.A. R/W		LIMITED ACCESS RIGHT OF WAY
		MAIN SEWER VALVE
		MAIL BOX
		MANHOLE
MEAS.		MEASURED
		MONUMENT
		NAIL
N. & D.		NAIL AND DISC
O.A.		ON LINE
P.B.		PLAT BOOK
P.C.		POINT OF CURVATURE
P.C.P.		PERMANENT CONTROL POINT
P.G.		PAGE
P		PROPERTY LINE
P.R.M.		PERMANENT REFERENCE MONUMENT
REC.		RAIL, ROAD CROSSING SIGN
R/W		RECORDED INFORMATION
SEC.		RIGHT OF WAY
		SECTION
		SECTION CORNER
		SEWER MANHOLE
		SIGN
		SPRINKLER VALVE
		SQUARE CUT AND NAIL
		STORM MANHOLE
		STREET LIGHT BOX
		STREET SIGN
		TELEPHONE BOX
		TELEPHONE MANHOLE
		TRAFFIC SIGNAL
		TRAFFIC SIGNAL BOX
		VALVE
		WATER METER
		WATER VALVE
		WELL
W.F.		WOOD FENCE
		WOOD POWER POLE
		ASPHALT
		BRICK
		CONCRETE
		TILE

PROPERTY
SUBJECT



LOCATION MAP

N.T.S.

FOR ALL PROJECT WHERE REMOVAL OF UTILITY LINES IS PROPOSED

1. ALL EXISTING UTILITIES BEING REMOVED AND/OR RELOCATED MUST REMAIN ACTIVE AND IN SERVICE, UNTIL SUCH TIME WHEN NEW REPLACING UTILITIES HAVE BEEN INSTALLED, IN SERVICE, ACCEPTED BY THE DEPARTMENT AND ALL RELATED SERVICES FROM THE EXISTING MAINS HAVE BEEN TRANSFERRED TO THE NEW ONES, BY THE CITY OF LAKE WORTH FORCES AT OWNER'S EXPENSE AS APPLICABLE.

2. ALL WATER AND/OR SEWER FACILITIES LOCATED IN PRIVATE PROPERTY SHALL BE REMOVED AFTER ALL INSTALLED SERVICES FROM THEM HAVE BEEN TRANSFERRED TO THE ALREADY INSTALLED AND IN SERVICE NEW MAINS. ANY ASSOCIATED EXCLUSIVE EASEMENTS SHALL BE CLOSED AND RELEASED AFTER THE REMOVAL OF THE EXISTING WATER AND/OR SEWER FACILITIES.

DRAWINGS INDEX

SHEET DESCRIPTION

<u>SHEET No.</u>	<u>SHEET DESCRIPTION</u>
C-WS001	WATER MAIN COVER SHEET
C-WS002	GENERAL NOTES
C-WS101	WATER & SEWER PLAN
C-WS102	SANITARY SEWER STANDARD DETAILS
C-WS103	SANITARY SEWER STANDARD DETAILS
C-WS104	WATER STANDARD DETAILS

CONTACT PERSON INFORMATION

NAME: Alexander Rojas, PE

TELEPHONE NUMBER: 561-891-5124

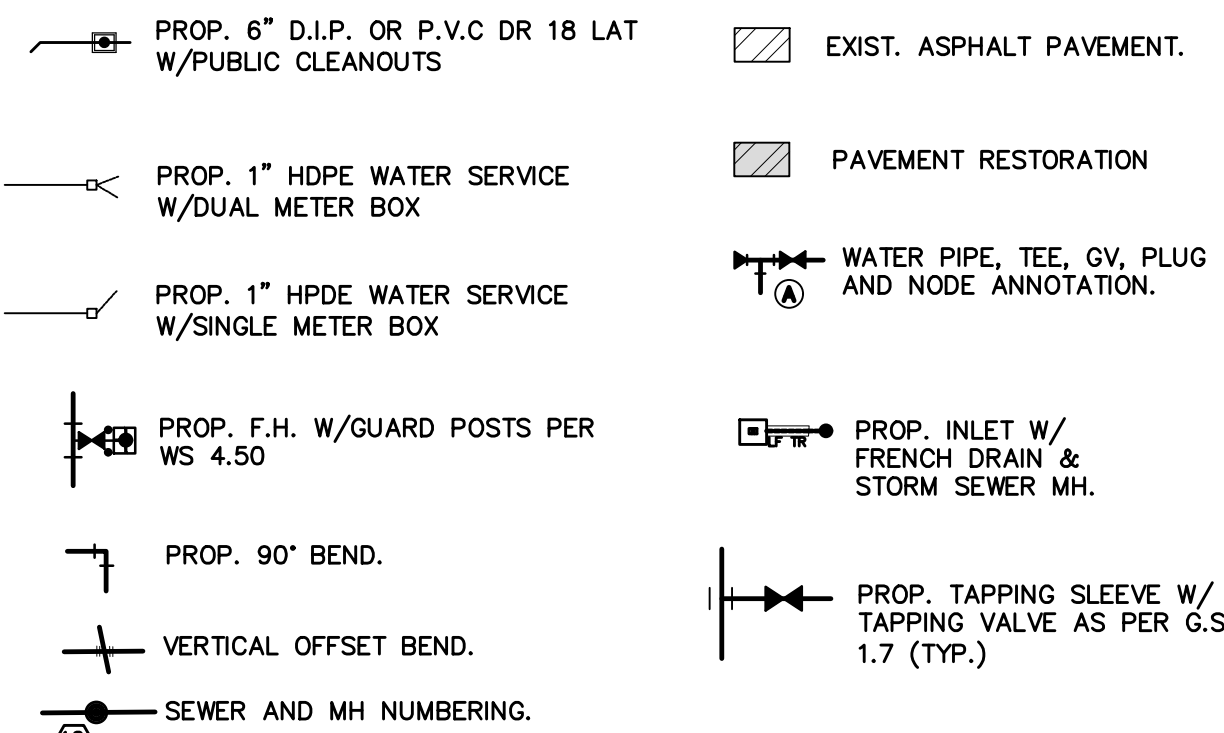
E-MAIL ADDRESS: ar.tyg.75704@gmail.com

Sunshine811

Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

Check positive response codes before you dig!

WATER AND SEWER GENERAL LEGEND



This item has been digitally signed and sealed by Alexander Rojas, PE on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

C:\Users\jznta\OneDrive\Documents\WORKING-PROJECTS\20-002 3322 Boutwell Road\DWG-FILES\20-002- BOUTWELL ROAD-5.dwg Drawn by: JZNA Apr 09, 2021 - 11:59am

NOT PART OF C. L. W. NOTES NOR APPROVAL

NOTES:

1.

ALL MATERIALS AND LABOR UNDER THIS PROJECT SHALL CONFORM TO THE CITY OF LAKE WORTH DEPARTMENT OF PUBLIC WORKS STANDARDS AND SPECIFICATIONS
2.

ELEVATIONS SHOWN ARE RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88.
3.

UNDERGROUND UTILITY INFORMATION IS TAKEN FROM THE BEST AVAILABLE SOURCES, BUT MUST BE VERIFIED BY CONTRACTOR IN THE FIELD WITH THE APPROPRIATE UTILITY AGENCIES PRIOR TO COMMENCEMENT OF ANY WORK.
4.

EXISTING UTILITY LINES OTHER THAN THOSE INDICATED IN THIS DRAWING MAY BE ON SITE. THE CONTRACTOR IS WARNED TO PROCEED WITH CAUTION WITH ALL WORK. HE IS TO MAKE ALL POSSIBLE INVESTIGATIONS AS TO POSSIBLE UNMARKED UTILITY LINES
5.

CONTRACTOR SHALL ADJUST ANY UTILITY LIDS AND/OR COVERS IN PROJECT AREA TO THE FINISHED GRADE.
6.

ANY APPARENT DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
7.

THE CONTRACTOR SHALL RESTORE ALL EXISTING PAVEMENT, UTILITIES, (ABOVE AND BELOW GROUND), AND SURFACE FEATURES DISTURBED DURING CONSTRUCTION TO A CONDITION EQUAL TO, OR BETTER THAN THE EXISTING IN ACCORDANCE WITH LAKE WORTH PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS.
8.

PROVIDE PAVEMENT RESTORATION AS PER THE LAKE WORTH PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS.
9.

WATER MAINS AND SANITARY SEWER LINES MUST MAINTAIN A MINIMUM SEPARATION FROM EACH OTHER AS PER HEALTH DEPARTMENT NOTES
10.

CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND FAMILIARIZING HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION.
11.

DIMENSIONS SHOWN ON THESE DRAWINGS ARE APPROXIMATE, FOR EXACT DIMENSIONS, SEE FINAL PLAT OR SITE PLAN PREPARED BY A REGISTERED LAND SURVEYOR OR THE ARCHITECT. FIELD LAYOUT WORK SHALL BE AS PER THE FINAL PLAT AND SITE PLAN MENTIONED ABOVE AND SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR
12.

THE ENGINEER IS NOT RESPONSIBLE FOR COORDINATING THE WORK OF OTHER UTILITIES, SUB-CONSULTANTS OR TRADES. IT IS THE OWNER'S RESPONSIBILITY TO PROVIDE COORDINATION FOR, BUT NOT LIMITED TO, THE LOCATION OF WATER, SEWER, AND DRAINAGE UTILITIES, AS WELL AS THE SERVICES, WITH THE LOCATION OF DRIVEWAYS, SIDEWALKS, RAMPS, LANDSCAPING, OTHER INFRASTRUCTURE IMPROVEMENTS AND OTHER SURFACE FEATURES.
13.

EXTEND SEWER LATERALS 2 FEET INTO PROPERTY LINE
14.

CONTRACTOR SHALL BE RESPONSIBLE FOR SHEATHING WHERE REQUIRED.
15.

BLUE 2" X 4" MARKER TO BE INSTALLED AT EACH WATER SERVICE.
16.

GREEN 2" X 4" MARKER TO BE INSTALLED AT EACH SEWER SERVICE.
17.

UTILITY CONDUITS TO BE MARKED.

UNDERGROUND CONTRACTORS:

- A.- UNDERGROUND CONTRACTOR SHALL COMPLY WITH THE TRENCH SAFETY ACT, HB 3183, FLORIDA STATUTES, WHICH INCORPORATES, BUT IS NOT LIMITED TO, THE FOLLOWING:

1.- OSHA STANDARD 29 C.F.R. PART 1926, SUBPART P, EXCAVATION AND TRENCHES.

2.- CONTRACT BIDS FOR TRENCH EXCAVATIONS (IN EXCESS OF 5 FEET DEEP) SHALL INCLUDE REFERENCE TO THE SAFETY STANDARDS, WRITTEN ASSURANCE OF COMPLIANCE, AND A SEPARATE ITEM IDENTIFYING THE COST OF COMPLIANCE.

3.- ADHERE TO ANY SPECIAL SHORING REQUIREMENTS OF THE STATE OR OTHER POLITICAL SUBDIVISION.
- B.- ENGINEER IS NOT RESPONSIBLE FOR THE SAFETY OF THE EXCAVATION OR DESIGN AND CONSTRUCTION OF ANY SHORING.

HEALTH DEPARTMENT NOTES:

WATER MAIN HORIZONTAL SEPARATIONS

SEPARATIONS SHALL BE MEASURED OUTSIDE EDGE TO OUTSIDE EDGE BETWEEN WATER MAINS AND, STORM SEWERS, STORMWATER FORCE MAINS, OR RECLAIMED WATER LINES, SHALL BE 3 FT MINIMUM.

BETWEEN WATER MAINS AND VACUUM TYPE SEWER PREFERABLY 10 FT. AND AT LEAST 3 FT MINIMUM.

GRAVITY OR PRESSURE SANITARY SEWERS, WASTEWATER FORCE MAINS OR RECLAIMED WATER PREFERABLY 10 FT AND AT LEAST 6 FT MAY BE REDUCED TO 3 FT. WHERE BOTTOM OF WATER MAIN IS AT LEAST 6 INCHES ABOVE TOP OF SEWER.

10 FT TO ANY PART OF ON-SITE SEWER TREATMENT OR DISPOSAL SYSTEM.

WATER MAIN VERTICAL SEPARATIONS

SEPARATIONS BETWEEN WATER MAINS AND GRAVITY SEWER, VACUUM TYPE SEWER, OR STORM SEWERS, TO BE PREFERABLY 12 INCHES OR AT LEAST 6 INCHES ABOVE OR AT LEAST 12 INCHES IF BELOW.*

PRESSURE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR RECLAIMED WATER, AT LEAST 12 INCHES ABOVE OR BELOW.*

* NOTE: CENTER 1--FULL LENGTH OF WATER MAIN PIPE AT CROSSINGS; ALTERNATIVELY ARRANGE PIPES SO JOINTS ARE AT LEAST 3 FEET FROM JOINTS IN VACUUM, STORM OR STORM FORCE MAINS, AT LEAST 6 FEET FROM JOINTS IN GRAVITY OR PRESSURE SEWERS, WASTEWATER FORCE MAINS OR RECLAIMED WATER.

This item has been digitally signed and sealed by Alexander Rojas, PE on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

TG

Consulting
Engineering LLC
C.A. #32294

3921 NEW VALENCIA,
GREENACRES, FL 33467
(561) 891-5124

EMAIL: ar.ryg.75704@gmail.com

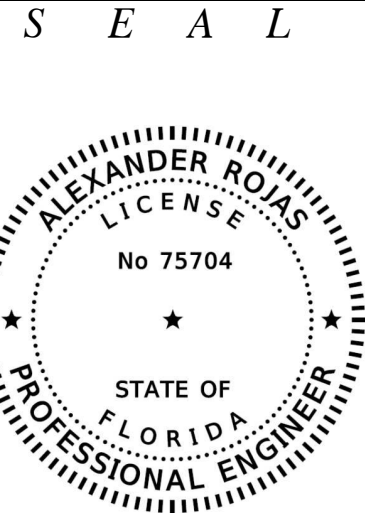
BY	APP.	GR	FI	GR	FI	GR	FI				
DESCRIPTION											
LAKE WORTH BEACH COMMENTS 09/22/20											
LAKE WORTH BEACH COMMENTS 11/24/20											
LAKE WORTH BEACH COMMENTS 04/09/21											
No.											

RECORD OF REVISION

3322 BOUTWELL

3322 BOUTWELL RD. LAKE WORTH, FL 33461

GENERAL NOTES



ALEXANDER ROJAS, PE
REGISTERED ENGINEER NO. 75704
STATE OF FLORIDA

SCALE: N.T.S.

DESIGNED : F.I.

DRAWN: G.R.

CHECKED: A.R.

DATE: 02/14/20

PROJECT NO:
20-001

SHEET:



Consulting
Engineering LLC
C.A. #32294

3921 NEW VALENCIA,
GREENACRES, FL 33467
(561) 891-5124

EMAIL: ar.ryg.75704@gmail.com

BY	APP.	DESCRIPTION
GR	FI	LAKE WORTH BEACH COMMENTS 09/22/20
GR	FI	LAKE WORTH BEACH COMMENTS 11/24/20
GR	FI	LAKE WORTH BEACH COMMENTS 04/09/21

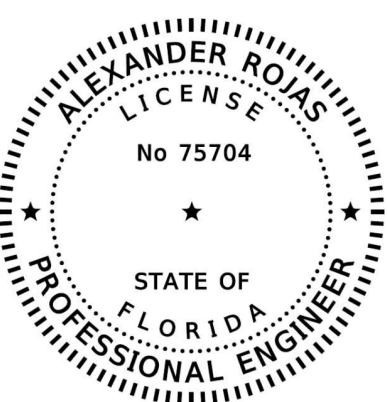
RECORD OF REVISION

3322 BOUTWELL

3322 BOUTWELL RD. LAKE WORTH, FL 33461

WATER AND SEWER PLAN

S E A L



ALEXANDER ROJAS, PE
REGISTERED ENGINEER NO. 75704
STATE OF FLORIDA

SCALE: 1" = 10'

DESIGNED: F. I.

DRAWN: G. R.

CHECKED: A. R.

DATE: 02/14/20

PROJECT NO:

20-001

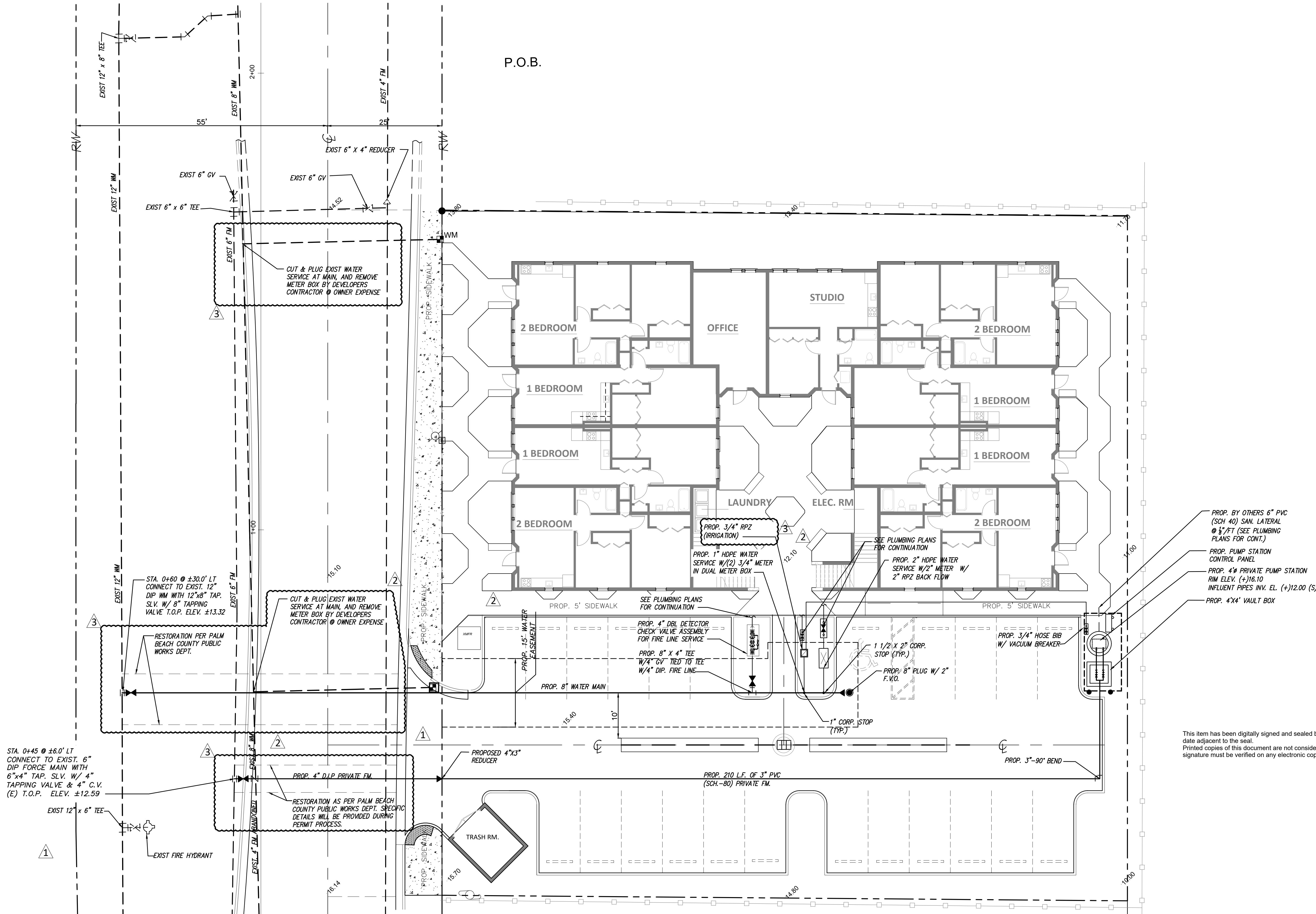
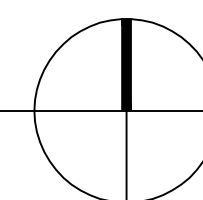
SHEET:

C-WS101

3 OF 6

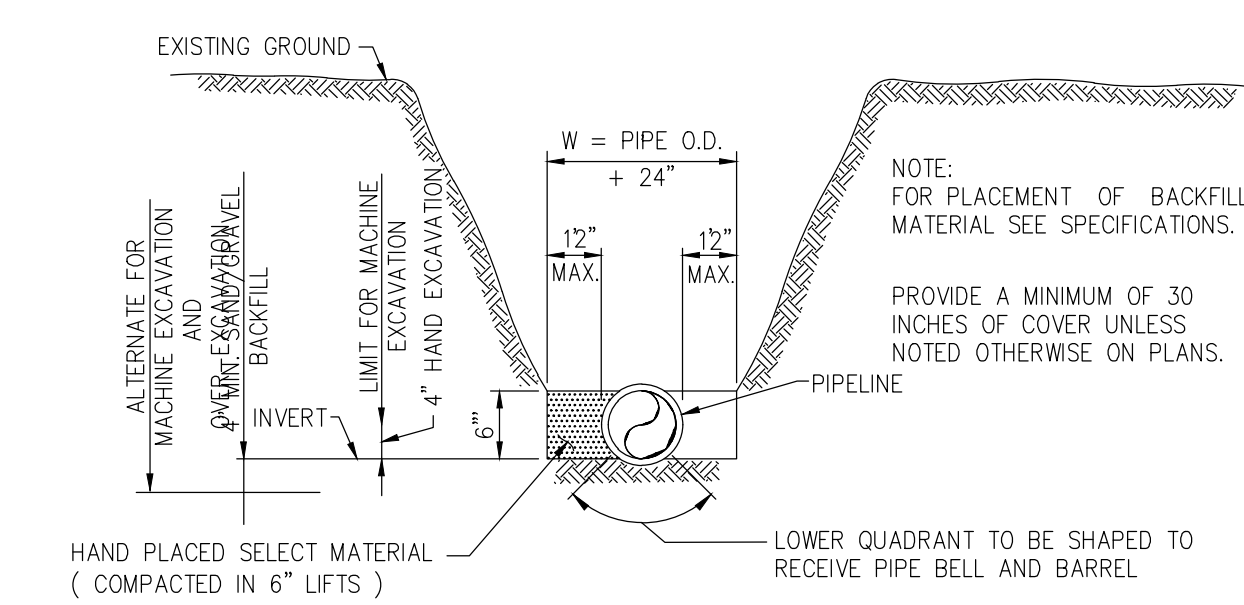
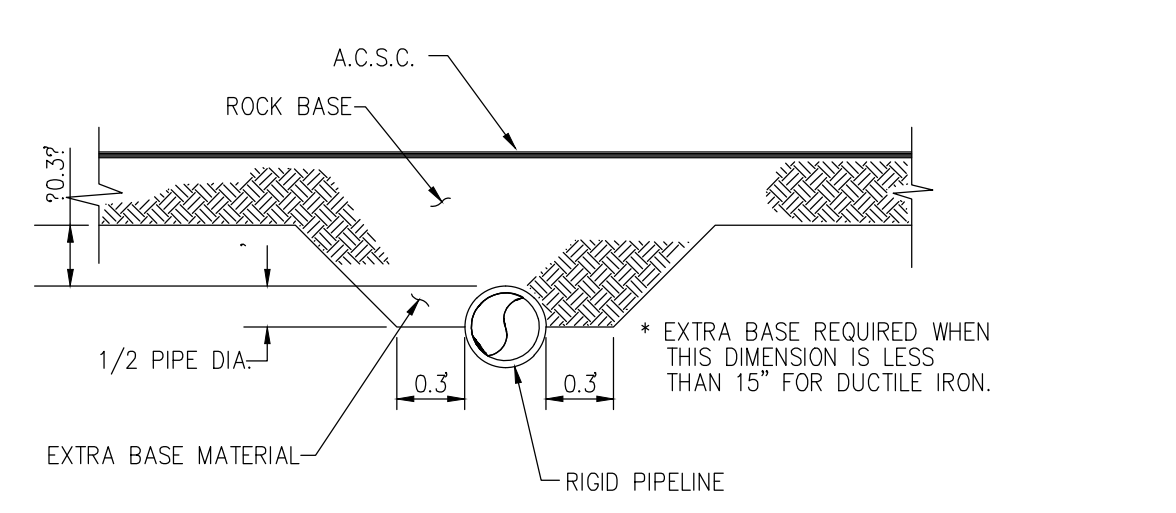
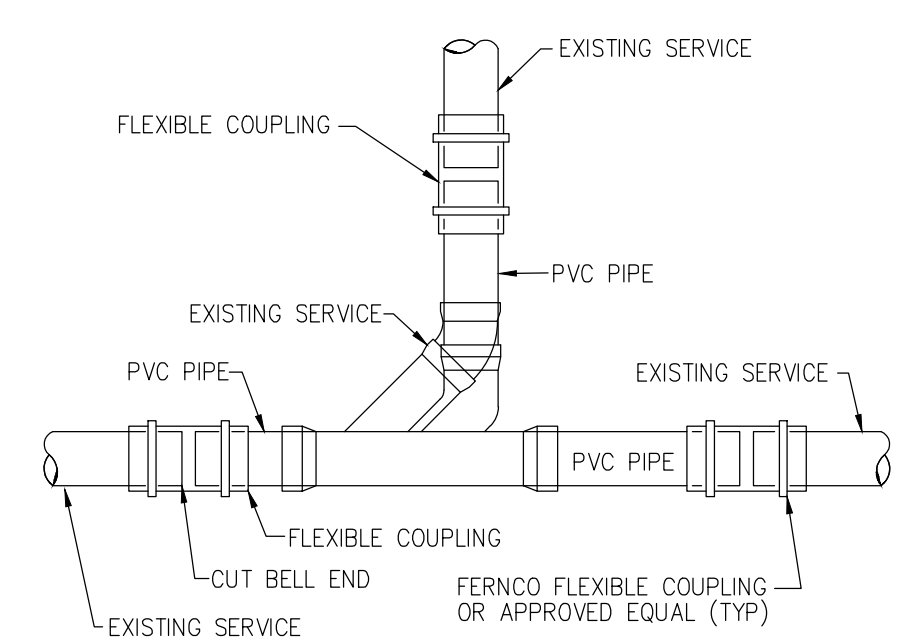
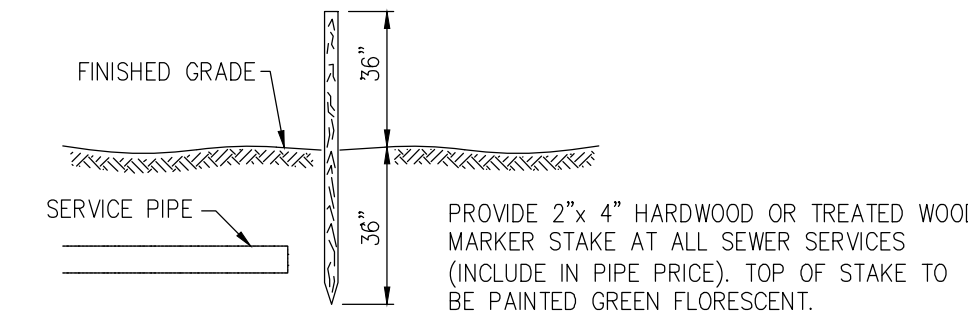
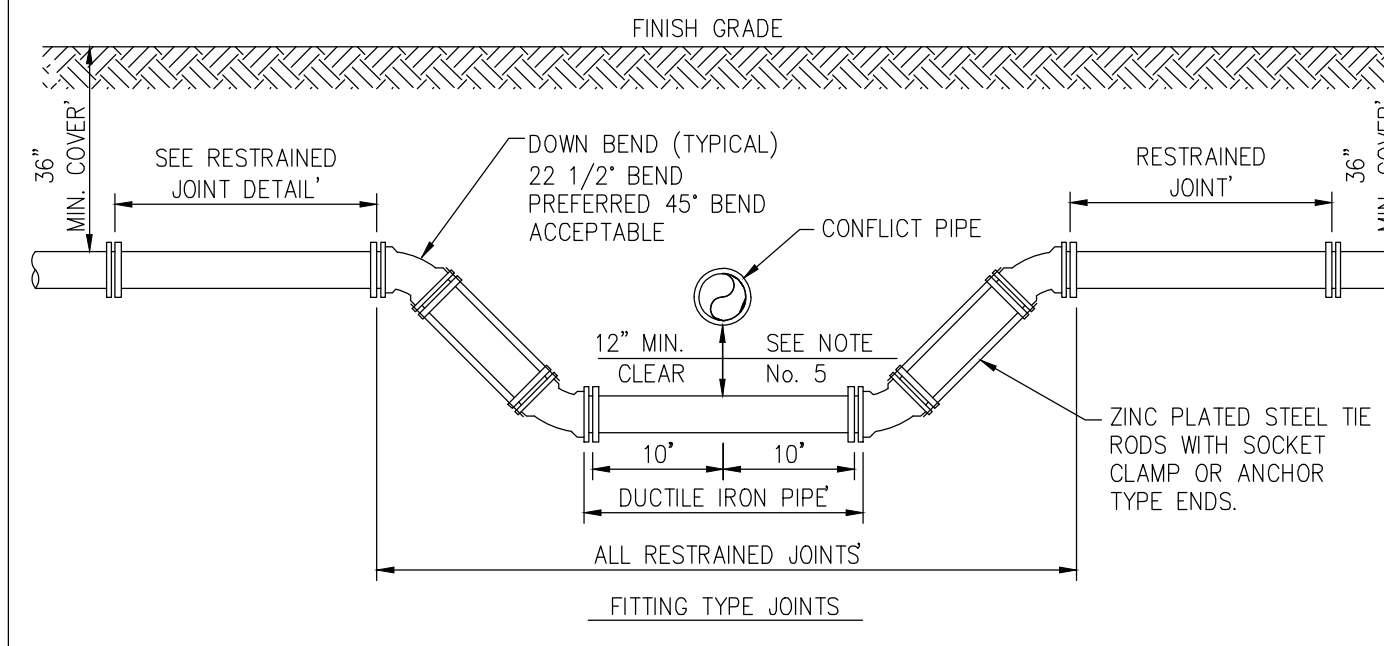
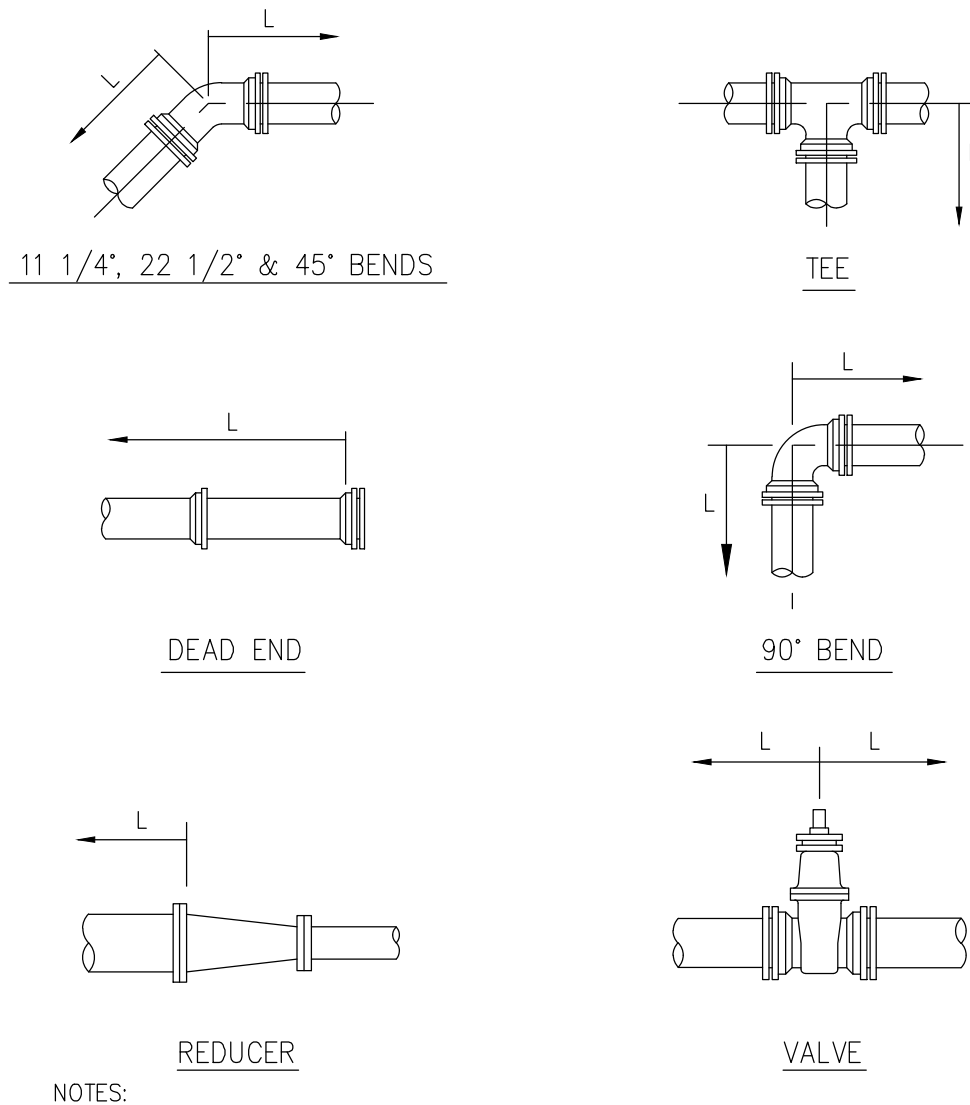
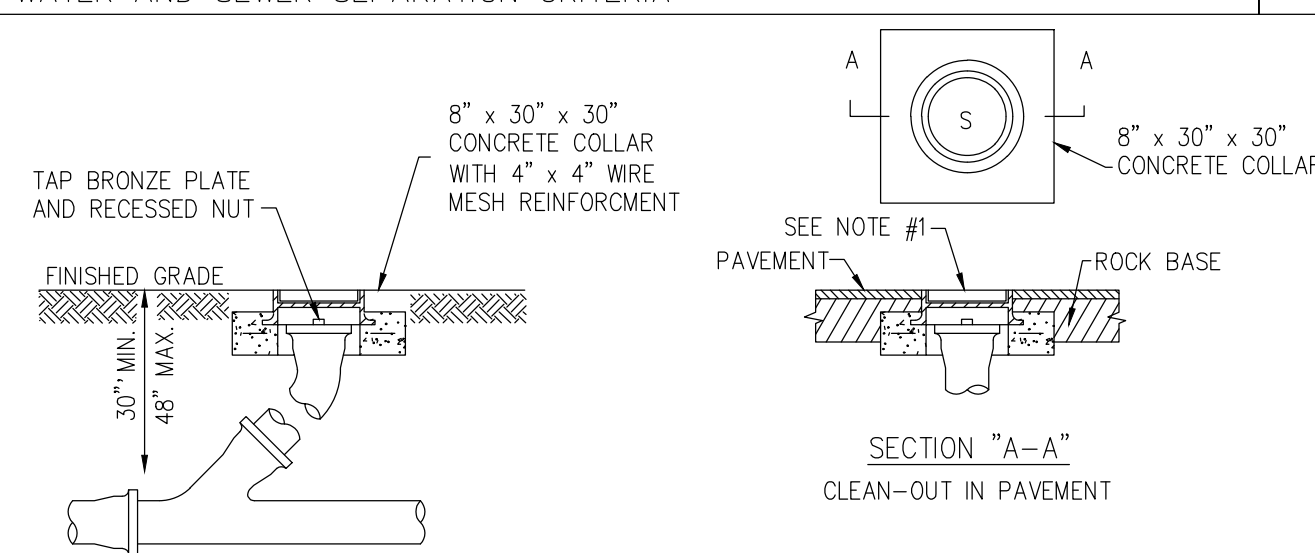
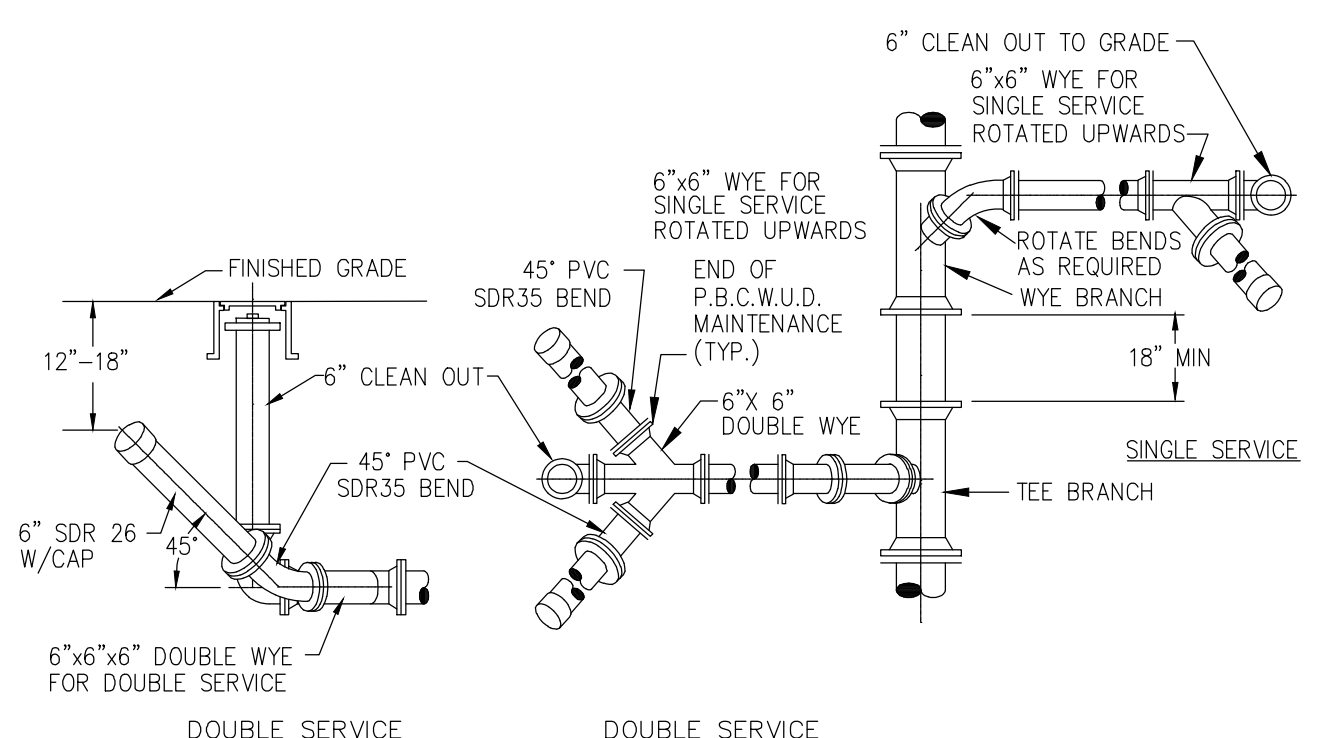
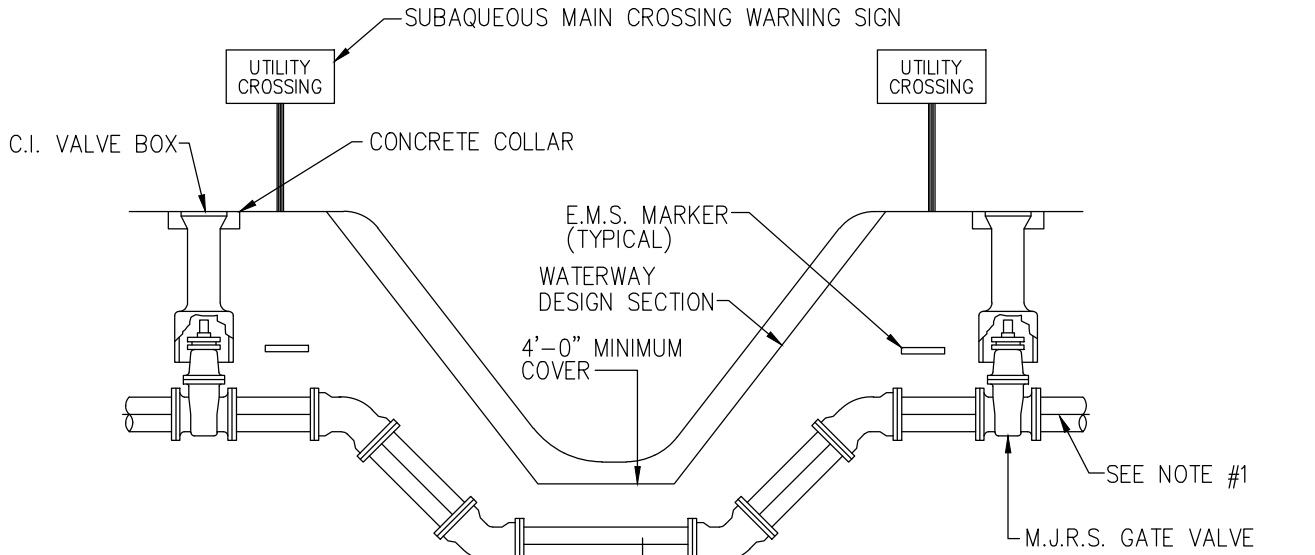
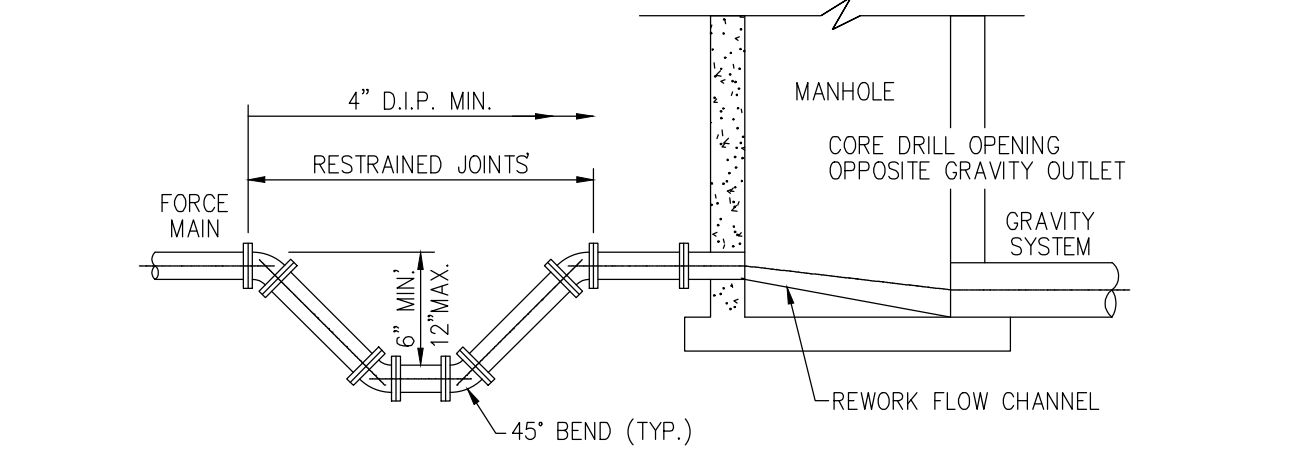
WATER AND SEWER PLAN

SCALE: 1" = 10'



This item has been digitally signed and sealed by Alexander Rojas, PE on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

C:\Users\jzntz\OneDrive\Documents\WORKING-PROJECTS\20-002-3322 Boutwell Road\DWG-FILES\20-002-3322 Boutwell Road\DWG-5.dwg, Drawn by: JZNA, Apr 08, 2021, 12:01pm

																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
TRENCHING	1	EXTRA BASE MATERIAL FOR SHALLOW PIPES IN ROADWAYS	2	PIPE SECTION REPLACEMENT	3	MARKER STAKE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
<p>HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATERMANS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES AND ON SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.</p> <p>1. NEW OR RELOCATED UNDERGROUND WATERMANS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED SEWER, STORMWATER FORCEMAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 2-610, F.A.C.</p> <p>2. NEW OR RELOCATED UNDERGROUND WATERMANS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.</p> <p>3. NEW OR RELOCATED UNDERGROUND WATERMANS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATERMAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE TYPE SANITARY SEWER, WASTEWATER FORCEMAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMANS AND GRAVITY TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATERMAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.</p> <p>4. NEW OR RELOCATED UNDERGROUND WATERMANS SHALL BE LAID TO PROVIDE A MINIMUM HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATERMAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED ON SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM* AS DEFINED IN SECTION 381.0065(2), F.S. AND RULE 64E-6.002, F.A.C.</p> <p>VERTICAL SEPARATION BETWEEN UNDERGROUND WATERMANS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCEMANS, AND RECLAIMED WATER PIPELINES.</p> <p>1. NEW OR RELOCATED UNDERGROUND WATERMANS CROSSING ANY EXISTING OR PROPOSED GRAVITY OR VACUUM TYPE SANITARY OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATERMAIN IS AT LEAST SIX INCHES, AND PREFERABLY TWELVE INCHES ABOVE, OR AT LEAST TWELVE INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATERMAIN ABOVE THE OTHER PIPELINE.</p> <p>2. NEW OR RELOCATED UNDERGROUND WATERMANS CROSSING ANY EXISTING OR PROPOSED PRESSURE TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPE LINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATERMAIN IS AT LEAST TWELVE INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATERMAIN ABOVE THE OTHER PIPELINE.</p> <p>3. AT THE UTILITY CROSSING DESCRIBED IN PARAGRAPH 1 AND 2 ABOVE, ONE FULL LENGTH OF WATERMAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATERMAIN JOINTS SHALL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATERMAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM TYPE SANITARY SEWER, STORM SEWERS, STORMWATER FORCEMANS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY OR PRESSURE TYPE SANITARY SEWERS, WASTEWATER FORCEMANS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.</p>		 <p>NOTES:</p> <p>1. THERE SHALL BE, IN ALL CASES, A MINIMUM OF 12" SEPARATION BETWEEN WATER MAINS AND FORCE MAINS.</p> <p>2. WHEREVER POSSIBLE WATER MAINS SHALL PASS OVER FORCE MAINS OR STORM SEWERS.</p> <p>3. FITTINGS SHALL BE RESTRAINED WITH MEGALUGS AND TIE RODS BETWEEN OFFSET FITTINGS. THRUST BLOCKS SHALL ONLY BE USED WITH THE APPROVAL OF THE ENGINEER.</p> <p>4. THE DEFLECTION TYPE CROSSING IS PREFERRED. SEE SPECIFICATIONS AND MANUFACTURER'S SUBMITTAL FOR MAXIMUM DEFLECTION ALLOWED.</p> <p>5. A MINIMUM OF 12" VERTICAL SEPARATION BETWEEN WATER MAINS AND STORM SEWERS SHALL BE MAINTAINED. WHERE THIS IS NOT POSSIBLE WATER MAIN SHALL BE D.I.P. WITH NO LESS THAN 6" SEPARATION.</p>		 <p>NOTES:</p> <p>1. LENGTH 'L' IS IN FEET.</p> <p>2. RESTRAINED LENGTHS ARE BASED ON THE FOLLOWING:</p> <p>A. 150 PSI TEST PRESSURE</p> <p>B. MIN. 30" COVER</p> <p>C. PVC - PIPE SIZES 4" - 12"</p> <p>DI - PIPE SIZES 4" - 48"</p> <p>D. SANDY SOIL</p> <p>E. SAFETY FACTOR OF 1.5.</p> <p>3. LENGTH 'L' SHOWN IN THE TABLE TO BE RESTRAINED IN THE DIRECTION OF THE ARROWS.</p>		<table><tr><th>FITTING TYPE</th><th>4"</th><th>6"</th><th>8"</th><th>10"</th><th>12"</th><th>14"</th><th>16"</th><th>18"</th><th>20"</th><th>24"</th><th>30"</th><th>36"</th><th>42"</th><th>48"</th></tr><tr><td>90° HORIZ. BEND</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td><td>22</td><td>24</td><td>26</td><td>28</td><td>30</td><td>32</td><td>34</td><td>36</td><td>38</td></tr><tr><td>45° HORIZ. BEND</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td><td>22</td><td>25</td><td>29</td><td>33</td><td>37</td><td>40</td></tr><tr><td>22.5° HORIZ. BEND</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>19</td></tr><tr><td>11.25° HORIZ. BEND</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td></tr><tr><td>UPPER BEND</td><td>19</td><td>22</td><td>25</td><td>28</td><td>32</td><td>36</td><td>40</td><td>44</td><td>48</td><td>55</td><td>67</td><td>77</td><td>86</td><td>95</td></tr><tr><td>LOWER BEND</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>14</td><td>15</td><td>17</td><td>19</td><td>23</td><td>26</td></tr><tr><td>22.5° VERT. OFFSET</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>17</td><td>19</td><td>21</td><td>23</td><td>27</td><td>32</td><td>37</td></tr><tr><td>UPPER BEND</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>13</td><td>14</td><td>15</td><td>16</td></tr><tr><td>LOWER BEND</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr><tr><td>11.25° VERT. OFFSET</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr><tr><td>UPPER BEND</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>16</td><td>18</td><td>21</td><td>23</td><td>25</td></tr><tr><td>LOWER BEND</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr><tr><td>DEAD END AND INLINE VALVE</td><td>46</td><td>52</td><td>58</td><td>64</td><td>70</td><td>76</td><td>82</td><td>88</td><td>97</td><td>107</td><td>117</td><td>136</td><td>162</td><td>208</td></tr><tr><td>4"x</td><td>21</td><td>24</td><td>27</td><td>30</td><td>33</td><td>36</td><td>39</td><td>42</td><td>45</td><td>48</td><td>51</td><td>54</td><td>57</td><td>60</td></tr><tr><td>6"x</td><td>39</td><td>44</td><td>49</td><td>54</td><td>59</td><td>64</td><td>69</td><td>74</td><td>79</td><td>84</td><td>89</td><td>94</td><td>99</td><td>104</td></tr><tr><td>8"x</td><td>59</td><td>66</td><td>73</td><td>80</td><td>87</td><td>94</td><td>101</td><td>108</td><td>115</td><td>122</td><td>129</td><td>136</td><td>143</td><td>150</td></tr><tr><td>10"x</td><td>79</td><td>88</td><td>97</td><td>106</td><td>115</td><td>124</td><td>133</td><td>142</td><td>151</td><td>160</td><td>169</td><td>178</td><td>187</td><td>196</td></tr><tr><td>12"x</td><td>99</td><td>110</td><td>121</td><td>132</td><td>143</td><td>154</td><td>165</td><td>176</td><td>187</td><td>198</td><td>209</td><td>220</td><td>231</td><td>242</td></tr><tr><td>14"x</td><td>119</td><td>131</td><td>143</td><td>155</td><td>167</td><td>179</td><td>191</td><td>203</td><td>215</td><td>227</td><td>239</td><td>251</td><td>263</td><td>275</td></tr><tr><td>16"x</td><td>139</td><td>152</td><td>165</td><td>178</td><td>191</td><td>204</td><td>217</td><td>230</td><td>243</td><td>256</td><td>269</td><td>282</td><td>295</td><td>308</td></tr><tr><td>18"x</td><td>159</td><td>173</td><td>187</td><td>201</td><td>215</td><td>229</td><td>243</td><td>257</td><td>271</td><td>285</td><td>299</td><td>313</td><td>327</td><td>341</td></tr><tr><td>20"x</td><td>179</td><td>194</td><td>209</td><td>224</td><td>239</td><td>254</td><td>269</td><td>284</td><td>299</td><td>314</td><td>329</td><td>344</td><td>359</td><td>374</td></tr><tr><td>24"x</td><td>219</td><td>235</td><td>251</td><td>267</td><td>283</td><td>299</td><td>315</td><td>331</td><td>347</td><td>363</td><td>379</td><td>395</td><td>411</td><td>427</td></tr><tr><td>30"x</td><td>279</td><td>296</td><td>313</td><td>331</td><td>348</td><td>365</td><td>382</td><td>399</td><td>416</td><td>433</td><td>450</td><td>467</td><td>484</td><td>501</td></tr><tr><td>36"x</td><td>339</td><td>357</td><td>375</td><td>393</td><td>411</td><td>429</td><td>447</td><td>465</td><td>483</td><td>501</td><td>519</td><td>537</td><td>555</td><td>573</td></tr><tr><td>42"x</td><td>399</td><td>418</td><td>437</td><td>456</td><td>475</td><td>494</td><td>513</td><td>532</td><td>551</td><td>569</td><td>587</td><td>605</td><td>623</td><td>641</td></tr><tr><td>48"x</td><td>459</td><td>479</td><td>499</td><td>519</td><td>539</td><td>559</td><td>579</td><td>599</td><td>619</td><td>639</td><td>659</td><td>679</td><td>699</td><td>719</td></tr><tr><td>6"x</td><td>34</td><td>38</td><td>42</td><td>46</td><td>50</td><td>54</td><td>58</td><td>62</td><td>66</td><td>70</td><td>74</td><td>78</td><td>82</td><td>86</td></tr><tr><td>8"x</td><td>61</td><td>69</td><td>77</td><td>85</td><td>93</td><td>101</td><td>109</td><td>117</td><td>125</td><td>133</td><td>141</td><td>149</td><td>157</td><td>165</td></tr><tr><td>10"x</td><td>85</td><td>95</td><td>105</td><td>115</td><td>125</td><td>135</td><td>145</td><td>155</td><td>165</td><td>175</td><td>185</td><td>195</td><td>205</td><td>215</td></tr><tr><td>12"x</td><td>105</td><td>117</td><td>129</td><td>141</td><td>153</td><td>165</td><td>177</td><td>189</td><td>201</td><td>213</td><td>225</td><td>237</td><td>249</td><td>261</td></tr><tr><td>14"x</td><td>125</td><td>138</td><td>151</td><td>164</td><td>177</td><td>190</td><td>203</td><td>216</td><td>229</td><td>242</td><td>255</td><td>268</td><td>281</td><td>294</td></tr><tr><td>16"x</td><td>145</td><td>159</td><td>173</td><td>187</td><td>201</td><td>215</td><td>229</td><td>243</td><td>257</td><td>271</td><td>285</td><td>299</td><td>313</td><td>327</td></tr><tr><td>18"x</td><td>165</td><td>180</td><td>195</td><td>210</td><td>225</td><td>240</td><td>255</td><td>270</td><td>285</td><td>300</td><td>315</td><td>330</td><td>345</td><td>360</td></tr><tr><td>20"x</td><td>185</td><td>201</td><td>217</td><td>233</td><td>249</td><td>265</td><td>281</td><td>297</td><td>313</td><td>329</td><td>345</td><td>361</td><td>377</td><td>393</td></tr><tr><td>24"x</td><td>225</td><td>242</td><td>259</td><td>276</td><td>293</td><td>310</td><td>327</td><td>344</td><td>361</td><td>378</td><td>395</td><td>412</td><td>429</td><td>446</td></tr><tr><td>30"x</td><td>285</td><td>303</td><td>321</td><td>339</td><td>357</td><td>375</td><td>393</td><td>411</td><td>429</td><td>447</td><td>465</td><td>483</td><td>501</td><td>519</td></tr><tr><td>36"x</td><td>345</td><td>364</td><td>383</td><td>402</td><td>421</td><td>440</td><td>459</td><td>478</td><td>497</td><td>516</td><td>535</td><td>554</td><td>573</td><td>592</td></tr><tr><td>42"x</td><td>405</td><td>425</td><td>445</td><td>465</td><td>485</td><td>505</td><td>525</td><td>545</td><td>565</td><td>585</td><td>605</td><td>625</td><td>645</td><td>665</td></tr><tr><td>48"x</td><td>465</td><td>486</td><td>507</td><td>528</td><td>549</td><td>570</td><td>591</td><td>612</td><td>633</td><td>654</td><td>675</td><td>696</td><td>717</td><td>738</td></tr></table>		FITTING TYPE	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	90° HORIZ. BEND	12	14	16	18	20	22	24	26	28	30	32	34	36	38	45° HORIZ. BEND	6	8	10	12	14	16	18	20	22	25	29	33	37	40	22.5° HORIZ. BEND	3	4	5	6	7	8	9	10	10	12	14	16	18	19	11.25° HORIZ. BEND	2	3	4	5	6	7	8	9	10	10	12	14	16	18	UPPER BEND	19	22	25	28	32	36	40	44	48	55	67	77	86	95	LOWER BEND	5	6	7	8	9	10	11	12	14	15	17	19	23	26	22.5° VERT. OFFSET	9	10	11	12	13	14	15	17	19	21	23	27	32	37	UPPER BEND	2	3	4	5	6	7	8	9	10	11	13	14	15	16	LOWER BEND	2	3	4	5	6	7	8	9	10	11	12	13	14	15	11.25° VERT. OFFSET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	UPPER BEND	5	6	7	8	9	10	11	12	13	16	18	21	23	25	LOWER BEND	1	2	3	4	5	6	7	8	9	10	11	12	13	14	DEAD END AND INLINE VALVE	46	52	58	64	70	76	82	88	97	107	117	136	162	208	4"x	21	24	27	30	33	36	39	42	45	48	51	54	57	60	6"x	39	44	49	54	59	64	69	74	79	84	89	94	99	104	8"x	59	66	73	80	87	94	101	108	115	122	129	136	143	150	10"x	79	88	97	106	115	124	133	142	151	160	169	178	187	196	12"x	99	110	121	132	143	154	165	176	187	198	209	220	231	242	14"x	119	131	143	155	167	179	191	203	215	227	239	251	263	275	16"x	139	152	165	178	191	204	217	230	243	256	269	282	295	308	18"x	159	173	187	201	215	229	243	257	271	285	299	313	327	341	20"x	179	194	209	224	239	254	269	284	299	314	329	344	359	374	24"x	219	235	251	267	283	299	315	331	347	363	379	395	411	427	30"x	279	296	313	331	348	365	382	399	416	433	450	467	484	501	36"x	339	357	375	393	411	429	447	465	483	501	519	537	555	573	42"x	399	418	437	456	475	494	513	532	551	569	587	605	623	641	48"x	459	479	499	519	539	559	579	599	619	639	659	679	699	719	6"x	34	38	42	46	50	54	58	62	66	70	74	78	82	86	8"x	61	69	77	85	93	101	109	117	125	133	141	149	157	165	10"x	85	95	105	115	125	135	145	155	165	175	185	195	205	215	12"x	105	117	129	141	153	165	177	189	201	213	225	237	249	261	14"x	125	138	151	164	177	190	203	216	229	242	255	268	281	294	16"x	145	159	173	187	201	215	229	243	257	271	285	299	313	327	18"x	165	180	195	210	225	240	255	270	285	300	315	330	345	360	20"x	185	201	217	233	249	265	281	297	313	329	345	361	377	393	24"x	225	242	259	276	293	310	327	344	361	378	395	412	429	446	30"x	285	303	321	339	357	375	393	411	429	447	465	483	501	519	36"x	345	364	383	402	421	440	459	478	497	516	535	554	573	592	42"x	405	425	445	465	485	505	525	545	565	585	605	625	645	665	48"x	465	486	507	528	549	570	591	612	633	654	675	696	717	738
FITTING TYPE	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
90° HORIZ. BEND	12	14	16	18	20	22	24	26	28	30	32	34	36	38																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
45° HORIZ. BEND	6	8	10	12	14	16	18	20	22	25	29	33	37	40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
22.5° HORIZ. BEND	3	4	5	6	7	8	9	10	10	12	14	16	18	19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
11.25° HORIZ. BEND	2	3	4	5	6	7	8	9	10	10	12	14	16	18																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
UPPER BEND	19	22	25	28	32	36	40	44	48	55	67	77	86	95																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
LOWER BEND	5	6	7	8	9	10	11	12	14	15	17	19	23	26																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
22.5° VERT. OFFSET	9	10	11	12	13	14	15	17	19	21	23	27	32	37																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
UPPER BEND	2	3	4	5	6	7	8	9	10	11	13	14	15	16																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
LOWER BEND	2	3	4	5	6	7	8	9	10	11	12	13	14	15																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
11.25° VERT. OFFSET	1	2	3	4	5	6	7	8	9	10	11	12	13	14																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
UPPER BEND	5	6	7	8	9	10	11	12	13	16	18	21	23	25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
LOWER BEND	1	2	3	4	5	6	7	8	9	10	11	12	13	14																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
DEAD END AND INLINE VALVE	46	52	58	64	70	76	82	88	97	107	117	136	162	208																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
4"x	21	24	27	30	33	36	39	42	45	48	51	54	57	60																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
6"x	39	44	49	54	59	64	69	74	79	84	89	94	99	104																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
8"x	59	66	73	80	87	94	101	108	115	122	129	136	143	150																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
10"x	79	88	97	106	115	124	133	142	151	160	169	178	187	196																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
12"x	99	110	121	132	143	154	165	176	187	198	209	220	231	242																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
14"x	119	131	143	155	167	179	191	203	215	227	239	251	263	275																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
16"x	139	152	165	178	191	204	217	230	243	256	269	282	295	308																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
18"x	159	173	187	201	215	229	243	257	271	285	299	313	327	341																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
20"x	179	194	209	224	239	254	269	284	299	314	329	344	359	374																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
24"x	219	235	251	267	283	299	315	331	347	363	379	395	411	427																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
30"x	279	296	313	331	348	365	382	399	416	433	450	467	484	501																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
36"x	339	357	375	393	411	429	447	465	483	501	519	537	555	573																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
42"x	399	418	437	456	475	494	513	532	551	569	587	605	623	641																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
48"x	459	479	499	519	539	559	579	599	619	639	659	679	699	719																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
6"x	34	38	42	46	50	54	58	62	66	70	74	78	82	86																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
8"x	61	69	77	85	93	101	109	117	125	133	141	149	157	165																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
10"x	85	95	105	115	125	135	145	155	165	175	185	195	205	215																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
12"x	105	117	129	141	153	165	177	189	201	213	225	237	249	261																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
14"x	125	138	151	164	177	190	203	216	229	242	255	268	281	294																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
16"x	145	159	173	187	201	215	229	243	257	271	285	299	313	327																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
18"x	165	180	195	210	225	240	255	270	285	300	315	330	345	360																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
20"x	185	201	217	233	249	265	281	297	313	329	345	361	377	393																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
24"x	225	242	259	276	293	310	327	344	361	378	395	412	429	446																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
30"x	285	303	321	339	357	375	393	411	429	447	465	483	501	519																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
36"x	345	364	383	402	421	440	459	478	497	516	535	554	573	592																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
42"x	405	425	445	465	485	505	525	545	565	585	605	625	645	665																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
48"x	465	486	507	528	549	570	591	612	633	654	675	696	717	738																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
WATER AND SEWER SEPARATION CRITERIA	5	PRESSURE PIPE CONFLICT	6	RESTRAINED PIPE JOINTS	7	MECHANICAL THRUST RESTRAINT - MINIMUM PIPE LENGTHS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
 <p>NOTES:</p> <p>1. U.S. FOUNDRY NO. 7621 REVERSIBLE HANDHOLE RING AND COVER OR APPROVED EQUAL SHALL BE USED, COVER TO BE CAST WITH "S" IN THE CENTER.</p> <p>2. CLEAN OUT REQUIRED ON ALL SERVICES AT PROPERTY LINE.</p> <p>3. STANDARD WYE SHALL BE USED AT CLEAN OUT.</p> <p>4. ALL PIPE AND CLENOUT SHALL BE 6" MIN.</p>		 <p>NOTES:</p> <p>1. U.S. FOUNDRY NO. 7621 REVERSIBLE HANDHOLE RING AND COVER OR APPROVED EQUAL SHALL BE USED, COVER TO BE CAST WITH "S" IN THE CENTER.</p> <p>2. CLEAN OUT REQUIRED ON ALL SERVICES AT PROPERTY LINE.</p> <p>3. STANDARD WYE SHALL BE USED AT CLEAN OUT.</p> <p>4. ALL PIPE AND CLENOUT SHALL BE 6" MIN.</p>		 <p>NOTE:</p> <p>1. GATE VALVES TO BE TIED BACK TO THE NEAREST FITTING ON EACH SIDE. ALL TIE RODS AND BOLTS SHALL BE COATED WITH KOPPERS 300-M OR APPROVED EQUAL.</p> <p>2. FITTINGS SHALL BE RESTRAINED WITH MEGALUGS AND TIE RODS BETWEEN OFFSET FITTINGS. THRUST BLOCKS SHALL ONLY BE USED WITH THE APPROVAL OF THE ENGINEER.</p>		 <p>NOTES:</p> <p>1. INVERT LEVEL OF FORCE MAIN AT POINT OF ENTRY SHALL BE 6" ABOVE INVERT OF MANHOLE.</p>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
CLEAN OUT	9	TYPICAL WASTEWATER SERVICE CONNECTION	10	SUBAQUEOUS CROSSING	11	FORCE MAIN ENTERING MANHOLE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

This item has been digitally signed and sealed by Alexander Rojas, PE on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

BY	APP.	GR	FI	GR	FI	GR	FI
LAKE WORTH BEACH COMMENTS 09/22/20							
LAKE WORTH BEACH COMMENTS 11/24/20							
LAKE WORTH BEACH COMMENTS 04/09/21							
RECORD OF REVISION							

3322 BOUTWELL
3322 BOUTWELL RD. LAKE WORTH, FL 33461
SANITARY SEWER STANDARD DETAILS

