

# THE CITY OF DAYTONA BEACH DR. MARTIN LUTHER KING, JR. BOULEVARD ROADWAY AND PEDESTRIAN IMPROVEMENTS PROJECT

## COMPONENTS OF THE ROADWAY CONTRACT PLAN SET

PART A-ROADWAY & PEDESTRIAN  
CONSTRUCTION PLANS  
PART B-LIGHTING PLANS

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PROJECT NO. 2015-085  
PART A



**THE CITY OF DAYTONA BEACH**  
**PUBLIC WORKS**  
TECHNICAL SERVICES DIVISION

Derrick L. Henry-Mayor  
Ruth Trager, Commissioner - Zone 1  
Aaron Delgado, Commissioner - Zone 2  
Kelly White, Commissioner - Zone 3  
Robert A. Gilliland - Zone 4  
Dannette Henry, Commissioner - Zone 5  
Paula R. Reed, Commissioner - Zone 6  
James V. Chisholm - City Manager  
David Waller, Deputy Public Works Director  
Frank VanPelt, Technical Services Director  
Jim Nelson, PE, City Engineer  
Jo Ann J. Macrina, PE, Deputy Director of Utilities  
Michelle Martin, Technical Services Project Manager

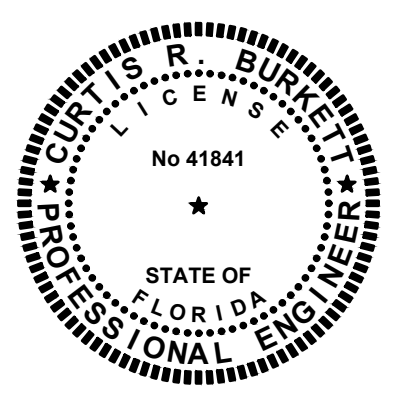


**LOCATION MAP**  
LENGTH OF PROJECT - 0.269 MILES

**GOVERNING STANDARDS AND SPECIFICATIONS:**  
CITY OF DAYTONA BEACH UTILITIES DEPARTMENT STANDARD DETAILS, LATEST EDITION  
FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2017 EDITION  
MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS, LATEST EDITION  
FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS, 2017 EDITION  
AMERICAN WATER WORKS ASSOCIATION  
AMERICAN NATIONAL STANDARDS INSTITUTE  
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (A.A.S.H.T.O.)

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CURTIS R. BURKETT, P.E.  
No. 41841



GENERAL NOTES

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL SAFETY REGULATIONS. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL PROVIDE PROPER WARNING SIGNS, BARRICADES, TEMPORARY FENCING AND OTHER APPROPRIATE SAFETY DEVICES DURING THE EXECUTION OF THE WORK TO PROVIDE PUBLIC PROTECTION AND SAFETY.
- STATION OFFSET WITH POSITIVE VALUE (XX') MEANS RIGHT OF BASE LINE, (-XX') MEANS LEFT OF BASE LINE UNLESS OFFSET IS SPECIFICALLY SPECIFIED LT OR RT OF BASELINE.
- LOCATIONS OF EXISTING UNDERGROUND UTILITIES WERE PREPARED FROM THE MOST RELIABLE INFORMATION AVAILABLE. VERIFY THE LOCATION AND DEPTH OF ALL PERTINENT UTILITIES PRIOR TO CONSTRUCTION. ALL LOCATIONS, ELEVATION AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PLAN PREPARATION. THE CONTRACTOR IS CAUTIONED THAT THERE MAY BE OTHER UTILITIES AND/OR IMPROVEMENTS NOT SHOWN ON THE DRAWINGS WHICH MAY IMPACT THE WORK REPRESENTED HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE, THEREFORE, FOR VERIFYING, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES (WHETHER SHOWN OR NOT OF THE PLANS) WHICH COULD AFFECT THE CONTRACTOR'S WORK. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THERE MAY BE SOME UTILITY CONFLICTS INHERENT IN THE PROJECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ANY AND ALL EXISTING UTILITIES FROM ACCIDENTAL DAMAGE.
- THE INFORMATION SHOWN IN THESE PLANS IS PROVIDED SOLELY FOR THE PURPOSE OF ASSISTING THE CONTRACTOR IN ASSESSING THE PHYSICAL CONDITIONS UNDER WHICH THE PROJECT IS TO BE BID AND CONSTRUCTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EVALUATING THE CONSTRUCTABILITY OF THE PROJECT AND CONDUCTING HIS OWN INVESTIGATION INTO THE PHYSICAL CHARACTERISTICS OF THE PROJECT, INCLUDING THE EXISTENCE AND IMPACT OF ANY STRUCTURES, UTILITIES, OR OTHER SITE FEATURES (WHETHER SHOWN OR NOT SHOWN) PRIOR TO PREPARING AND SUBMITTING A SEALED BID.
- FIELD CONDITIONS MAY NECESSITATE ALIGNMENT AND GRADE DEVIATIONS OF THE PROPOSED UTILITIES TO AVOID OBSTACLES. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN WRITTEN CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
- THE CONTRACTOR SHALL ENDEAVOR TO PROTECT PRIVATE PROPERTY. ANY DAMAGE CAUSED BY THE CONTRACTOR IN THE PERFORMANCE OF HIS WORK SHALL BE CORRECT TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE. PAYMENT WILL NOT BE MADE FOR THIS WORK.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST APPLICABLE FEDERAL, STATE, AND LOCAL AGENCY'S STANDARDS.
- CONNECTIONS TO EXISTING FACILITIES SHALL BE ACCOMPLISHED IN A NEAT AND WORKMANLIKE MANNER AND COORDINATE WITH THE UTILITY OWNER IN ADVANCE WHEN FIELD CONDITIONS INDICATE ANY VARIANCE FROM DETAILED METHODS, THE CONTRACTOR SHALL PROVIDE COMPREHENSIVE AND DETAILED DRAWINGS (FOR OWNER APPROVAL) OF METHODS AND MATERIALS PROPOSED.
- WHEN IT IS NECESSARY TO DEFLECT THE PIPE HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURER'S RECOMMENDED DEFLECTION.
- ALL FITTINGS SHALL BE DUCTILE IRON AND RESTRAINED.
- ALL BRANCH PRESSURIZED MAINS SHALL BE RESTRAINED ALONG THEIR ENTIRE LENGTHS. OTHER RESTRAINED LENGTHS ARE INDICATED ON THE PROFILE AND SHALL NOT BE LESS THAN THAT INDICATED IN THE RESTRAINT JOINT TABLE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE PERMITS NOT ALREADY OBTAINED BY THE CITY.
- CONTRACTOR SHALL PREPARE AND SUBMIT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT IN ACCORDANCE WITH FDEP CRITERIA FOR AN NPDES CONSTRUCTION ACTIVITIES PERMIT. CONTRACTOR SHALL OBTAIN A FDEP GENERIC PERMIT FOR THE DISCHARGE OF PRODUCED GROUNDWATER. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO DISTURBANCE AND MAINTAINED THROUGH PROJECT COMPLETION.
- ALL UNDERGROUND PIPING SHALL BE PUSH-ON OR MECHANICAL JOINT; ABOVE GROUND PIPING SHALL BE FLANGED.
- CONCRETE ENCASE THE PROPOSED SANITARY SEWER AND ITS LATERALS WHEN THE VERTICAL CLEARANCE UNDER THE PROPOSED STORM DRAIN PIPING AND STRUCTURES IS LESS THAN 12".
- PRECAST CONCRETE THRUST BLOCKS SHALL BE INSTALLED AS NECESSARY TO PREVENT MOVEMENT OF EXISTING UNRESTRAINED PRESSURIZED PIPE AT ALL TIE-IN LOCATIONS WHETHER SPECIFICALLY IDENTIFIED ON THE PLANS OR NOT.
- CONTRACTOR SHALL MAINTAIN A SET OF PLANS WITH CURRENT FIELD CHANGES MARKED THEREON AND SHALL DELIVER THESE PLANS TO THE ENGINEER WITH EACH PAY REQUEST, TO SUPPORT PARTIAL CERTIFICATION TO PLACE UTILITIES INTO SERVICE AND UPON COMPLETION OF CONSTRUCTION. NO PAYMENT SHALL BE MADE UNTIL THIS REQUIREMENT IS SATISFIED.
- CONTRACTOR SHALL SUBMIT A DEWATERING PLAN PRIOR TO BEGINNING CONSTRUCTION.
- STATIONING FOR ALL VALVES, AIR RELEASES, BLOW-OFFS AND FIRE HYDRANTS ARE APPROXIMATE. ADJUSTMENT IN THE FIELD SHALL BE COORDINATED WITH THE FIELD INSPECTOR AND NOTED ON THE RECORD DRAWINGS.
- THE CONTRACTOR SHALL INCLUDE IN HIS BID; BY-PASS PUMPING FACILITIES, PUMPS, FITTINGS, TEMPORARY HOLDING TANKS, LABOR, ETC, AS NECESSARY, BASED ON THE CONTRACTORS SELECTED METHOD AND SEQUENCE OF CONSTRUCTION TO COMPLETE ALL WORK WHILE MAINTAINING UTILITY SERVICE.
- ALL PROPERTY LINE MARKERS (IRON PINS, CONCRETE MONUMENTS, ETC.) DESTROYED DURING CONSTRUCTION SHALL BE REPLACED IN-KIND BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO RESET PROPERTY MARKERS.
- THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO ALL AFFECTED CITY WATER AND SEWER CUSTOMERS A MINIMUM OF 3 DAYS IN ADVANCE OF ANY AND ALL WORK REQUIRING DISRUPTION OF ACCESS, INTENDED WATER, OR SANITARY SEWER SERVICES INTERRUPTION. DISRUPTION IN SERVICE TO ANY CUSTOMERS SHALL NOT EXCEED 2 HOURS FOR WATER AND 4 HOURS FOR SANITARY SEWER SERVICE. ACCESS TO PROPERTY SHALL BE MAINTAINED AT ALL TIMES.
- THE OPENING AND / OR CLOSING OF EXISTING VALVES OR NEW VALVES THAT HAVE BEEN PLACED INTO SERVICE SHALL BE DONE BY THE CITY AND COORDINATED WITH ENGINEER.
- CONTRACTOR SHALL PROTECT ALL TREES WITHIN THE CONSTRUCTION LIMITS.
- CONTRACTOR SHALL MAINTAIN AT LEAST ONE ACCESS ENTRANCE TO COMMERCIAL AND INDUSTRIAL PROPERTIES AT ALL TIMES AND ACCESS TO RESIDENTIAL PROPERTIES AT ALL TIMES.
- CONTRACTOR SHALL PROVIDE TEMPORARY DRIVABLE ROAD BASE MATERIAL UNTIL PERMANENT ASPHALT OR CONCRETE HAS BEEN INSTALLED; DIRT IS NOT ACCEPTABLE.
- THE LOCATION OF AIR RELEASE VALVES ON THE PLANS ARE APPROXIMATE ONLY. FINAL LOCATION WILL BE DETERMINED IN THE FIELD WITH THE APPROVAL OF THE ENGINEER.
- WHERE THERE ARE DISCREPANCIES BETWEEN THE INDICATED RESTRAINED LENGTHS ON THE PLANS AND RESTRAINED JOINT TABLE, THE LONGER RESTRAINED JOINT LENGTH SHALL APPLY.
- THE CONTRACTOR SHALL REFER TO THE UNDERGROUNDING UTILITY PLANS FOR THE FRANCHISE UTILITY PLAN IMPROVEMENT LOCATIONS.

WATER GENERAL NOTES

- EXISTING WATER MAINS SHOWN TO BE REMOVED OR ABANDONED IN PLACE SHALL REMAIN ACTIVE DURING CONSTRUCTION. CONTRACTOR SHALL TRANSFER WATER SERVICE CONNECTIONS TO THE NEW WATER MAIN AFTER TESTING, BACTERIOLOGICAL CLEANING AND ACCEPTANCE BY THE CITY AND HEALTH DEPARTMENT.
- ALL EXISTING WATER SERVICES AND ASSOCIATED METER BOXES SHALL BE REPLACED AND CONNECTED TO THE NEW WATER MAIN AS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL ASSUME ALL ADJACENT PROPERTIES HAVE ONE SERVICE CONNECTION. VACANT PROPERTIES WITHOUT AN EXISTING SERVICE SHALL HAVE A NEW SERVICE INSTALLED. ALL WATER SERVICES SHALL BE 1" UNLESS NOTED OTHERWISE.
- ALL WATER SERVICE TIE-INS FOR BUSINESSES ARE TO BE PERFORMED WHEN THE BUSINESS IS CLOSED.
- WATER SERVICES CROSSING UNDER PAVEMENT TO HAVE SCH 40 PVC SLEEVE PER CITY STANDARD INCLUDING IRRIGATION SERVICE LINES.
- ALL IRRIGATION CONNECTIONS TO BE PER CITY STANDARD AND INCLUDE REDUCED PRESSURE BACKFLOW PREVENTER AND METER.

SEWER GENERAL NOTES

- ALL EXISTING SANITARY SEWER SERVICE LATERALS ARE TO BE REPLACED AND TIED INTO THE NEW PIPE.
- THE LOCATION OF HOUSE LATERALS BY SYMBOLS ON THE PLANS ARE APPROXIMATE ONLY AND THE ACTUAL LOCATION AND SLOPES WILL BE DETERMINED IN THE FIELD BY THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER.
- THE MINIMUM CLEARANCE BETWEEN HOUSE SEWER LATERALS AND WATER LINES SHALL BE 6" UNDER ALL CIRCUMSTANCES. IF THE HOUSE LATERAL IS BELOW A WATER LINE AND HAS BETWEEN 6" AND 18" OF CLEARANCE OR IF THE LATERAL IS ABOVE THE WATER LINE REGARDLESS OF CLEARANCE, THEN A NOMINAL 20' LENGTH OF GREEN AWWA CLASS 150 C900 PVC PIPE SHALL BE CENTERED OVER/UNDER THE WATER LINE.
- IF A HOUSE SEWER LATERAL MUST PASS UNDER ANY UTILITY OTHER THAN A WATER LINE WITH LESS THAN 18" CLEARANCE, THE LATERAL SHALL REMAIN SDR 35 PVC PIPE UNLESS THE UTILITY POSES A STRUCTURAL LOAD THAT IS TOO GREAT FOR THE PVC LATERAL. IF THE UTILITY POSES SUCH A STRUCTURAL LOAD AS DETERMINED BY THE ENGINEER, EACH CONFLICT WILL BE REVIEWED ON A CASE BY CASE BASIS.
- THE EXISTING 10" CLAY SANITARY PIPE, AS REFLECTED IN THE SURVEY, HAS BEEN REVISED TO A 12" CLAY SANITARY PIPE, PER CITY AS-BUILT DRAWINGS.

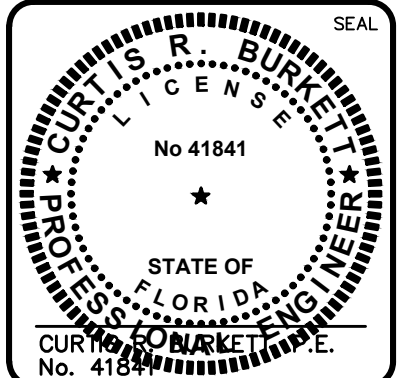
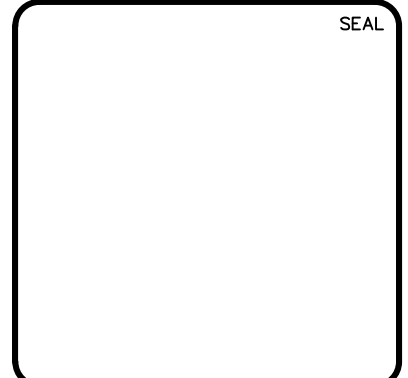
SOIL AND EROSION AND SEDIMENT CONTROL PLAN NOTES

- ALL CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION WILL BE MINIMIZED. ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS SHALL BE COMPLIED WITH AT ALL TIMES.
- CARE SHALL BE EXERCISED TO PREVENT DISTURBANCE TO THE NATURAL VEGETATION IN AREAS NOT PROPOSED FOR IMMEDIATE CONSTRUCTION.
- ALL SOIL AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE START OF CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL WORK IS COMPLETE.
- CONTRACTOR SHALL FOLLOW BEST MANAGEMENT PRACTICES THROUGHOUT CONSTRUCTION.
- CONTRACTOR SHALL PREPARE AND SUBMIT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL PREPARE AND SUBMIT A DEWATERING PLAN SHOWING APPLICABLE BEST MANAGEMENT PRACTICES FOR REVIEW AND APPROVAL PRIOR TO ANY DEWATERING ACTIVITIES.
- THE CONTRACTOR WILL NEED TO OBTAIN THE NECESSARY INDUSTRIAL WASTE (IW) APPROVAL (INCLUDING ANY REQUIRED TESTING) PRIOR TO ANY GROUNDWATER DISCHARGE. ONCE THE APPROPRIATE IW APPROVAL(S) HAVE BEEN OBTAINED, THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN DEWATERING EQUIPMENT AND DISCHARGE TO THE APPROPRIATE BMP SUCH AS GRAVITY BAG FILTER, SEDIMENT TRAP OR DEWATERING TANK.
- THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL BALES, SILT FENCE AND OTHER EROSION CONTROL MEASURES AND INSPECT DAILY.
- THE CONTRACTOR SHALL PERFORM DAILY INSPECTIONS OF THE DEWATERING EQUIPMENT, DISCHARGE HOSE, HOSE OUTLET AND DRAINAGE SWALES FOR SIGNS OF EROSION, SILTATION, OR OTHER DAMAGE. SHOULD EROSION BE OBSERVED, THE CONTRACTOR SHALL IMMEDIATELY MAKE ADJUSTMENTS TO DEWATERING ACTIVITIES AS NEEDED TO PREVENT FURTHER DAMAGE AND SHALL REPAIR ANY DAMAGE WITHIN 24 HOURS OF OBSERVATION.
- BYPASS PIPING, TEMPORARY HOLDING TANKS, OR OTHER APPROVED MEASURES SHALL BE IMPLEMENTED BY THE CONTRACTOR TO MAINTAIN SERVICE DURING CONSTRUCTION. WHEN SHUT DOWN OF SERVICE IS REQUIRED AND CANNOT BE AVOIDED, THE DURATION OF SHUT DOWN SHALL BE MINIMIZED AND COORDINATED WITH THE PROPERTY OWNER/RESIDENT AND COMMUNICATED TO THE CITY 48 HOURS PRIOR TO THE SERVICE DISRUPTION.
- THE CONTRACTOR SHALL PROVIDE AND IMPLEMENT SITE SPECIFIC EROSION AND SEDIMENT CONTROL PROCEDURES SUCH AS SILT SCREENS, TURBIDITY BARRIERS, OR OTHER APPROVED METHODS AS REQUIRED, TO PREVENT THE TRANSPORT OF SEDIMENT DOWNSTREAM INTO STREETS, STORM SEWERS, DITCHES, PONDS, ETC.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION AND WATER POLLUTION RESTORATION EFFORTS.
- THE CONTRACTOR SHALL MAINTAIN SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE NPDES PERMIT, PLANS AND SPECIFICATIONS.
- CONTRACTOR SHALL PROVIDE DUST CONTROL AND PROTECT ADJACENT PROPERTIES FROM THE ACCUMULATION OF SOIL, DEBRIS AND GARBAGE.

DEMOLITION NOTES:

- DRAWINGS USED TO INDICATE DEMOLITION ARE BASED ON RECORD DRAWINGS AND SURVEYED DATA. CONTRACTOR SHALL CONDUCT A COMPREHENSIVE SURVEY AT THE SITE TO VERIFY CORRECTNESS AND EXACTNESS OF THE DRAWING.
- THE INTENT OF THE PIPES IDENTIFIED ON THE DEMOLITION PLANS ARE FOR THEIR COMPLETE REMOVAL UNLESS OTHERWISE INDICATED ON THE PLANS. IF IT CAN BE SHOWN THAT THE EXISTING PIPE IDENTIFIED FOR REMOVAL DOES NOT INTERFERE WITH ANY OF THE PROPOSED IMPROVEMENTS IDENTIFIED IN THE CONTRACT DOCUMENTS, IT MAY BE ABANDONED IN PLACE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL PIPES PROPOSED TO BE ABANDONED IN PLACE FOR CONSIDERATION. IF THE EXISTING PIPE IDENTIFIED TO BE ABANDONED IN PLACE IS FOUND TO INTERFERE WITH ANY OF THE PROPOSED IMPROVEMENTS IDENTIFIED IN THE CONTRACT DOCUMENTS, IT SHALL BE REMOVED AT NO ADDITIONAL COST TO THE OWNER. PIPE IDENTIFIED OR OTHERWISE APPROVED TO BE ABANDONED IN PLACE SHALL BE CAPPED TO PROVIDE A POSITIVE SEAL AND GROUT FILLED AS PROVIDED IN THE SPECIFICATIONS.
- REMOVE ALL EXISTING FIRE HYDRANT ASSEMBLIES. REPLACE WITH NEW FIRE HYDRANT ASSEMBLIES AS IDENTIFIED ON THE PLANS. FINAL LOCATION TO BE DETERMINED IN THE FIELD.

REV. NO.	DESCRIPTIONS	DATE
A	ISSUE FOR BIDDING	AUGUST 2016

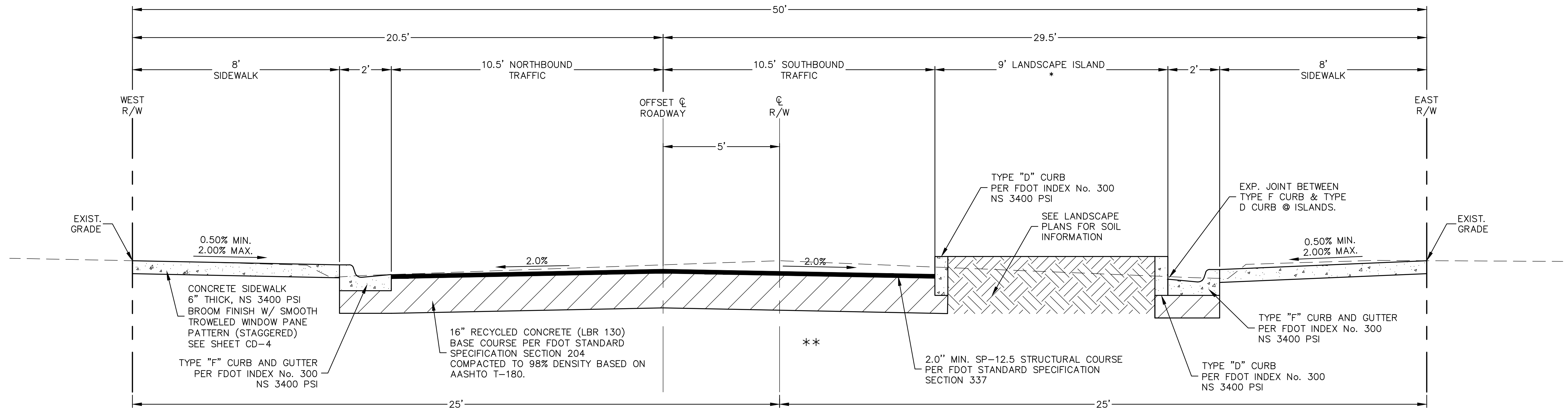


**DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT**

GENERAL NOTES

DATE:	APRIL 2017	SCALE:		MAC FILE NUMBER	
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DESIGNED	PJL				
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PROJ. MGR.	CRB				

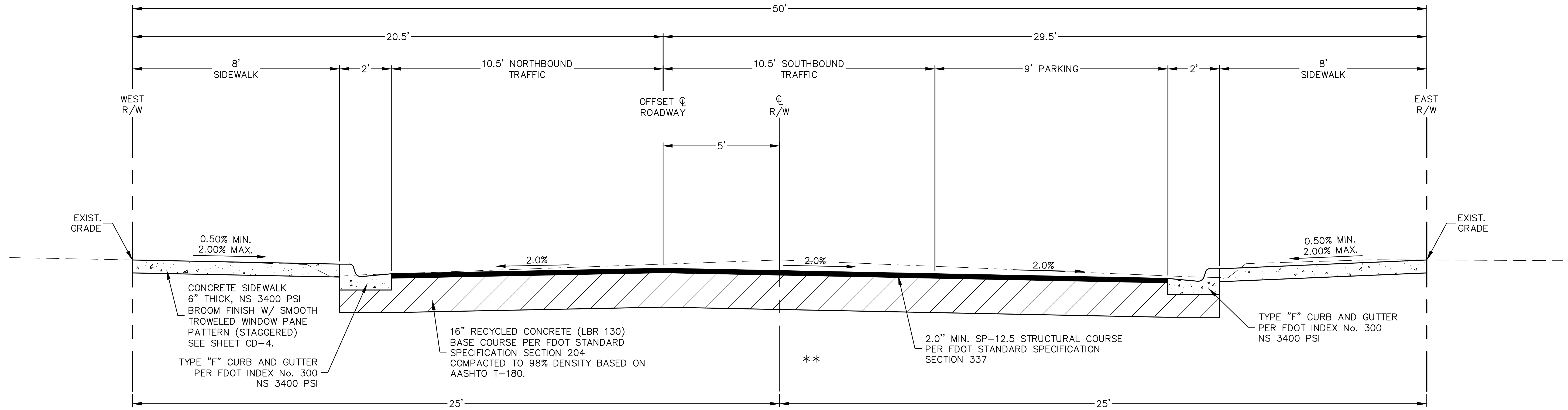
STATUS: **ISSUE FOR BIDDING**



**DR. MARTIN LUTHER KING, JR. BOULEVARD PROPOSED CROSS SECTION @ LANDSCAPE ISLAND**

SCALE: NTS  
 STA. 105+27 TO STA. 105+66  
 STA. 107+70 TO STA. 108+22  
 STA. 108+72 TO STA. 109+16  
 STA. 111+82 TO STA. 112+03  
 STA. 112+56 TO STA. 112+96

\*ISLAND TAPERS ADJACENT TO INTERSECTIONS. SEE DETAIL SHEET C-3  
 \*\*STATIC COMPACTION ONLY

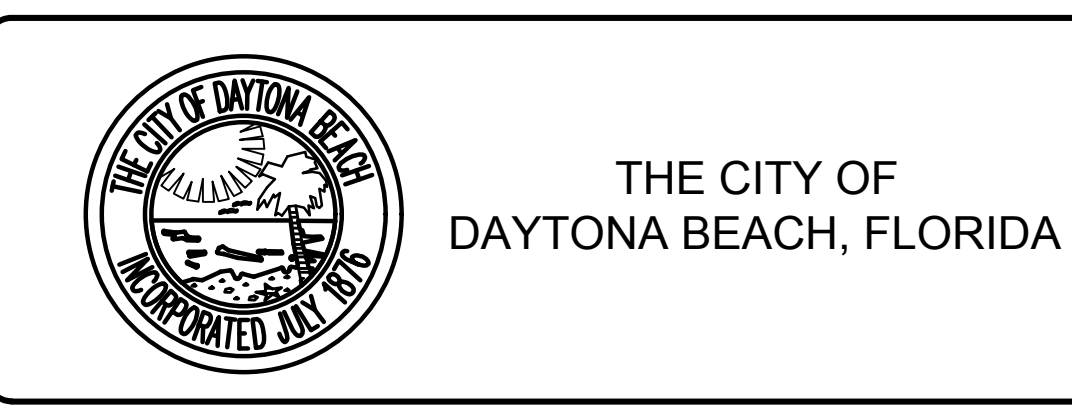
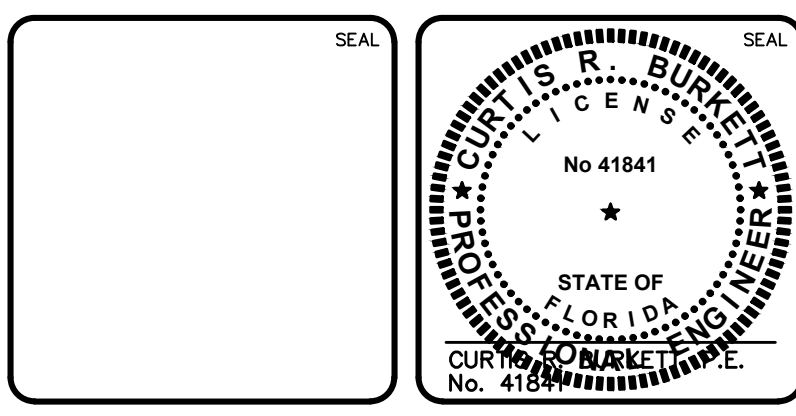


**DR. MARTIN LUTHER KING, JR. BOULEVARD PROPOSED CROSS SECTION**

SCALE: NTS  
 TYPICAL STA. 101+65 TO 115+40

- NOTES:
1. SUPERPAVE TRAFFIC LEVEL IS "C".
  2. CPF ADJUSTMENTS WILL NOT APPLY.
  3. ALL CONCRETE SHALL BE 3400 PSI.

REV. NO.	DESCRIPTION	DATE
A	ISSUE FOR BIDDING	AUGUST 2018



**DR. MARTIN LUTHER KING, JR. BOULEVARD—ROADWAY AND PEDESTRIAN IMPROVEMENTS PROJECT**

**TYPICAL SECTIONS**

DATE: APRIL 2017	SCALE:	MAC FILE NUMBER:
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DESIGNED: P.J.L.		<b>G-4</b>
CHECKED: CRB		
PROJ. MGR: CRB		
STATUS: <b>ISSUE FOR BIDDING</b>		REVISION:

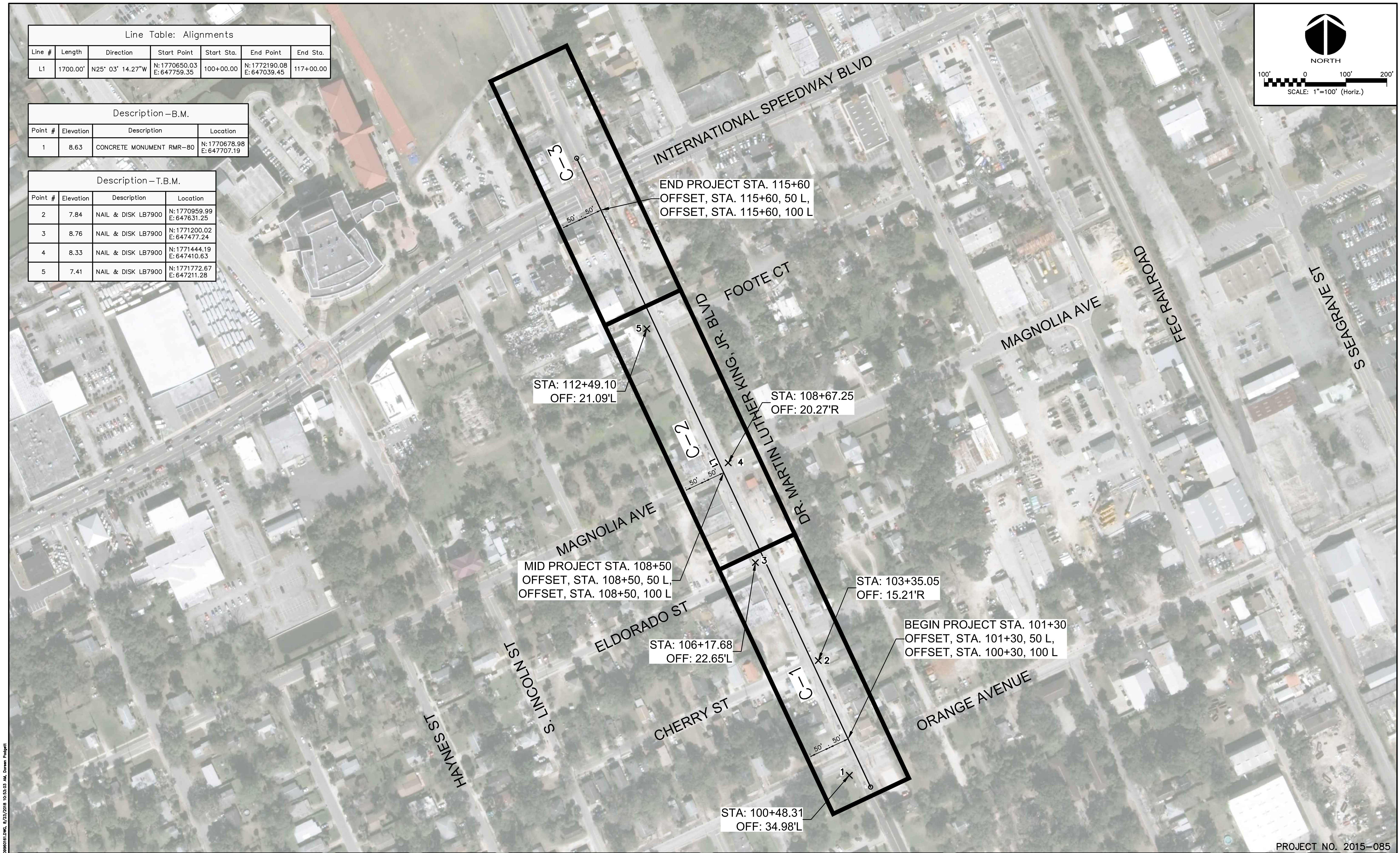
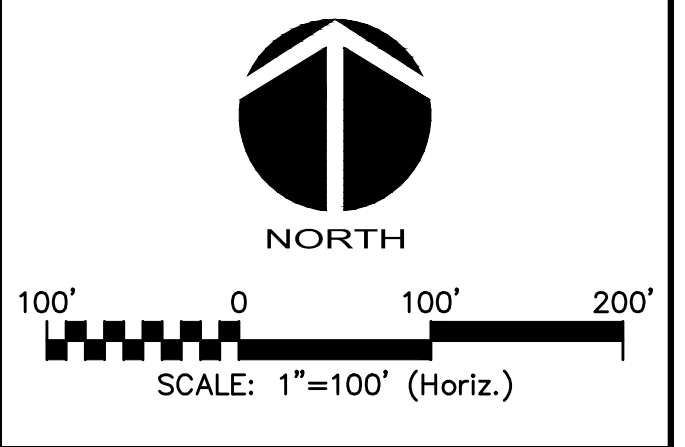
PROJECT NO. 2015-085

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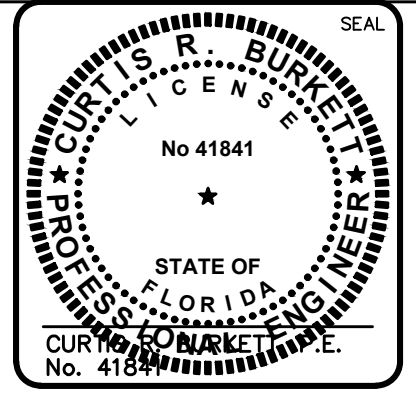
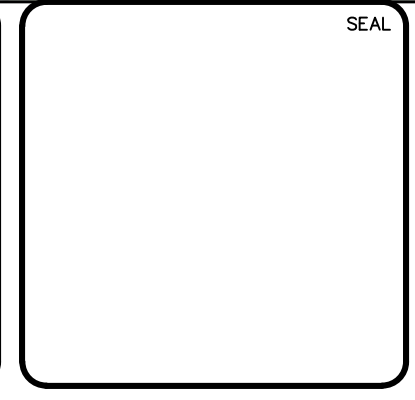
Description - B.M.			
Point #	Elevation	Description	Location
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Description - T.B.M.			
Point #	Elevation	Description	Location
2	7.84	NAIL & DISK LB7900	N:1770959.99 E:647631.25
3	8.76	NAIL & DISK LB7900	N:1771200.02 E:647477.24
4	8.33	NAIL & DISK LB7900	N:1771444.19 E:647410.63
5	7.41	NAIL & DISK LB7900	N:1771772.67 E:647211.28



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REV. NO.	DESCRIPTIONS	DATE
A	ISSUE FOR BIDDING	AUGUST 2018



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THE CITY OF  
 DAYTONA BEACH, FLORIDA

**DR. MARTIN LUTHER KING, JR.  
 BOULEVARD—ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT**

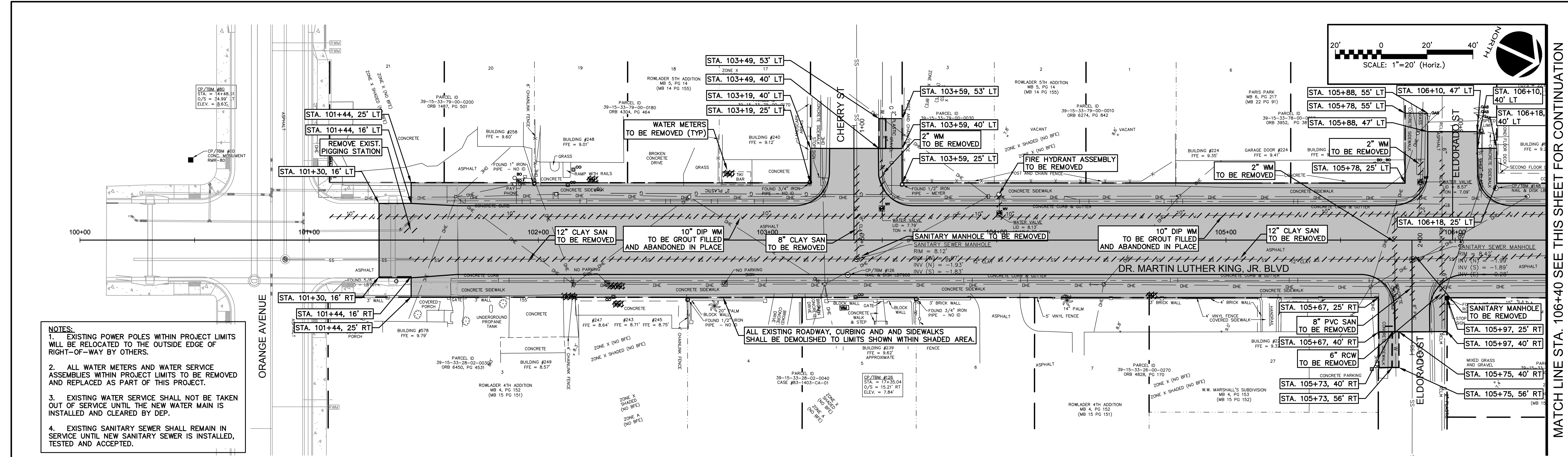
**KEY SHEET AND HORIZONTAL  
 CONTROL PLAN**

PROJECT NO. 2015-085

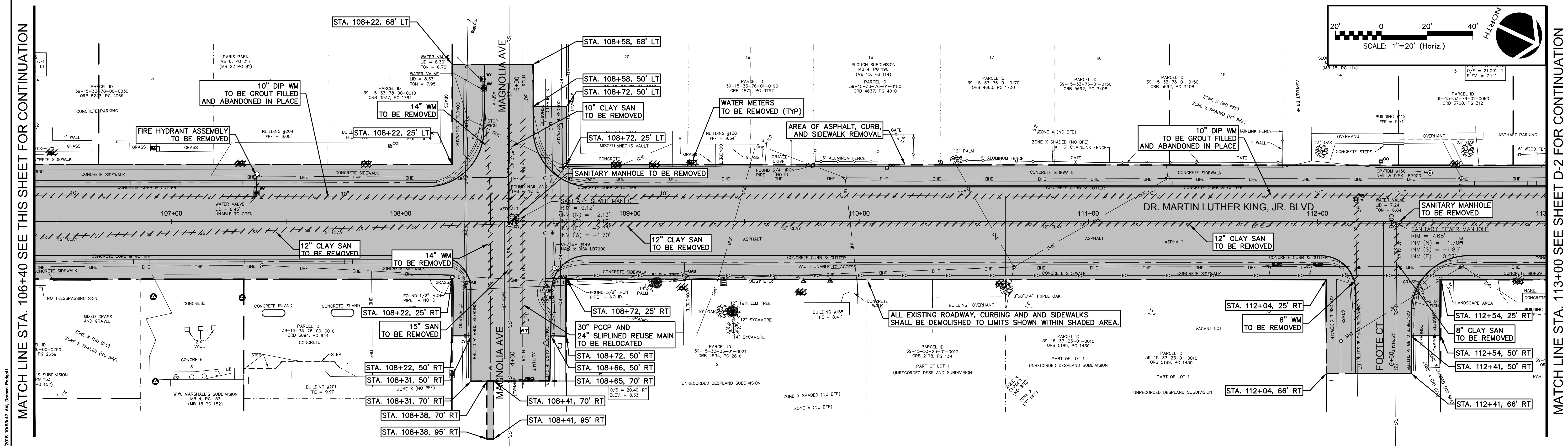
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DESIGNED: P.J.L.	VERTICAL:	G-5
CHECKED: CRB	NA	
PROJ. MGR: CRB		

STATUS: **ISSUE FOR BIDDING**





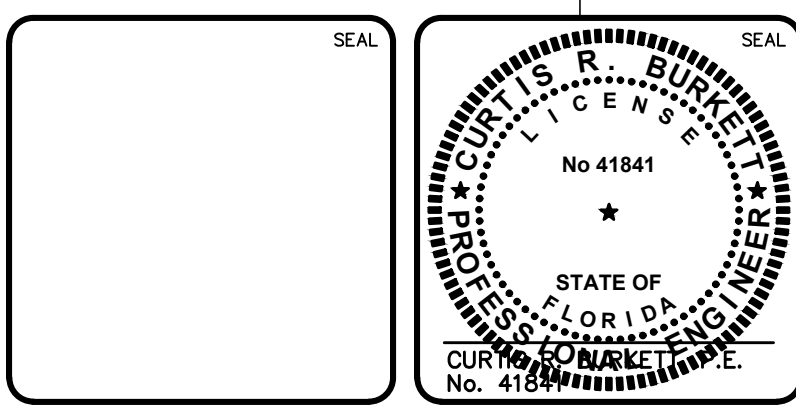
- NOTES:**
- EXISTING POWER POLES WITHIN PROJECT LIMITS WILL BE RELOCATED TO THE OUTSIDE EDGE OF RIGHT-OF-WAY BY OTHERS.
  - ALL WATER METERS AND WATER SERVICE ASSEMBLIES WITHIN PROJECT LIMITS TO BE REMOVED AND REPLACED AS PART OF THIS PROJECT.
  - EXISTING WATER SERVICE SHALL NOT BE TAKEN OUT OF SERVICE UNTIL THE NEW WATER MAIN IS INSTALLED AND CLEARED BY DEP.
  - EXISTING SANITARY SEWER SHALL REMAIN IN SERVICE UNTIL NEW SANITARY SEWER IS INSTALLED, TESTED AND ACCEPTED.



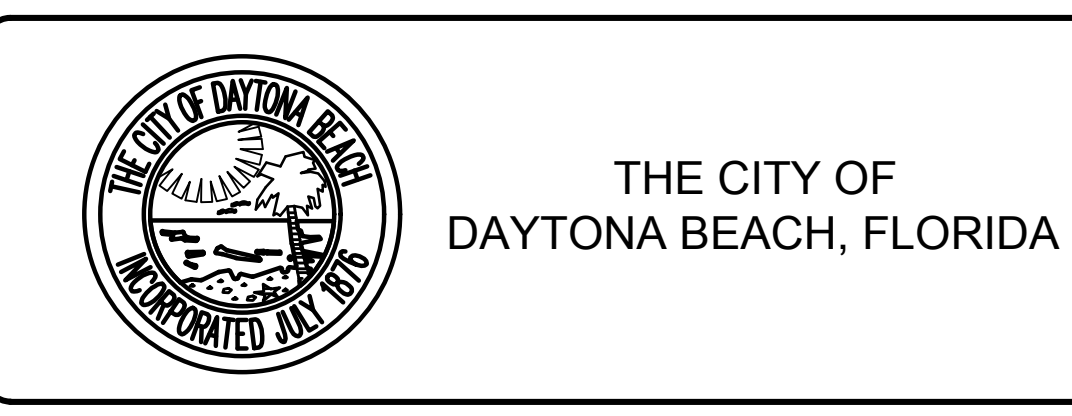
MATCH LINE STA. 106+40 SEE THIS SHEET FOR CONTINUATION

MATCH LINE STA. 113+00 SEE SHEET D-2 FOR CONTINUATION

REVNO.	DESCRIPTIONS	DATE
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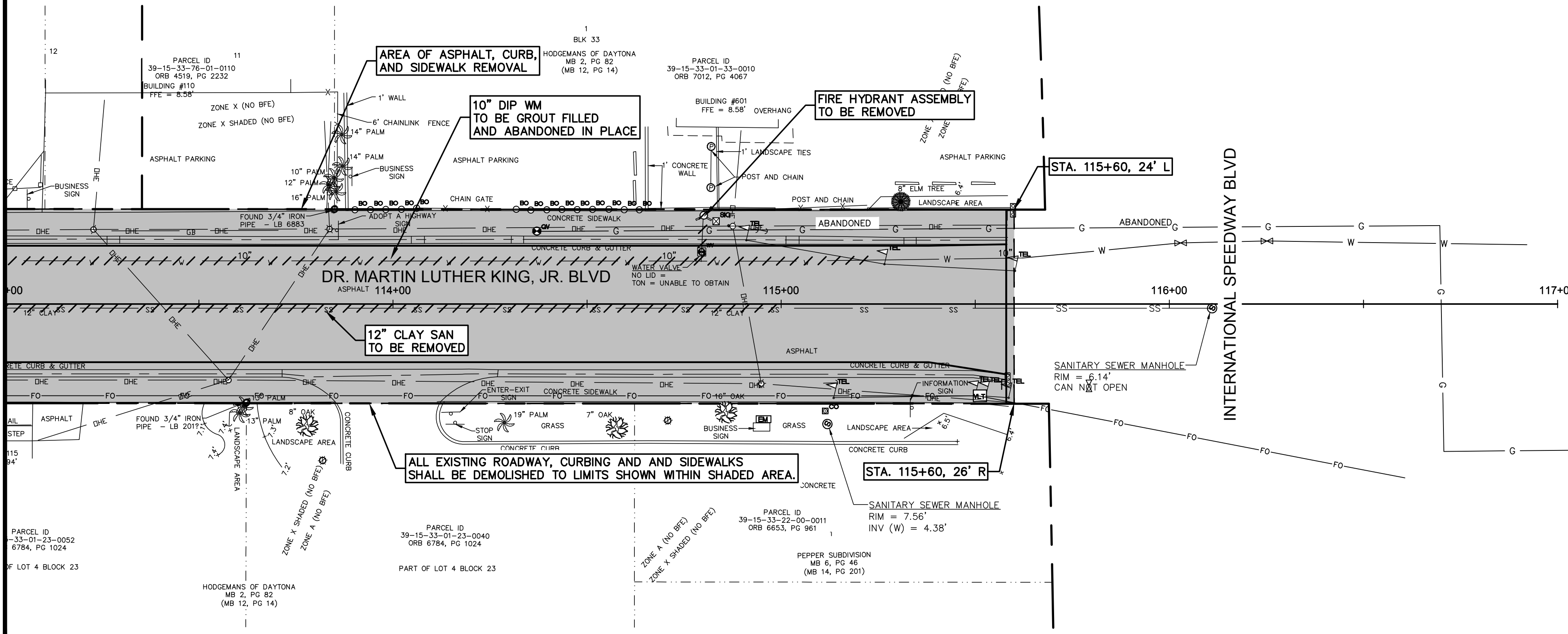
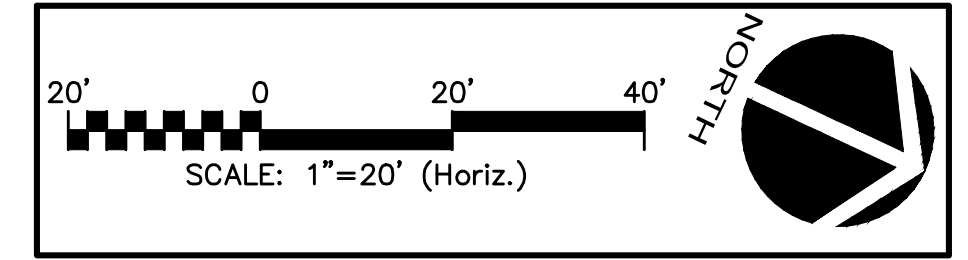
**DR. MARTIN LUTHER KING, JR.  
 BOULEVARD-ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT**

**DEMOLITION PLAN  
 1 OF 2**

PROJECT NO. 2015-085

DATE: APRIL 2017	SCALE: HORIZONTAL: 1"=20'	MAC FILE NUMBER: C0101-09960161
MCE PROJ. # 0996-0161	VERTICAL: 1"=2'	DRAWING NUMBER: D-1
DRAWN: BFN		
DESIGNED: P.J.L.		
CHECKED: CRB		
PROJ. MGR: CRB		
STATUS: ISSUE FOR BIDDING		REVISION:

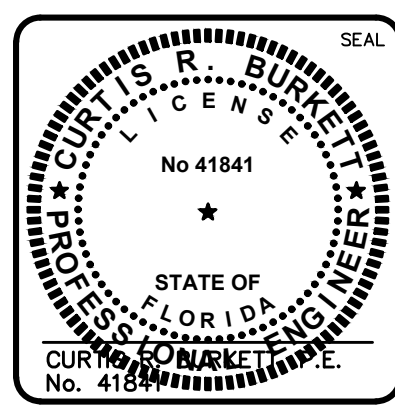
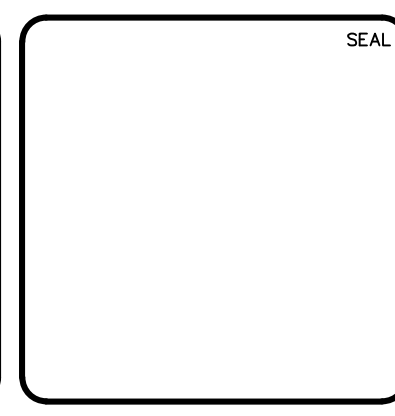
MATCH LINE STA. 113+00 SEE SHEET D-1 FOR CONTINUATION



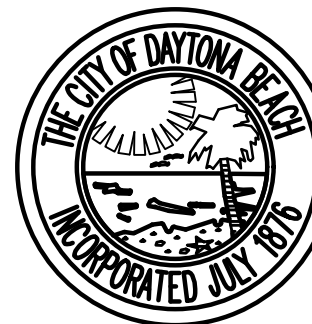
- NOTES:**
- EXISTING POWER POLES WITHIN PROJECT LIMITS WILL BE RELOCATED TO THE OUTSIDE EDGE OF RIGHT-OF-WAY BY OTHERS.
  - ALL WATER METERS AND WATER SERVICE ASSEMBLIES WITHIN PROJECT LIMITS TO BE REMOVED AND REPLACED AS PART OF THIS PROJECT.
  - EXISTING WATER SERVICE SHALL NOT BE TAKEN OUT OF SERVICE UNTIL THE NEW WATER MAIN IS INSTALLED AND CLEARED BY VOLUSIA COUNTY HEALTH DEPARTMENT.
  - EXISTING SANITARY SEWER SHALL REMAIN IN SERVICE UNTIL NEW SANITARY SEWER IS INSTALLED, TESTED AND ACCEPTED.

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DR. MARTIN LUTHER KING, JR.  
BOULEVARD—ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT

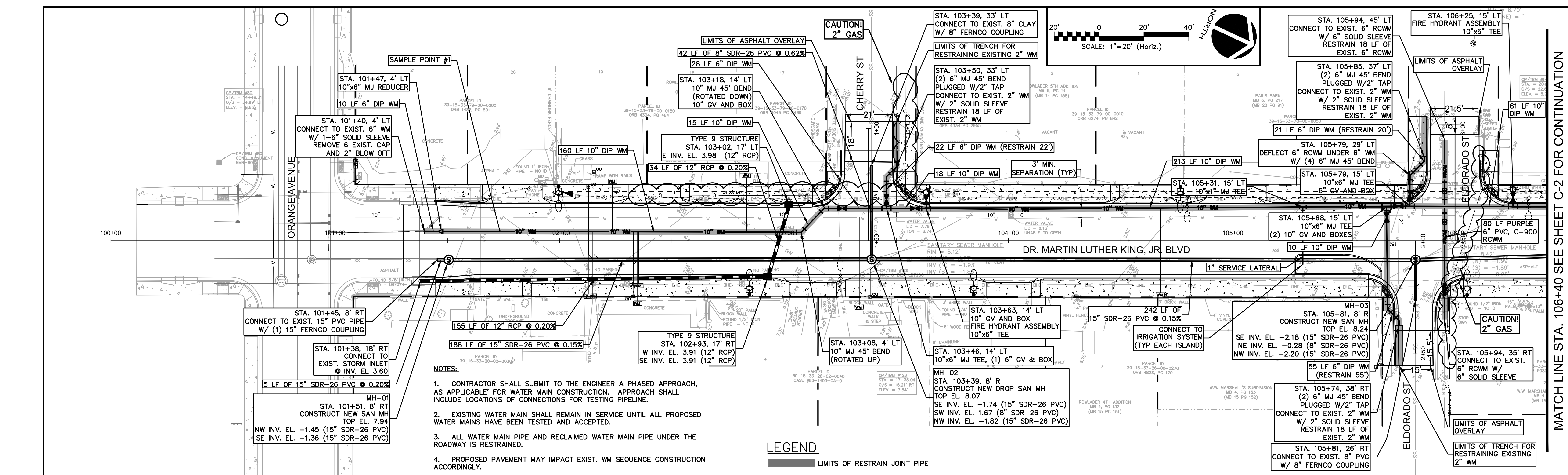
DEMOLITION PLAN  
2 OF 2

PROJECT NO. 2015-085

DATE: APRIL 2017	SCALE: 1"=20'	MAC FILE NUMBER: CD101-09960101
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DRAWN: BFN	VERTICAL: 1"=2'	
DESIGNED: P.J.L.		
CHECKED: CRB		
PROJ. MGR: CRB		

STATUS: ISSUE FOR BIDDING



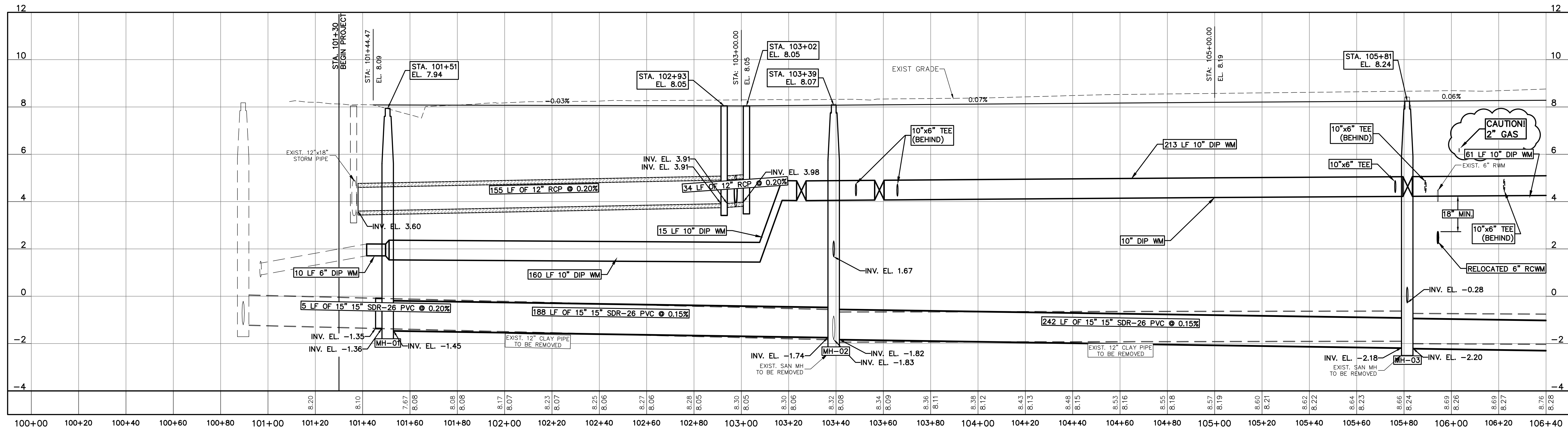


**NOTES:**

- CONTRACTOR SHALL SUBMIT TO THE ENGINEER A PHASED APPROACH, AS APPLICABLE FOR WATER MAIN CONSTRUCTION. APPROACH SHALL INCLUDE LOCATIONS OF CONNECTIONS FOR TESTING PIPELINE.
- EXISTING WATER MAIN SHALL REMAIN IN SERVICE UNTIL ALL PROPOSED WATER MAINS HAVE BEEN TESTED AND ACCEPTED.
- ALL WATER MAIN PIPE AND RECLAIMED WATER MAIN PIPE UNDER THE ROADWAY IS RESTRAINED.
- PROPOSED PAVEMENT MAY IMPACT EXIST. WM SEQUENCE CONSTRUCTION ACCORDINGLY.

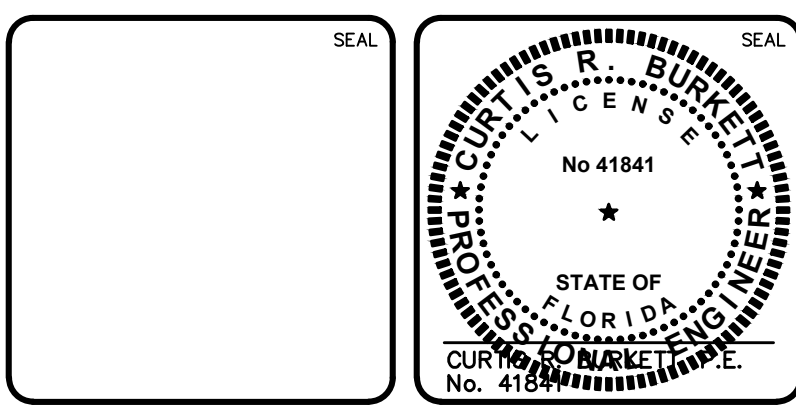
**LEGEND**

— LIMITS OF RESTRAIN JOINT PIPE



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INCORPORATED JAN. 20, 1845

THE CITY OF DAYTONA BEACH, FLORIDA

**DR. MARTIN LUTHER KING, JR. BOULEVARD—ROADWAY AND PEDESTRIAN IMPROVEMENTS PROJECT**

PLAN AND PROFILE  
100+00 TO 106+40

PROJECT NO. 2015-085

DATE: APRIL 2017  
MCE PROJ. #: 0996-0161  
DRAWN: DMP  
DESIGNED: P.J.L.  
CHECKED: CRB  
PROJ. MGR: CRB

SCALE: HORIZONTAL: 1"=20'  
VERTICAL: 1"=2'

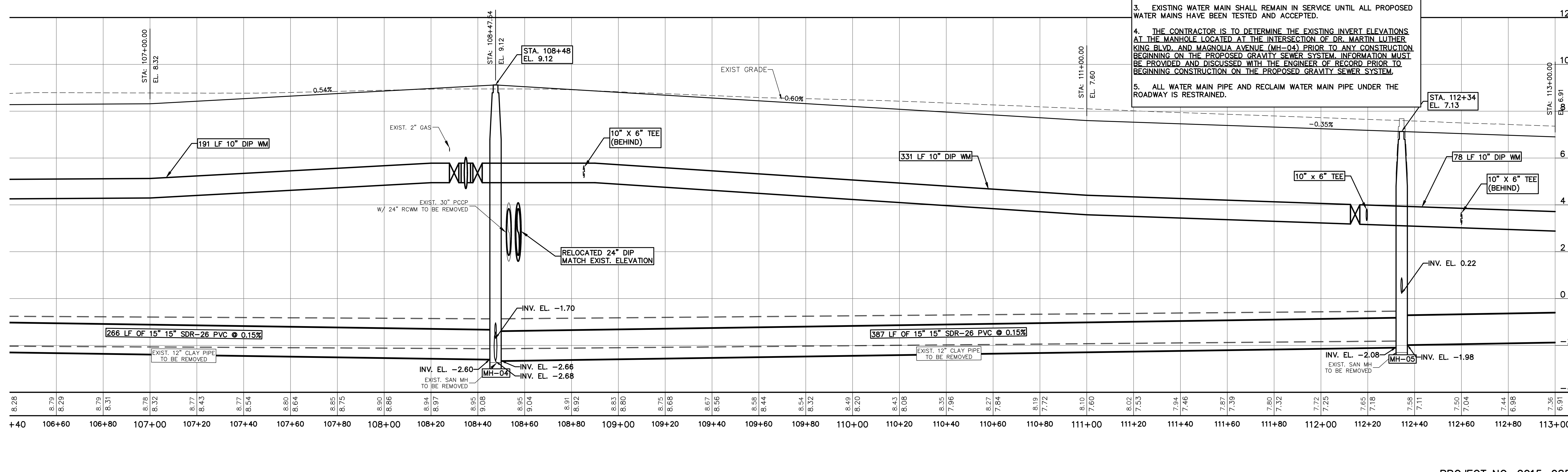
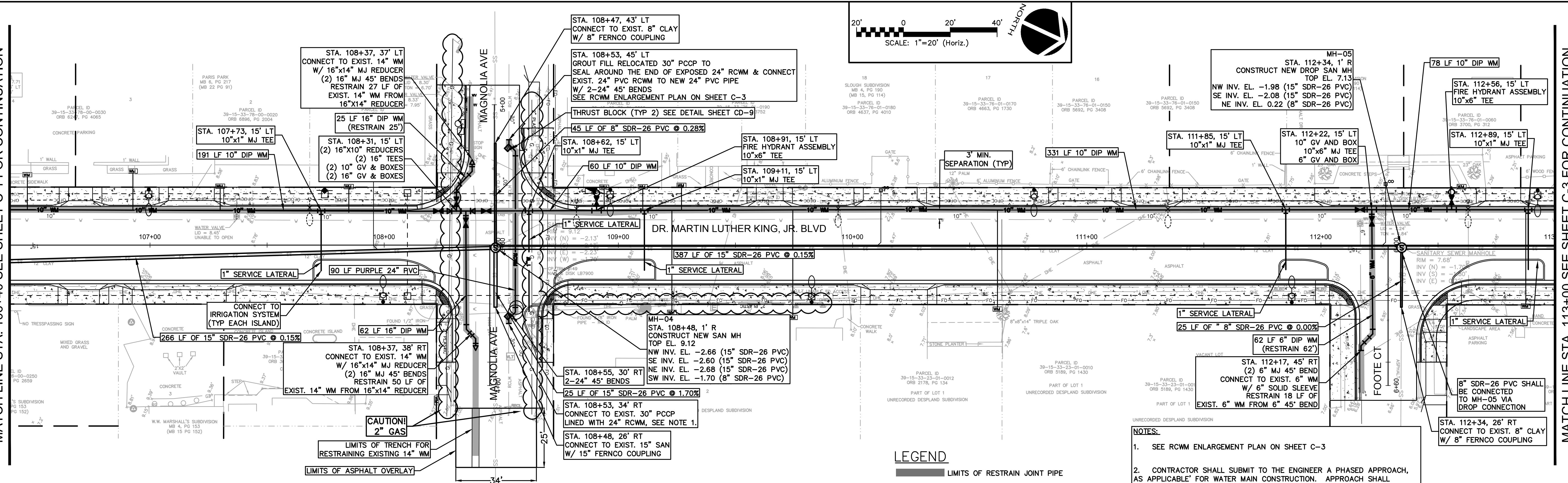
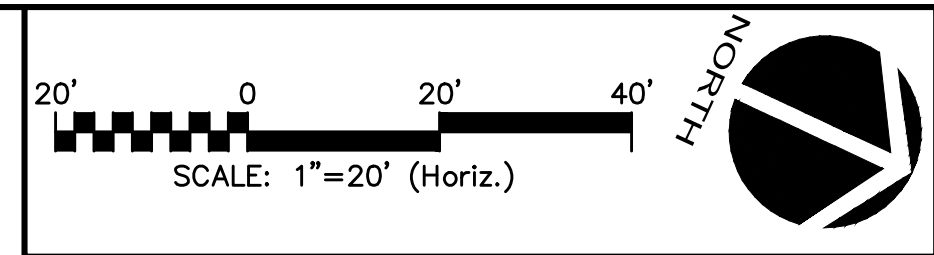
M&C FILE NUMBER: CUI01-09960161  
DRAWING NUMBER: C-1

STATUS: ISSUE FOR BIDDING

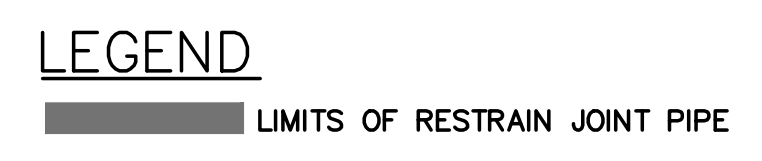
MATCH LINE STA. 106+40 SEE SHEET C-2 FOR CONTINUATION

MATCH LINE STA. 106+40 SEE SHEET C-1 FOR CONTINUATION

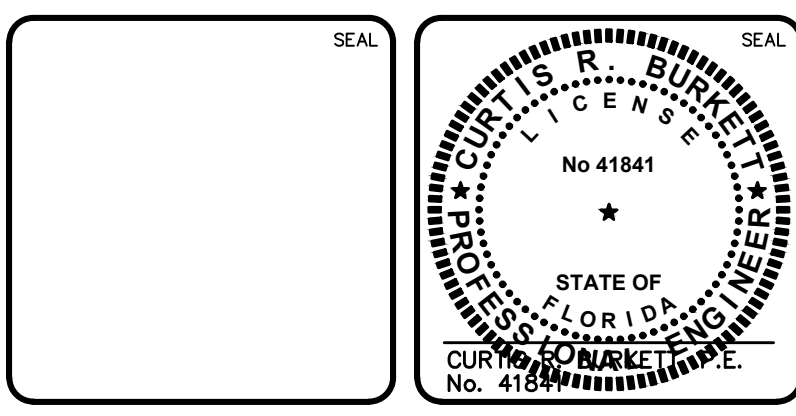
MATCH LINE STA. 113+00 SEE SHEET C-3 FOR CONTINUATION



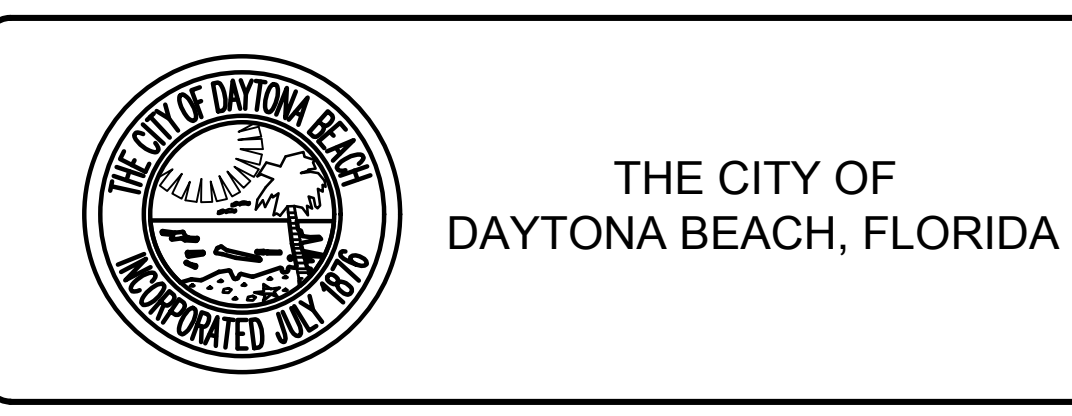
- NOTES:**
- SEE RCWM ENLARGEMENT PLAN ON SHEET C-3
  - CONTRACTOR SHALL SUBMIT TO THE ENGINEER A PHASED APPROACH, AS APPLICABLE, FOR WATER MAIN CONSTRUCTION. APPROACH SHALL INCLUDE LOCATIONS OF CONNECTIONS FOR TESTING PIPELINE.
  - EXISTING WATER MAIN SHALL REMAIN IN SERVICE UNTIL ALL PROPOSED WATER MAINS HAVE BEEN TESTED AND ACCEPTED.
  - THE CONTRACTOR IS TO DETERMINE THE EXISTING INVERT ELEVATIONS AT THE MANHOLE LOCATED AT THE INTERSECTION OF DR. MARTIN LUTHER KING BLVD. AND MAGNOLIA AVENUE (MH-04) PRIOR TO ANY CONSTRUCTION BEGINNING ON THE PROPOSED GRAVITY SEWER SYSTEM. INFORMATION MUST BE PROVIDED AND DISCUSSED WITH THE ENGINEER OF RECORD PRIOR TO BEGINNING CONSTRUCTION ON THE PROPOSED GRAVITY SEWER SYSTEM.
  - ALL WATER MAIN PIPE AND RECLAIM WATER MAIN PIPE UNDER THE ROADWAY IS RESTRAINED.



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**DR. MARTIN LUTHER KING, JR. BOULEVARD-ROADWAY AND PEDESTRIAN IMPROVEMENTS PROJECT**

PLAN AND PROFILE  
106+40 TO 113+00

PROJECT NO. 2015-085

DATE: APRIL 2017	SCALE: 1"=20'	M&C FILE NUMBER: CUI01-09960161
M&C PROJ. #: 0996-0161	HORIZONTAL: 1"=20'	DRAWING NUMBER: C-2
DRAWN: DMP	VERTICAL: 1"=2'	REVISION:
DESIGNED: P.J.L.		
CHECKED: CRB		
PROJ. MGR: CRB		

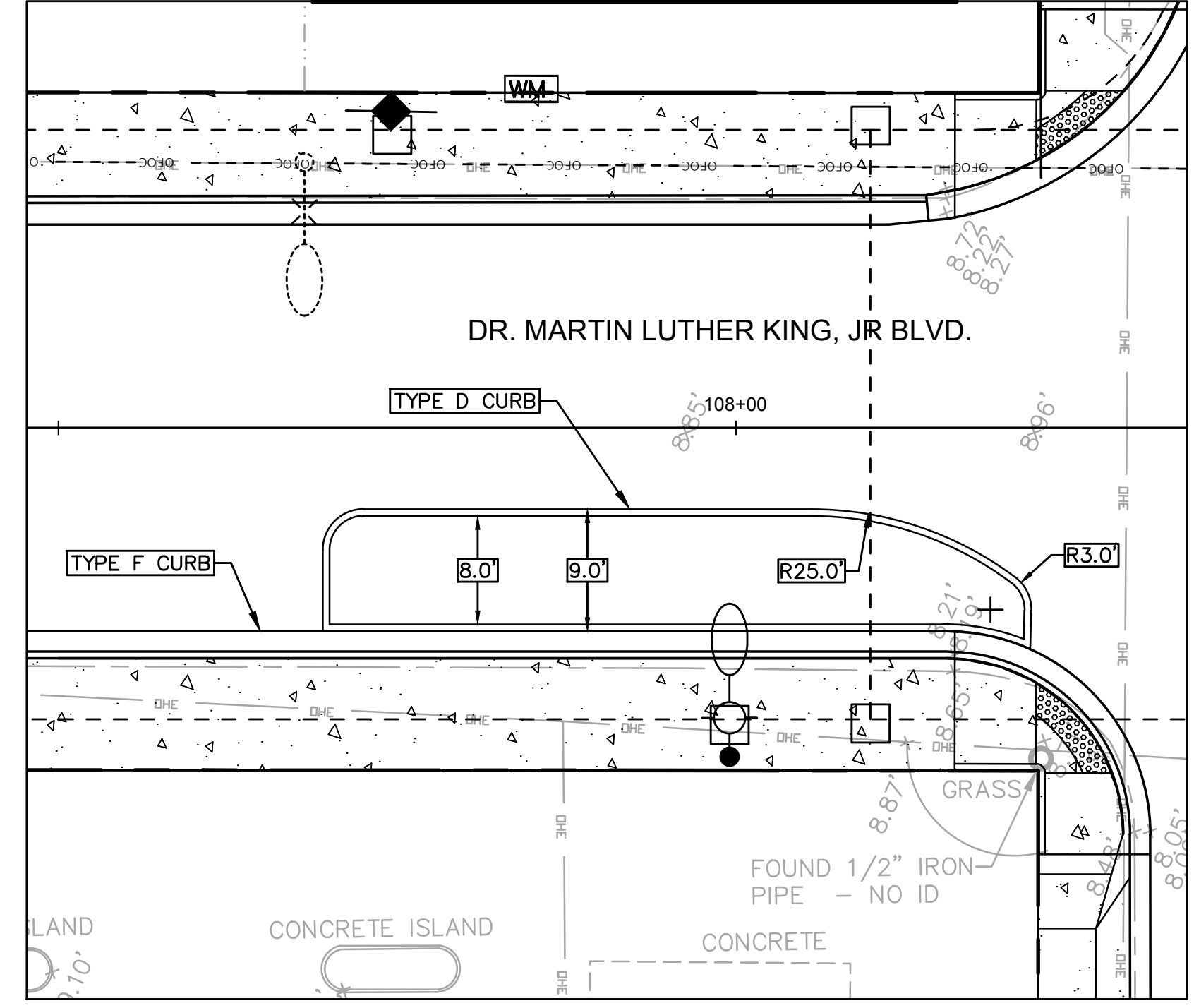
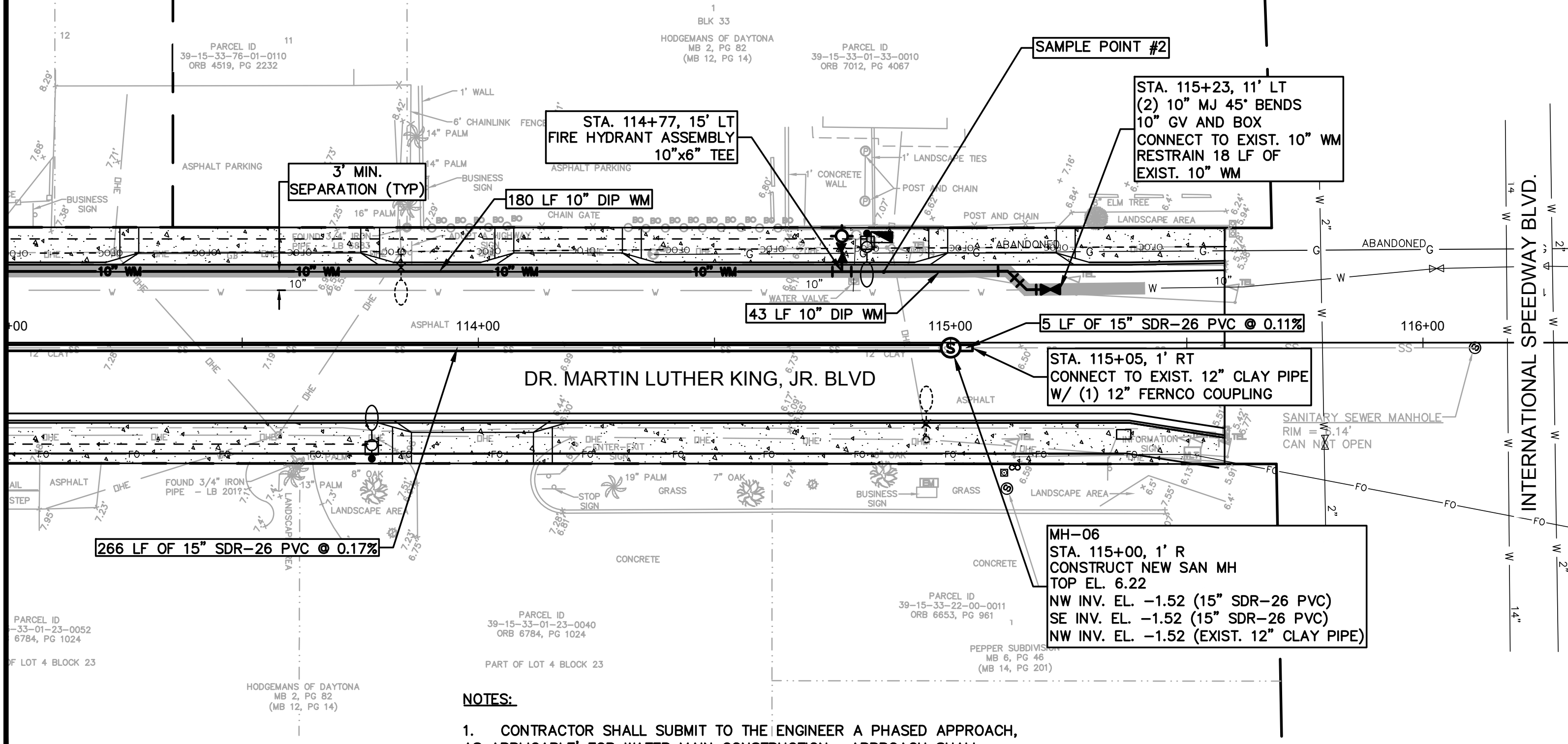
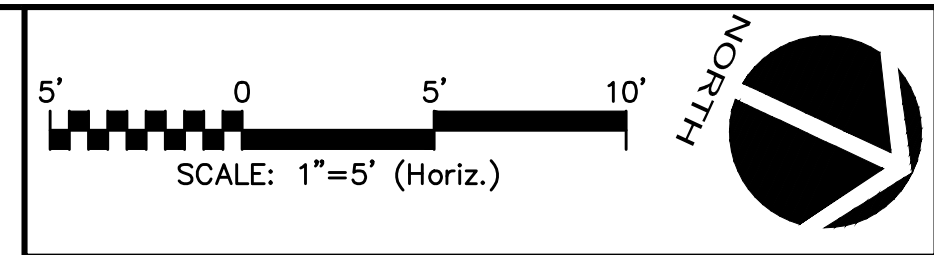
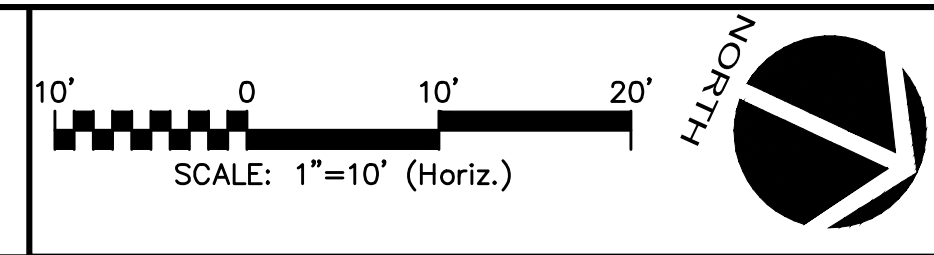
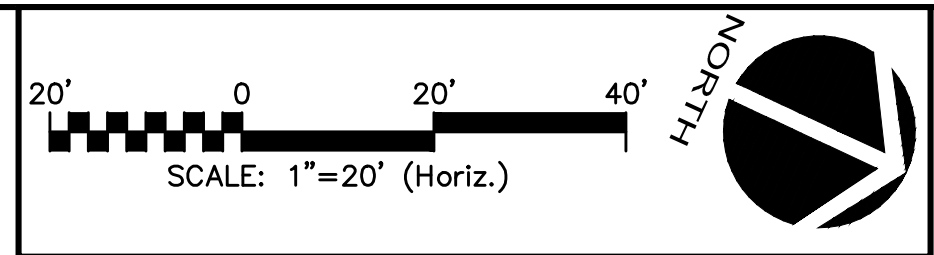
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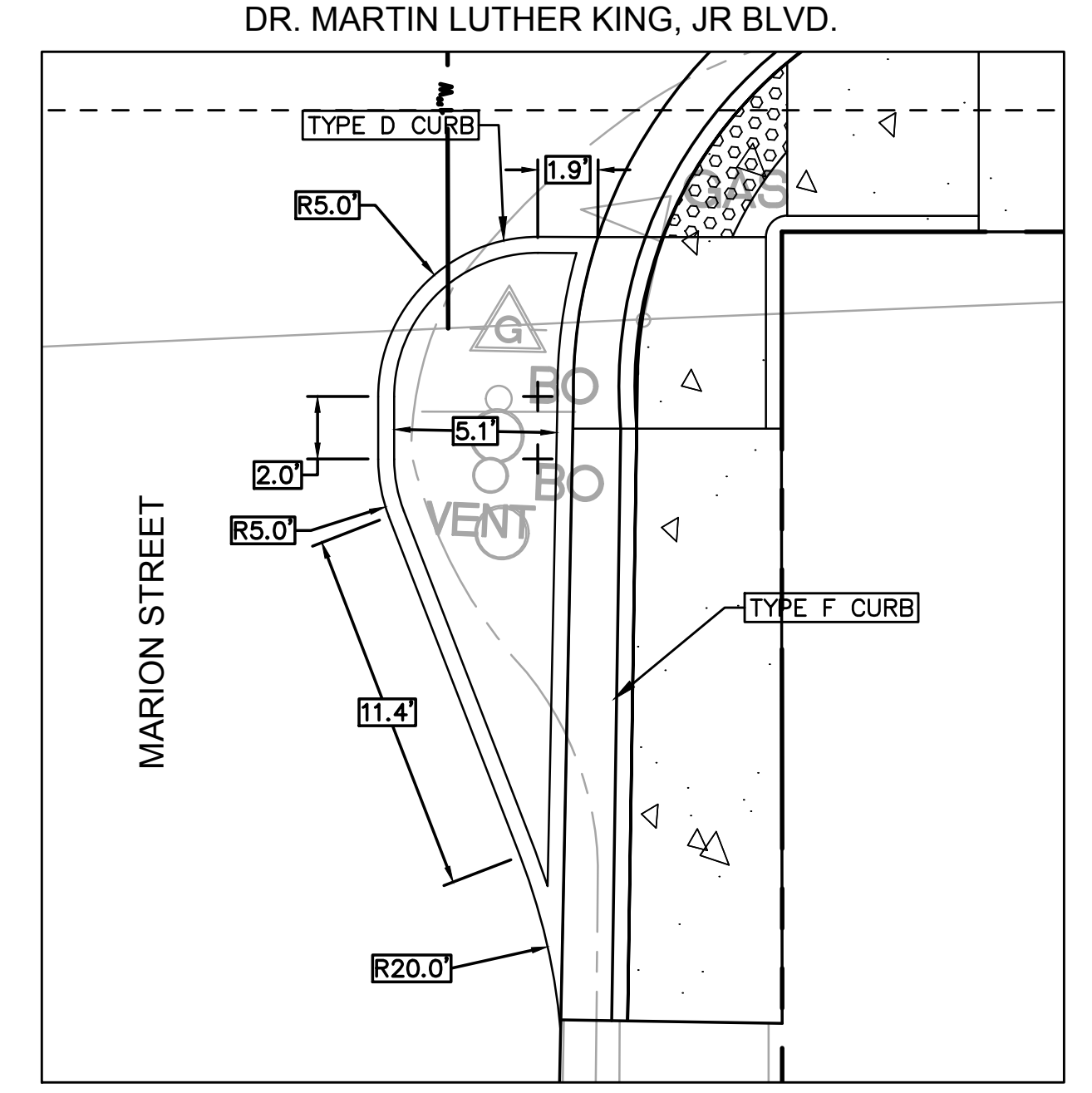
MATCH LINE STA. 113+00 SEE SHEET C-2 FOR CONTINUATION

**LEGEND**

LIMITS OF RESTRAIN JOINT PIPE

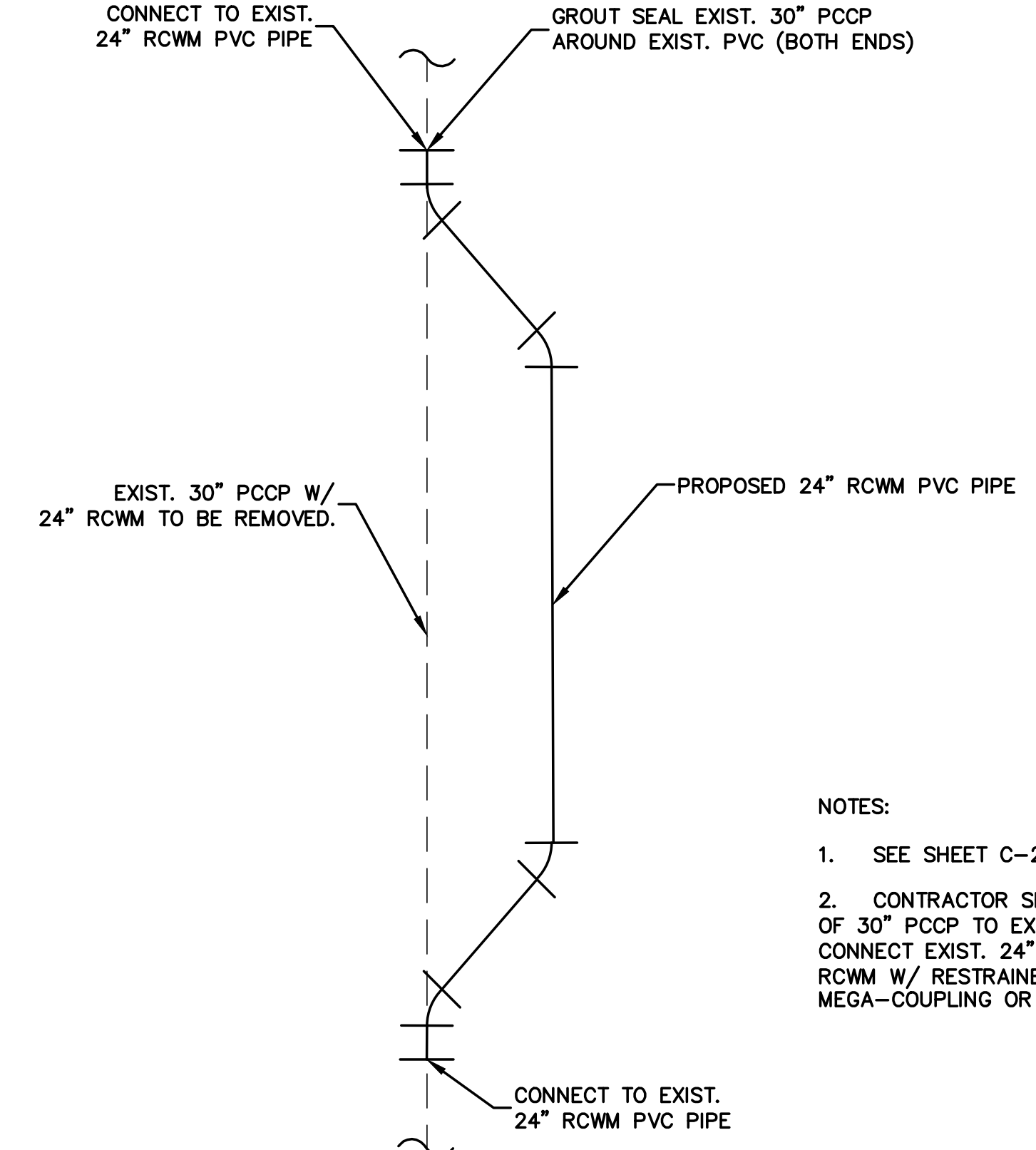
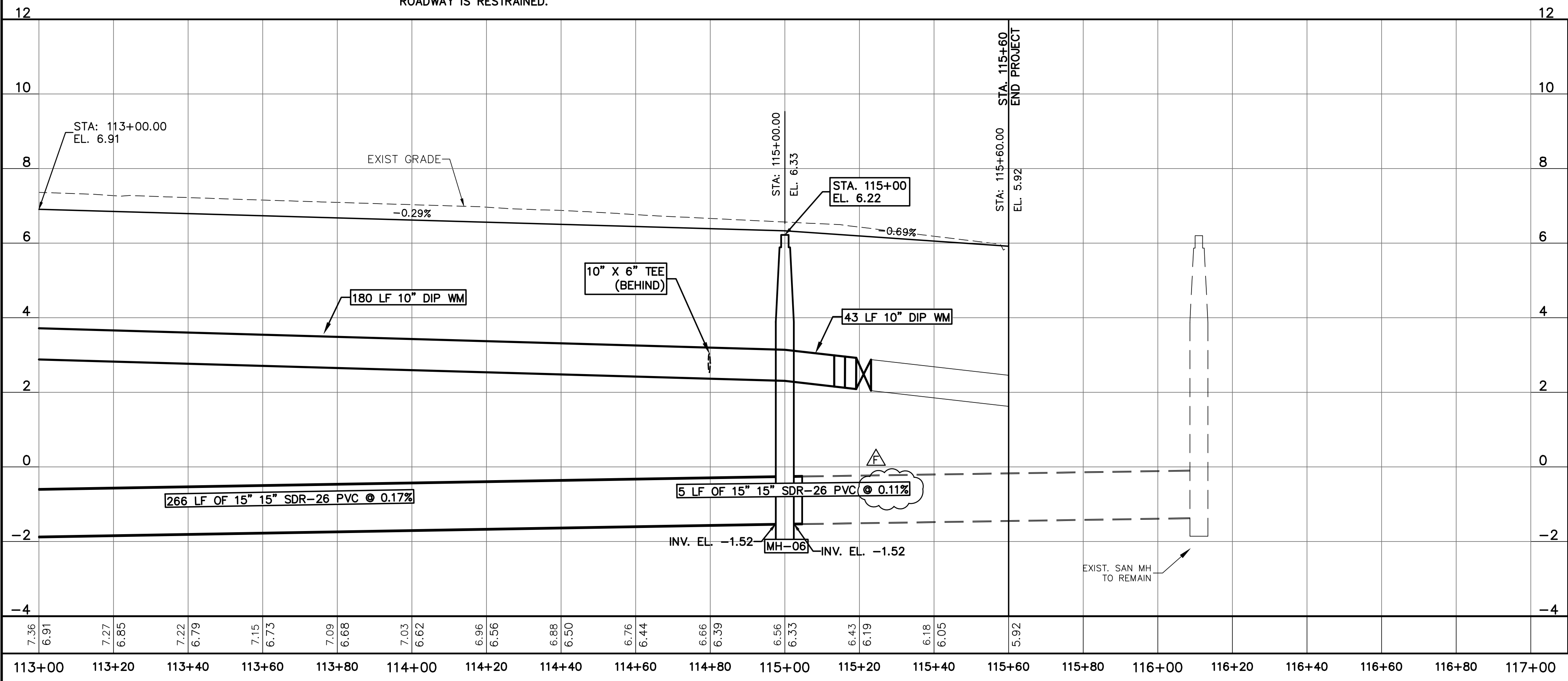


**TYPICAL BUMP-OUT DETAIL**  
SCALE 1"=10'



**MAGNOLIA AVE. STA. 4+30 ±**  
**BUMP-OUT DETAIL**  
SCALE 1"=5'

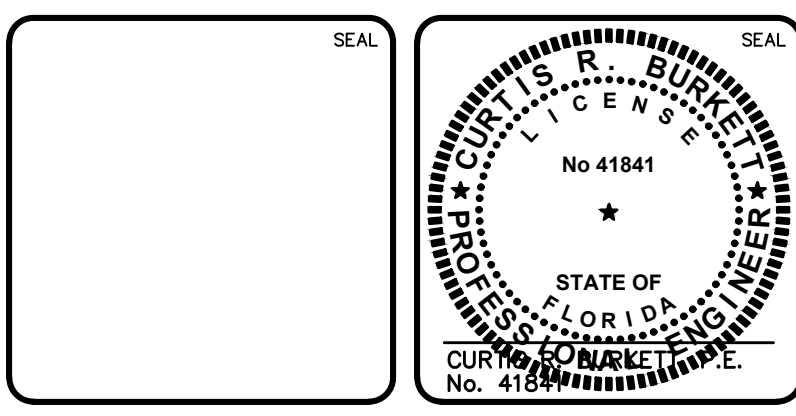
- NOTES:**
1. CONTRACTOR SHALL SUBMIT TO THE ENGINEER A PHASED APPROACH, AS APPLICABLE FOR WATER MAIN CONSTRUCTION. APPROACH SHALL INCLUDE LOCATIONS OF CONNECTIONS FOR TESTING PIPELINE.
  2. EXISTING WATER MAIN SHALL REMAIN IN SERVICE UNTIL ALL PROPOSED WATER MAINS HAVE BEEN TESTED AND ACCEPTED.
  3. ALL WATER MAIN PIPE AND RECLAIMED WATER PIPE UNDER THE ROADWAY IS RESTRAINED.



**24" RCWM RELOCATION DETAIL**

- NOTES:**
1. SEE SHEET C-2 (STA. 108+53, 45' LT)
  2. CONTRACTOR SHALL CUT AWAY 5- FEET OF 30" PCCP TO EXPOSE EXISTING 24" RCWM. CONNECT EXIST. 24" RCWM TO PROPOSED 24" RCWM W/ RESTRAINED COUPLING SUCH AS MEGA-COUPLING OR EQUAL.

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BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT

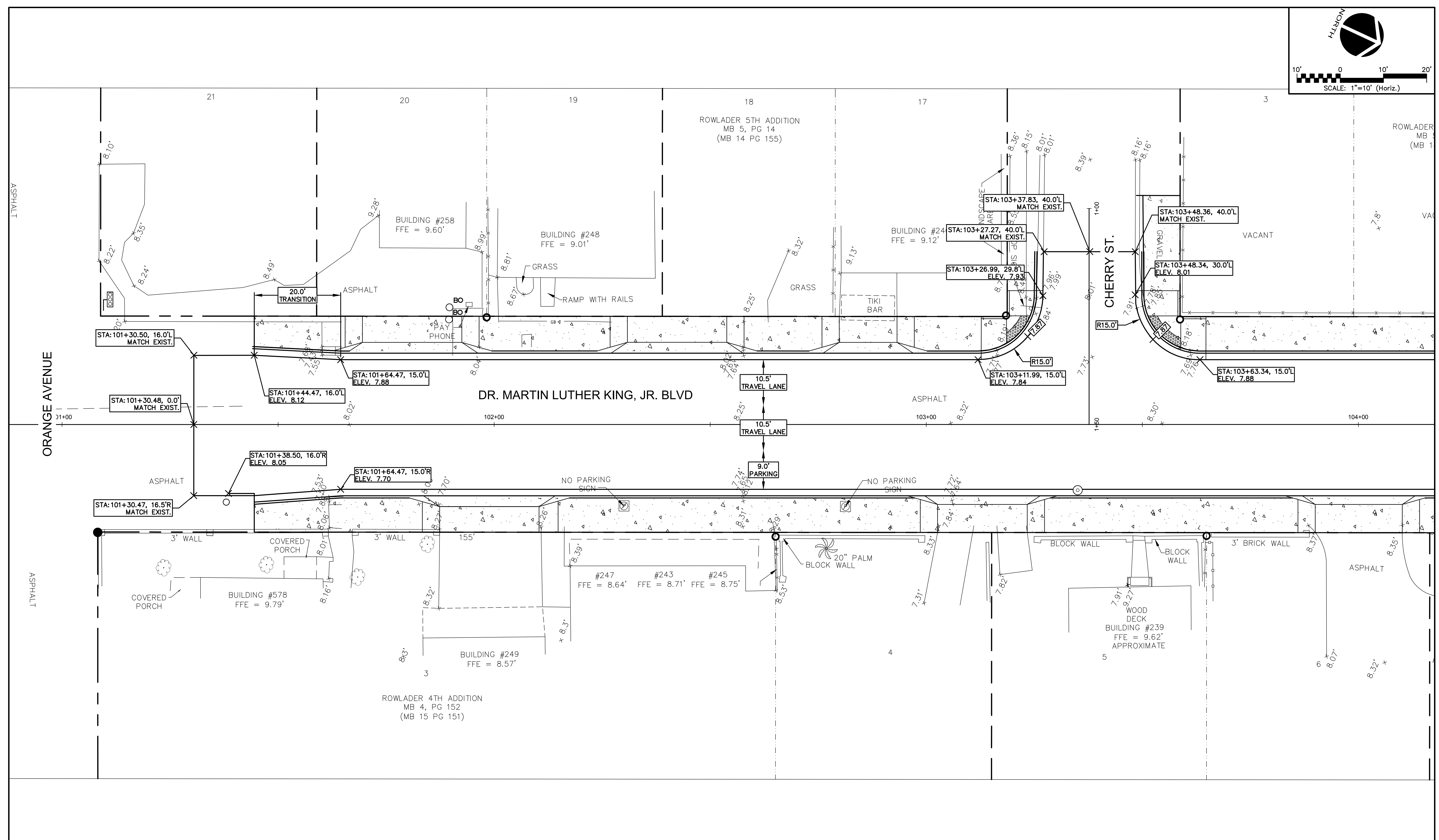
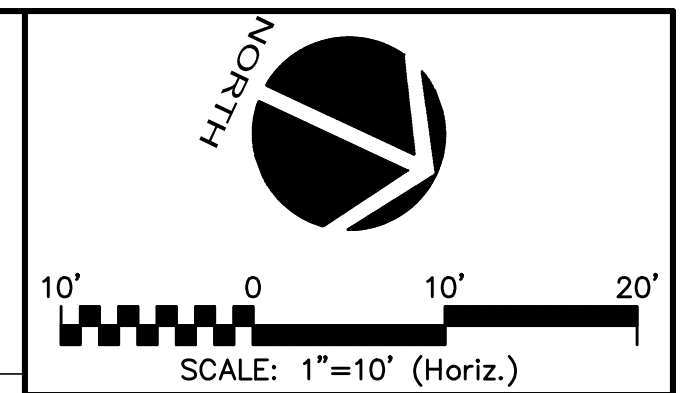
PLAN AND PROFILE  
113+00 TO 117+00

PROJECT NO. 2015-085

DATE: APRIL 2017	SCALE: 1"=20'	MAC FILE NUMBER: CUI01-09960161
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DRAWN: DMP	VERTICAL: 1"=2'	REVISION:
DESIGNED: P.J.L.		
CHECKED: CRB		
PROJ. MGR: CRB		

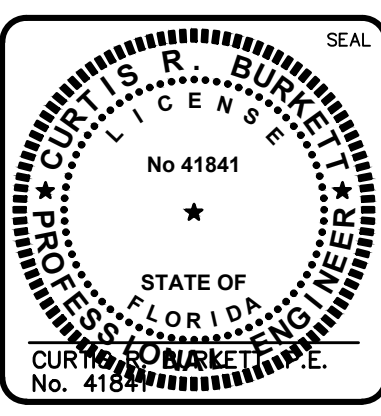
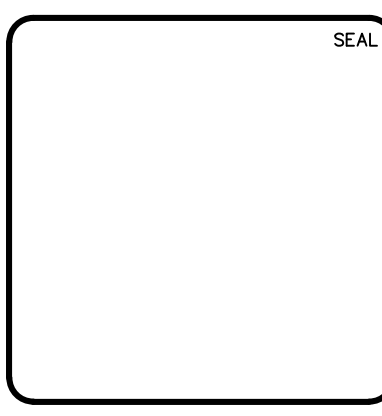
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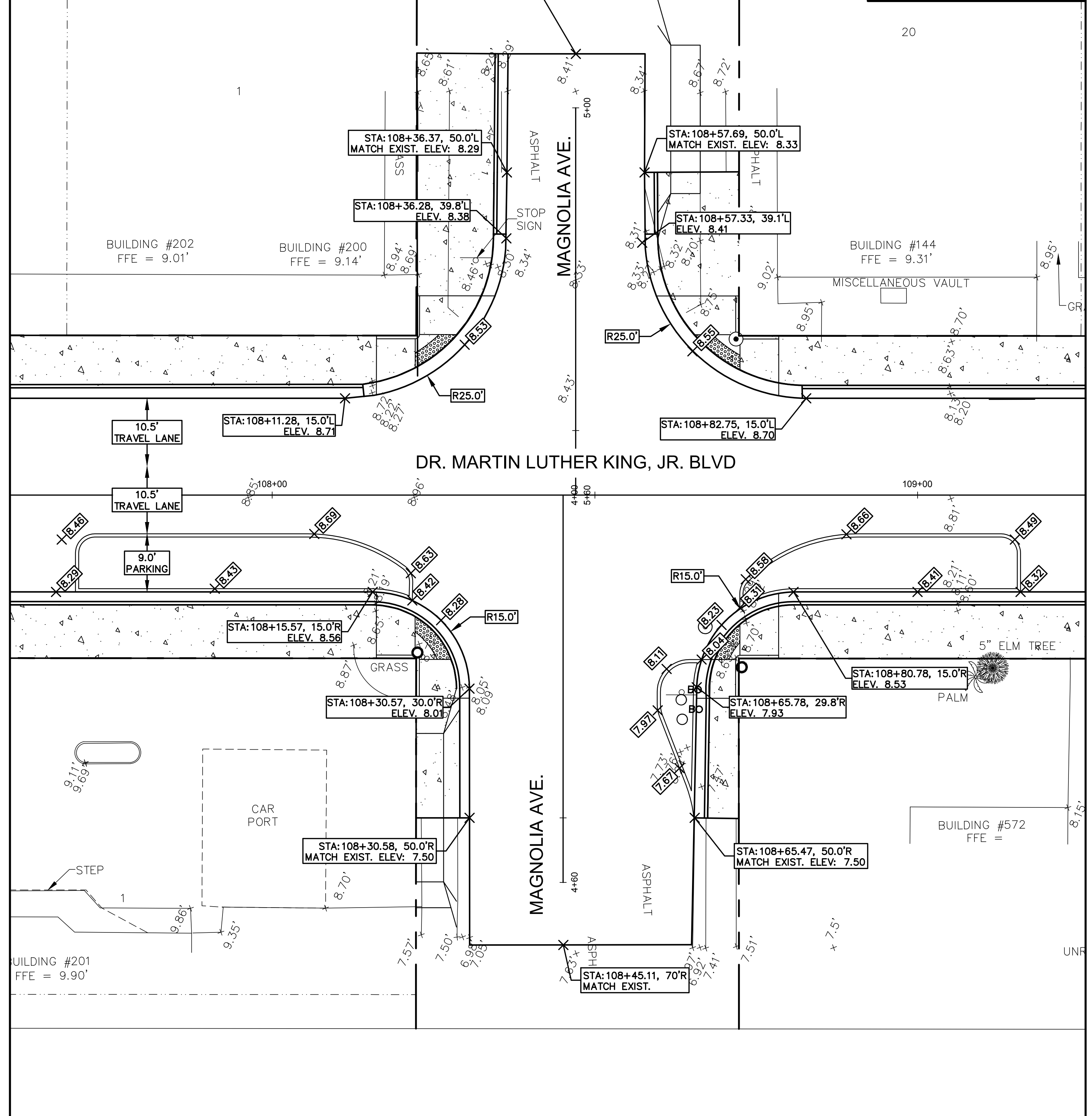
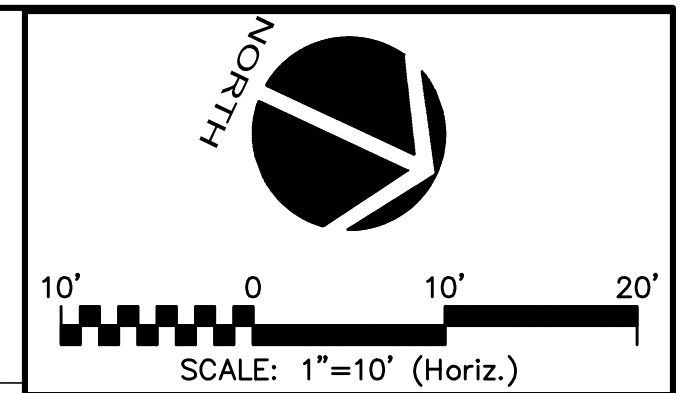
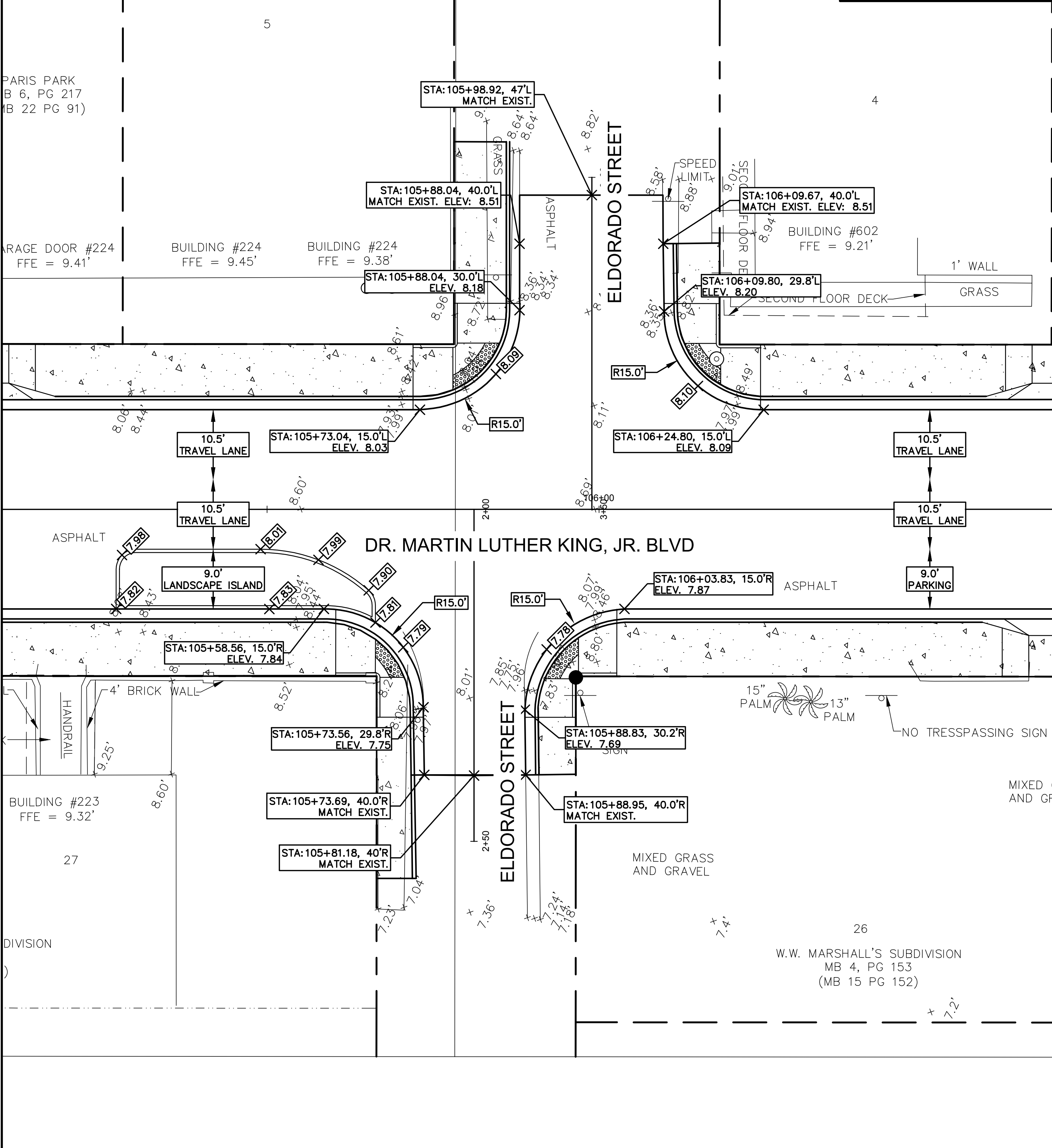
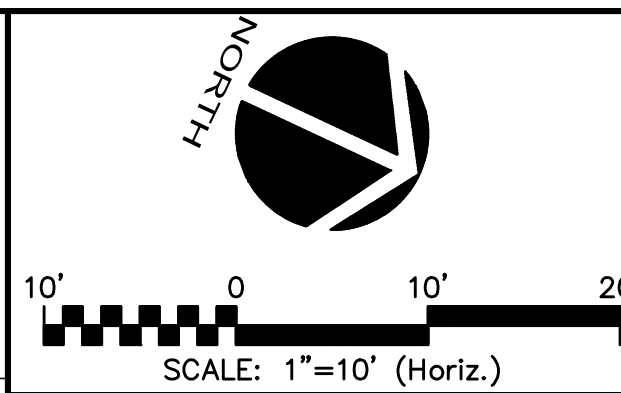
DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT

INTERSECTION PLAN  
1 OF 3

PROJECT NO. 2015-085

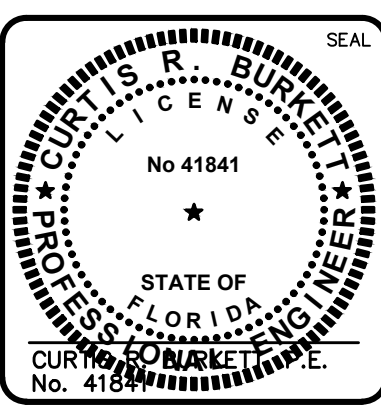
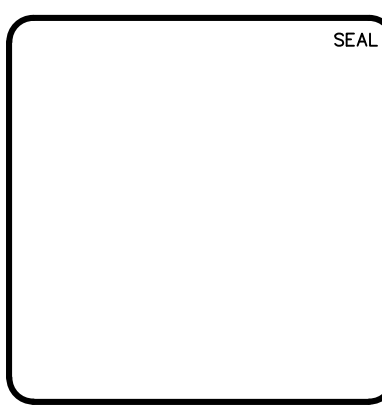
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DRAWN: BFN	VERTICAL: 1"=2'	DRAWING NUMBER:
DESIGNED: P.J.L.		C-4
CHECKED: CRB		
PROJ. MGR: CRB		

STATUS: ISSUE FOR BIDDING



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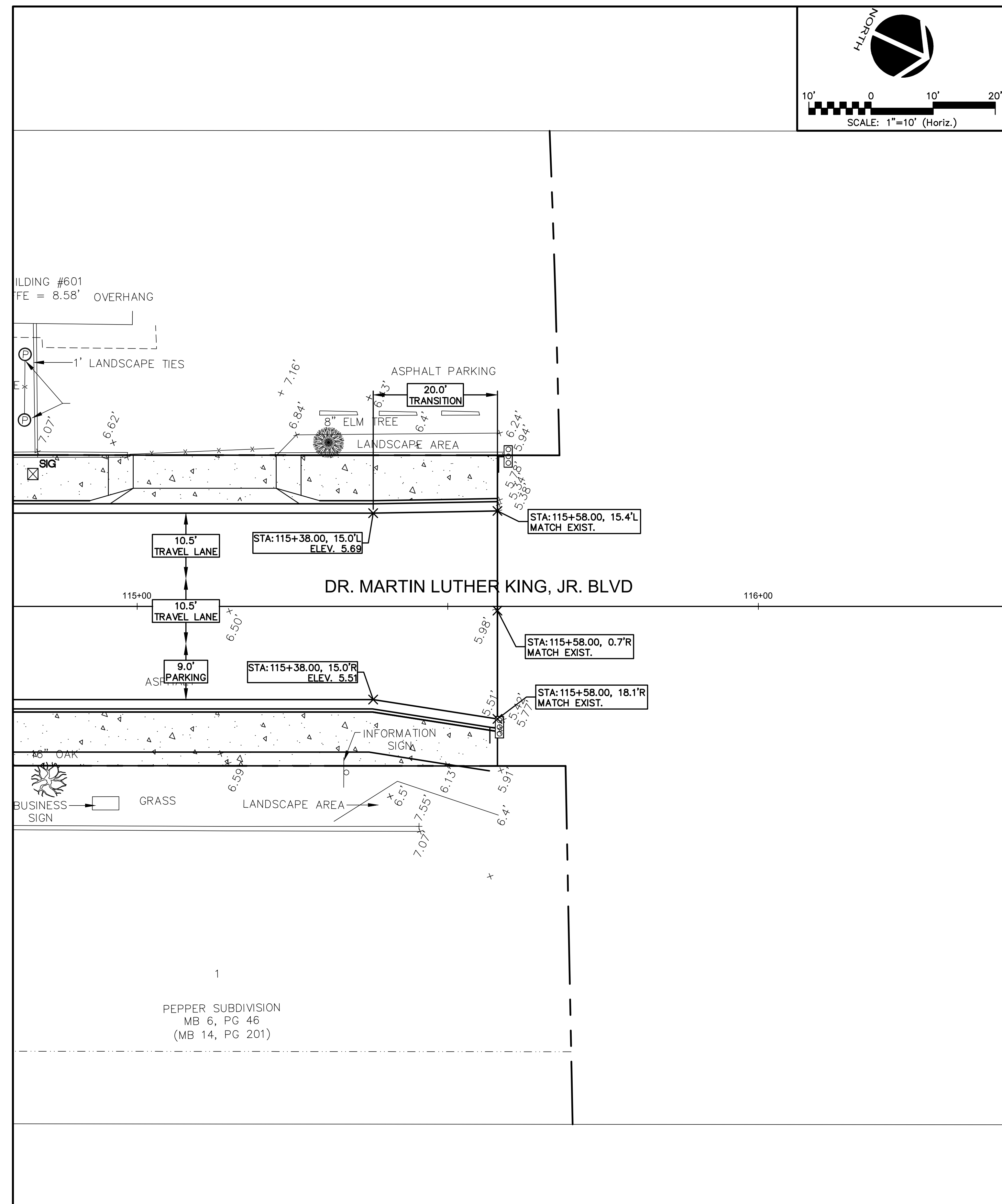
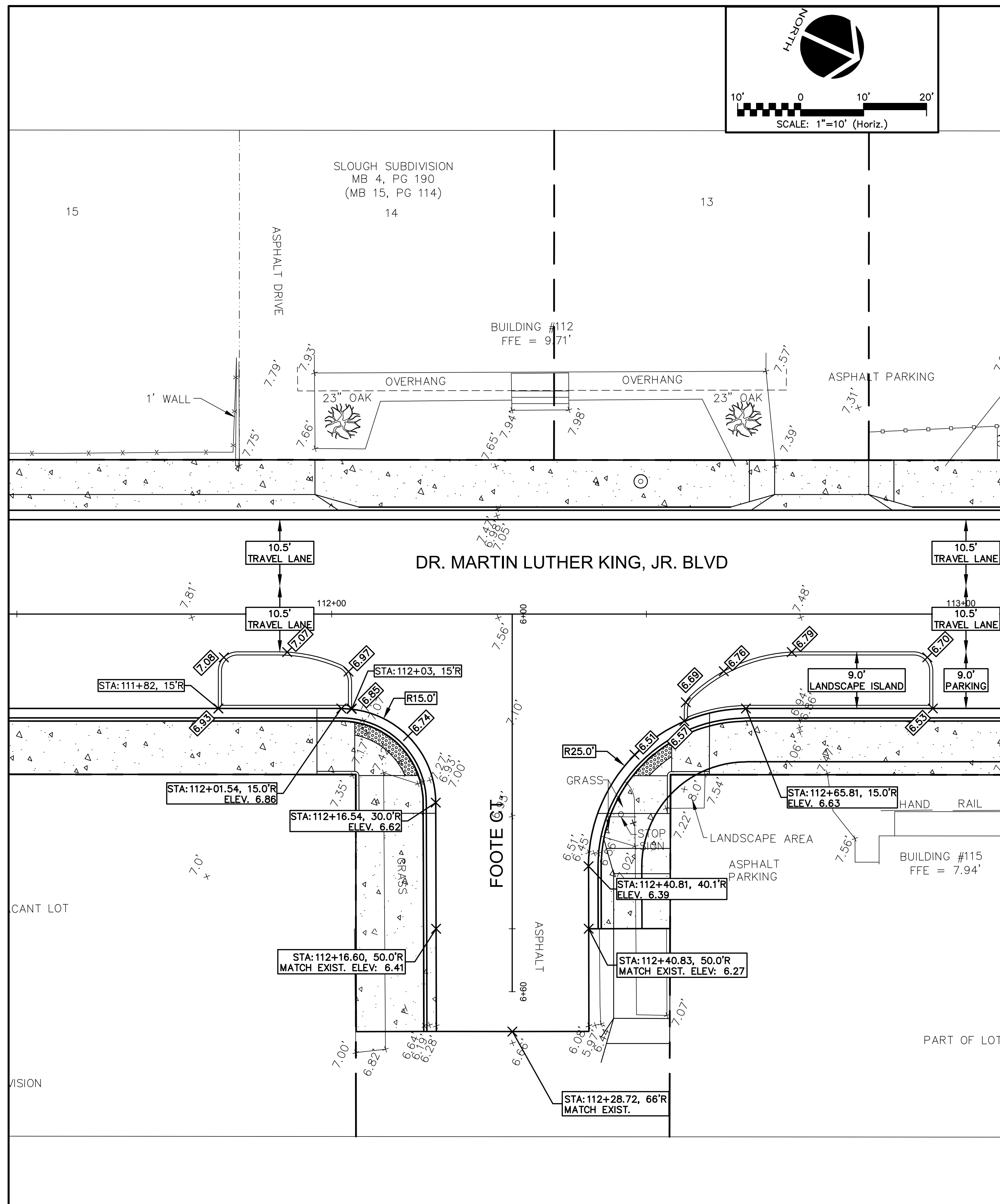
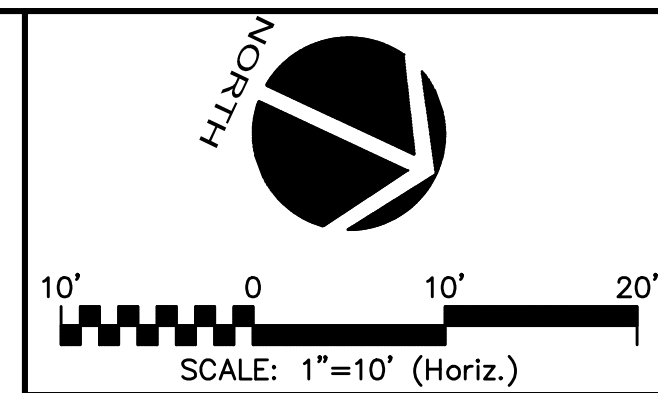
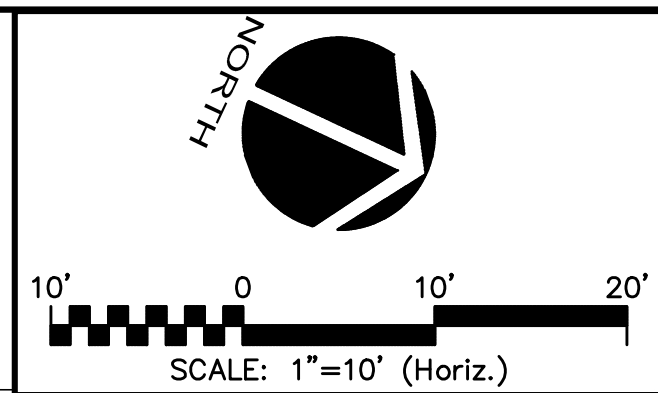
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**DR. MARTIN LUTHER KING, JR.  
 BOULEVARD—ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT**  
 INTERSECTION PLAN  
 2 OF 3

PROJECT NO. 2015-085

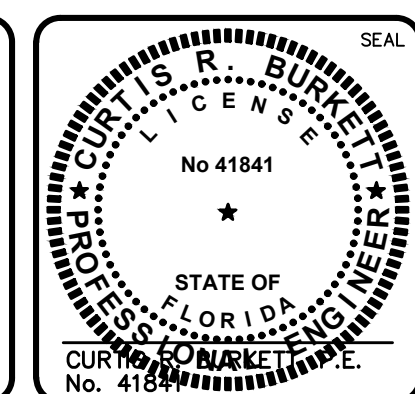
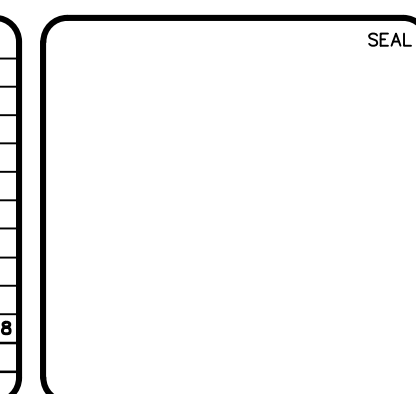
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DRAWN: BFN	VERTICAL: 1"=2'	REVISION:
DESIGNED: P.J.L.		
CHECKED: CRB		
PROJ. MGR: CRB		

STATUS: **ISSUE FOR BIDDING**



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BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT

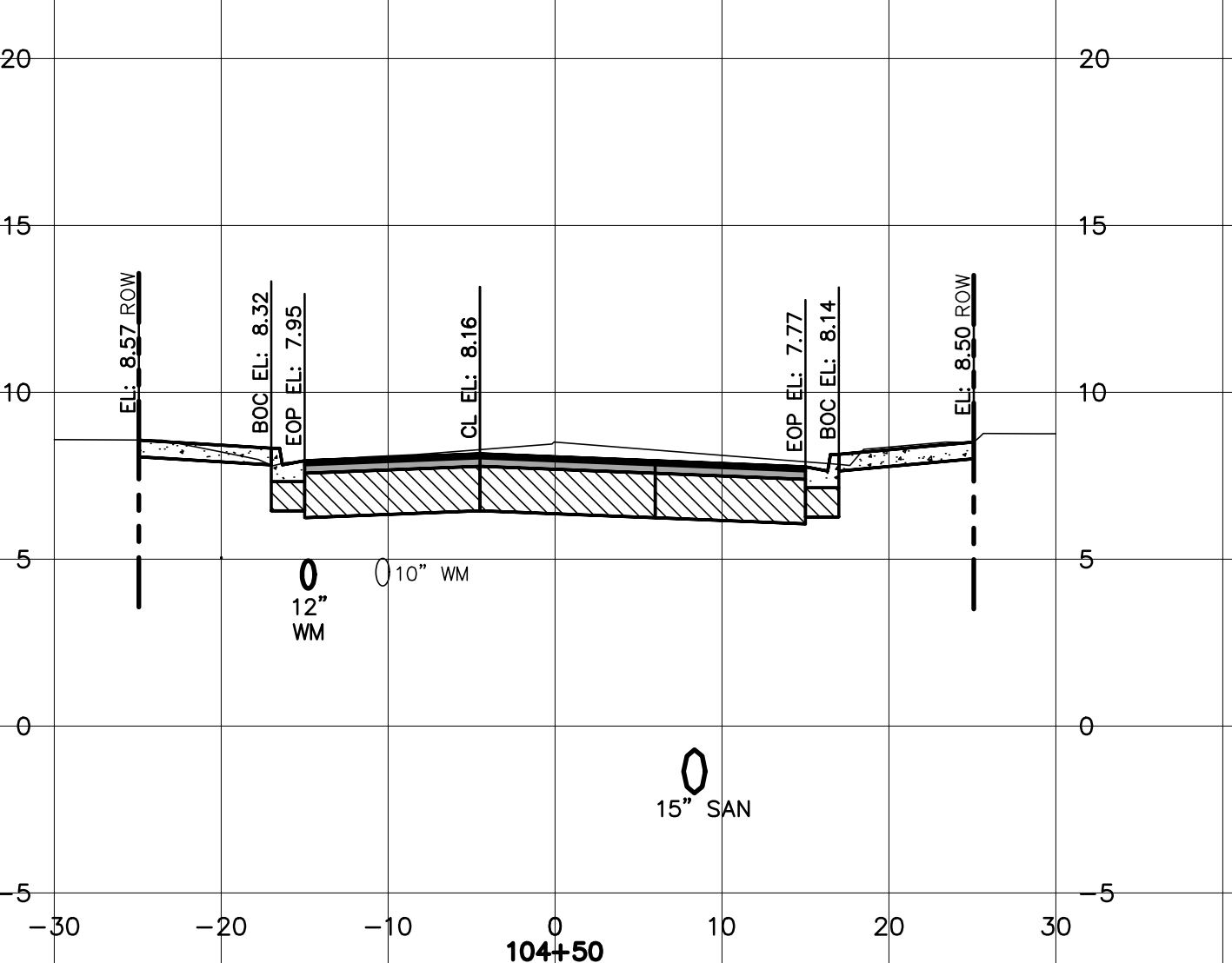
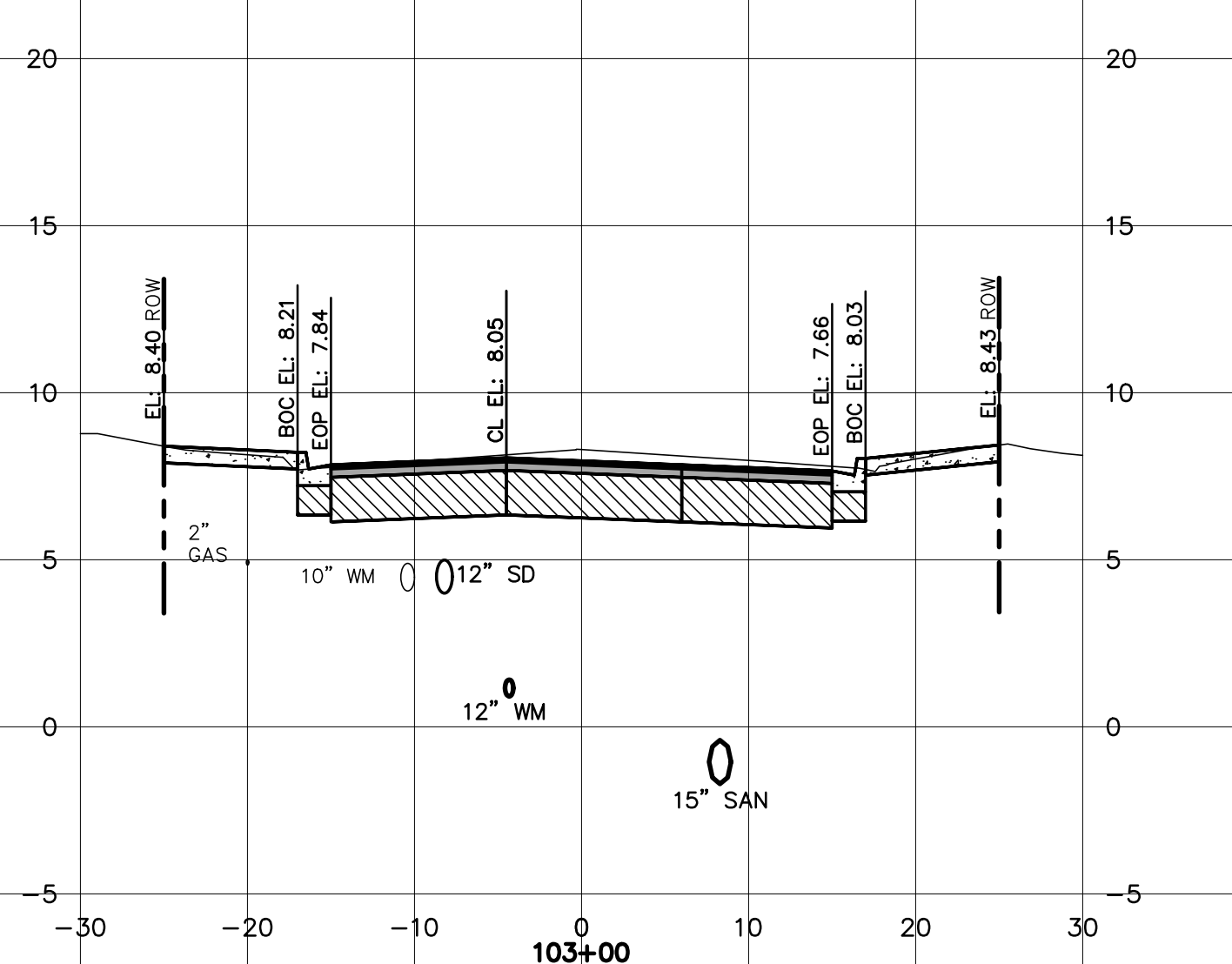
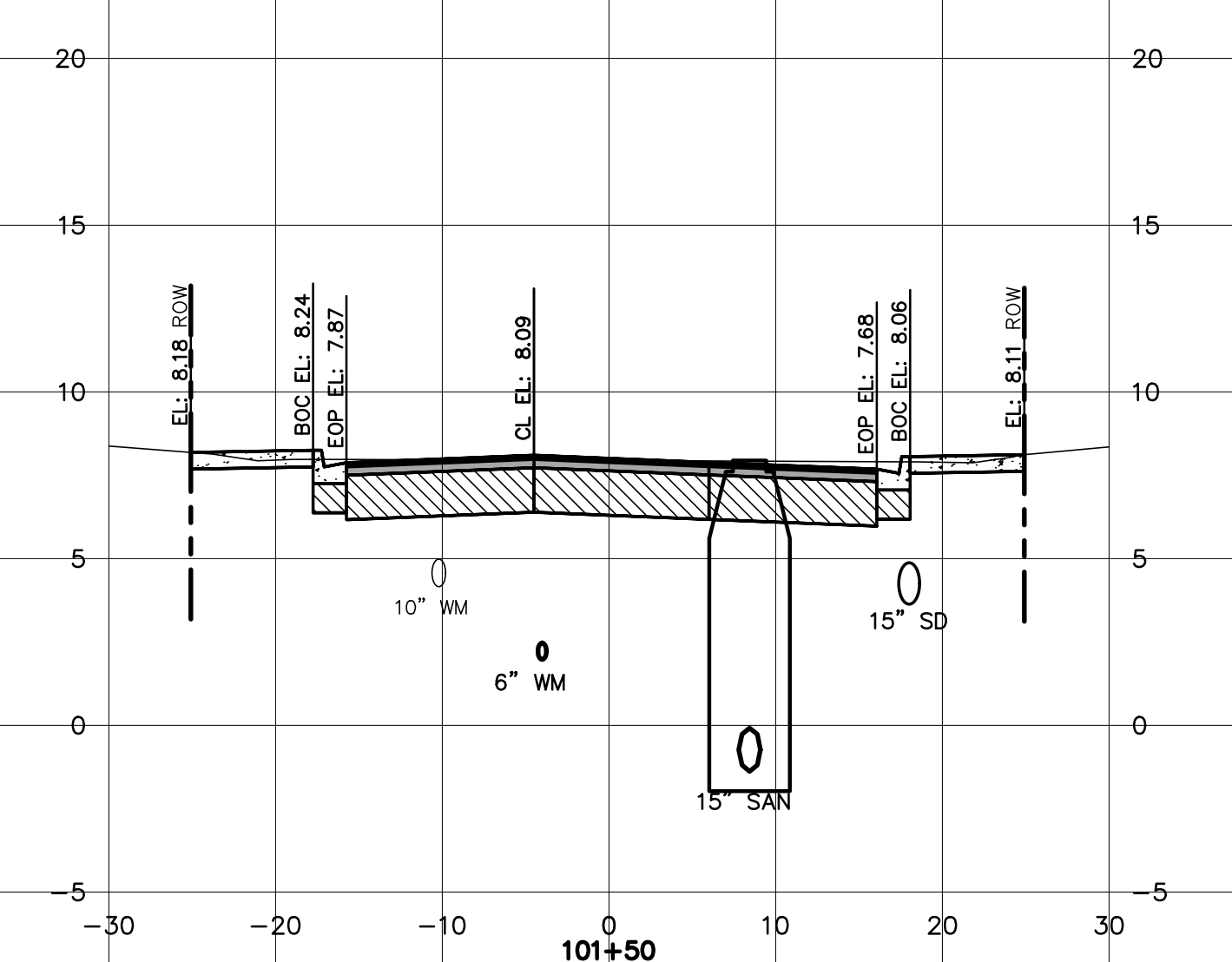
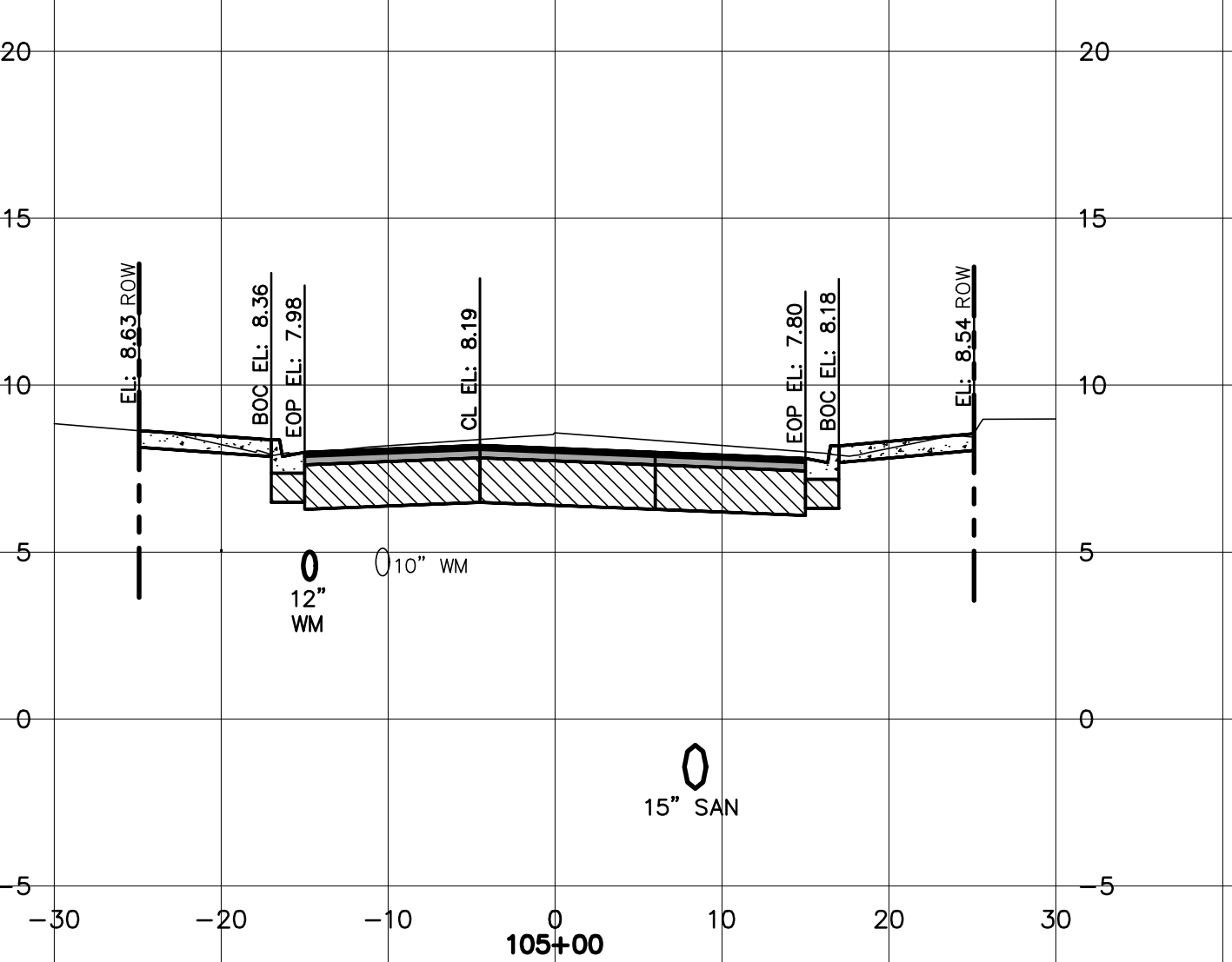
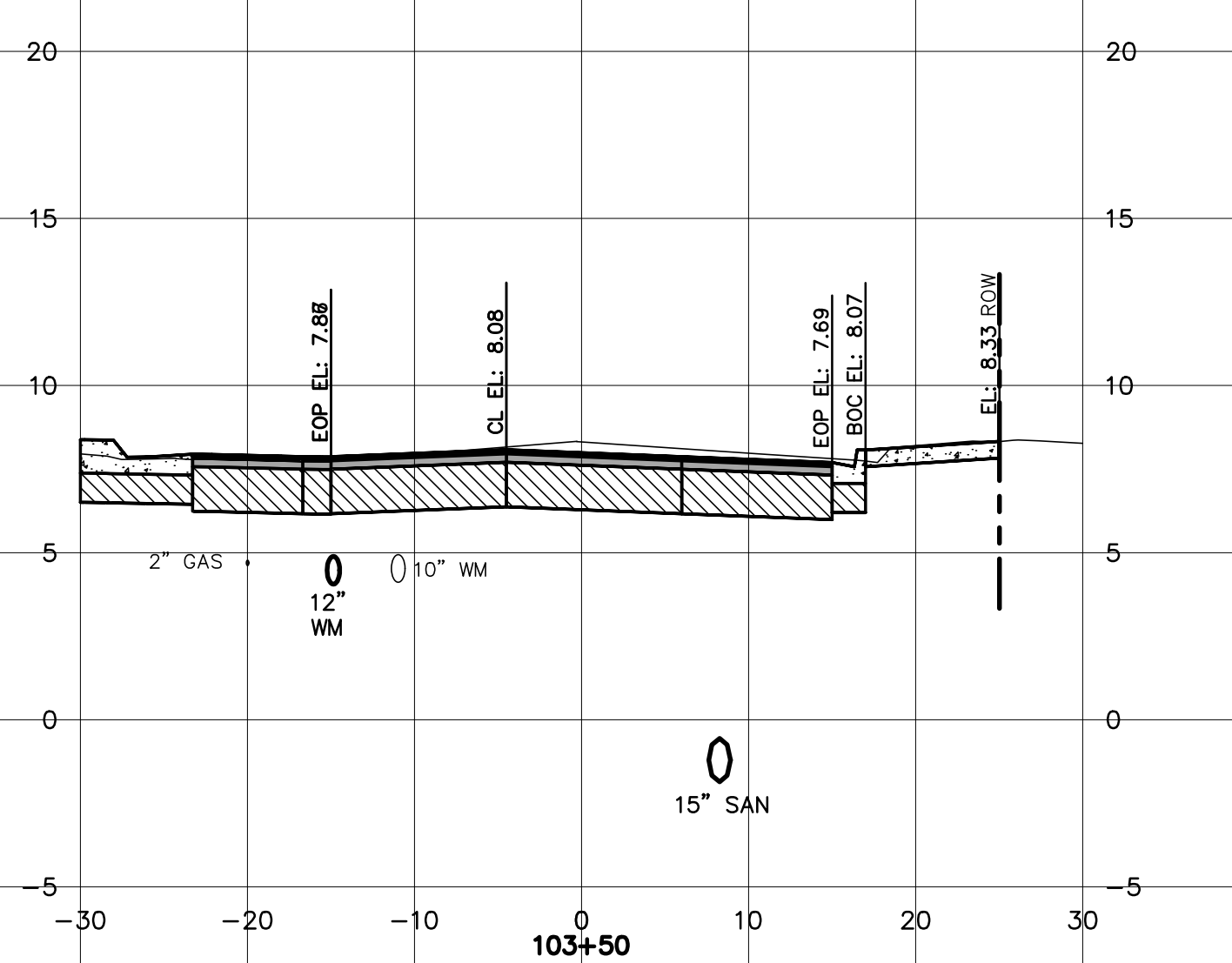
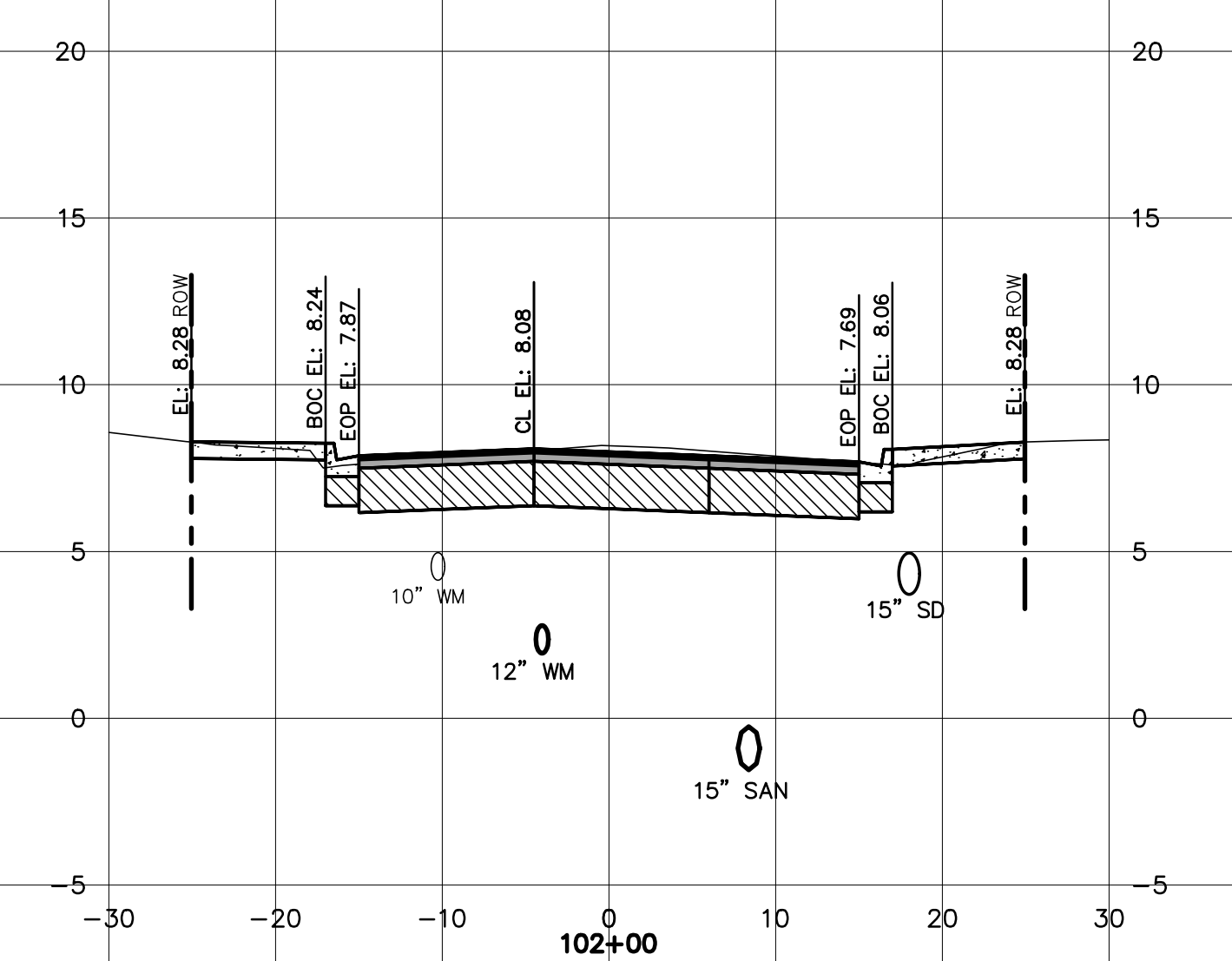
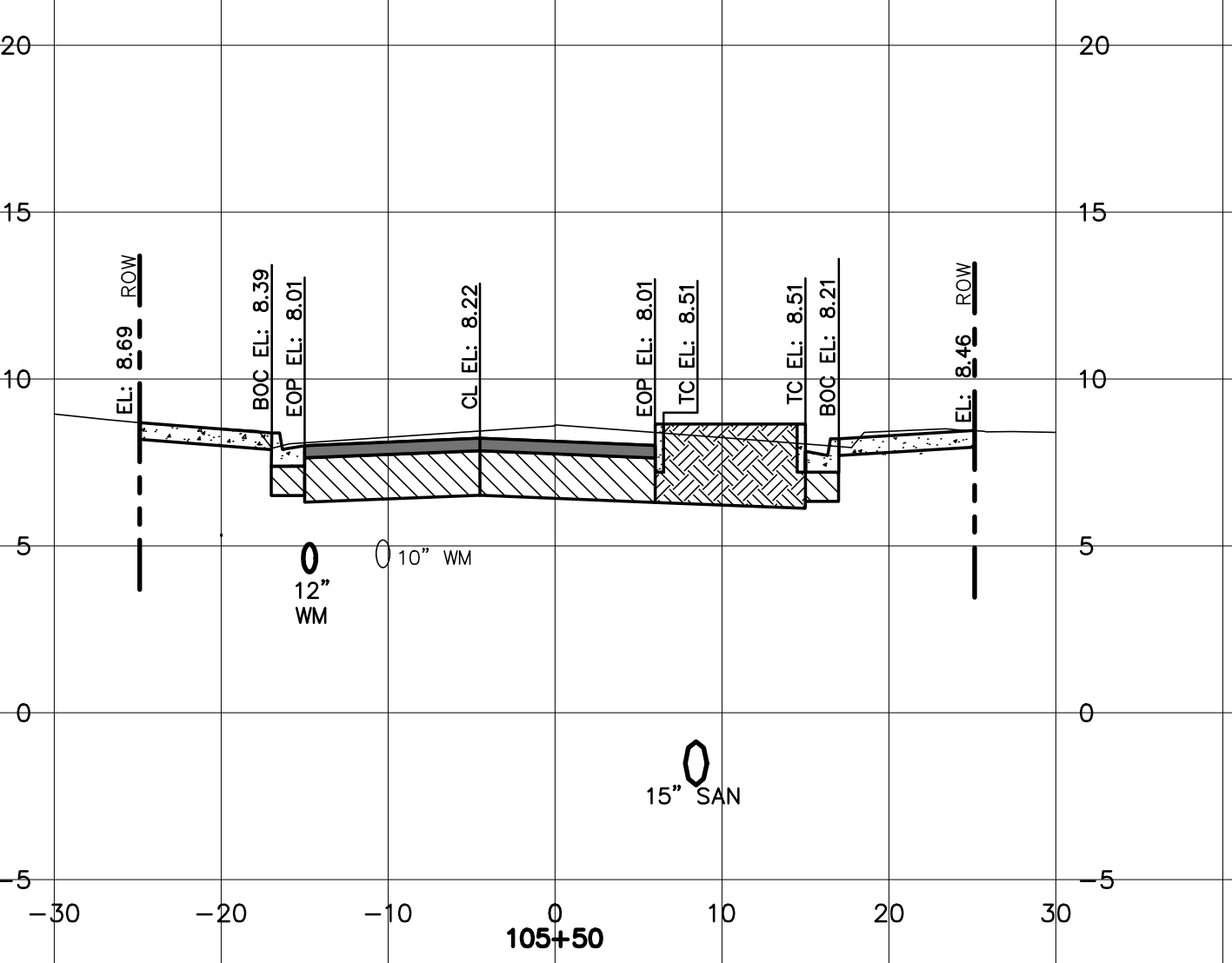
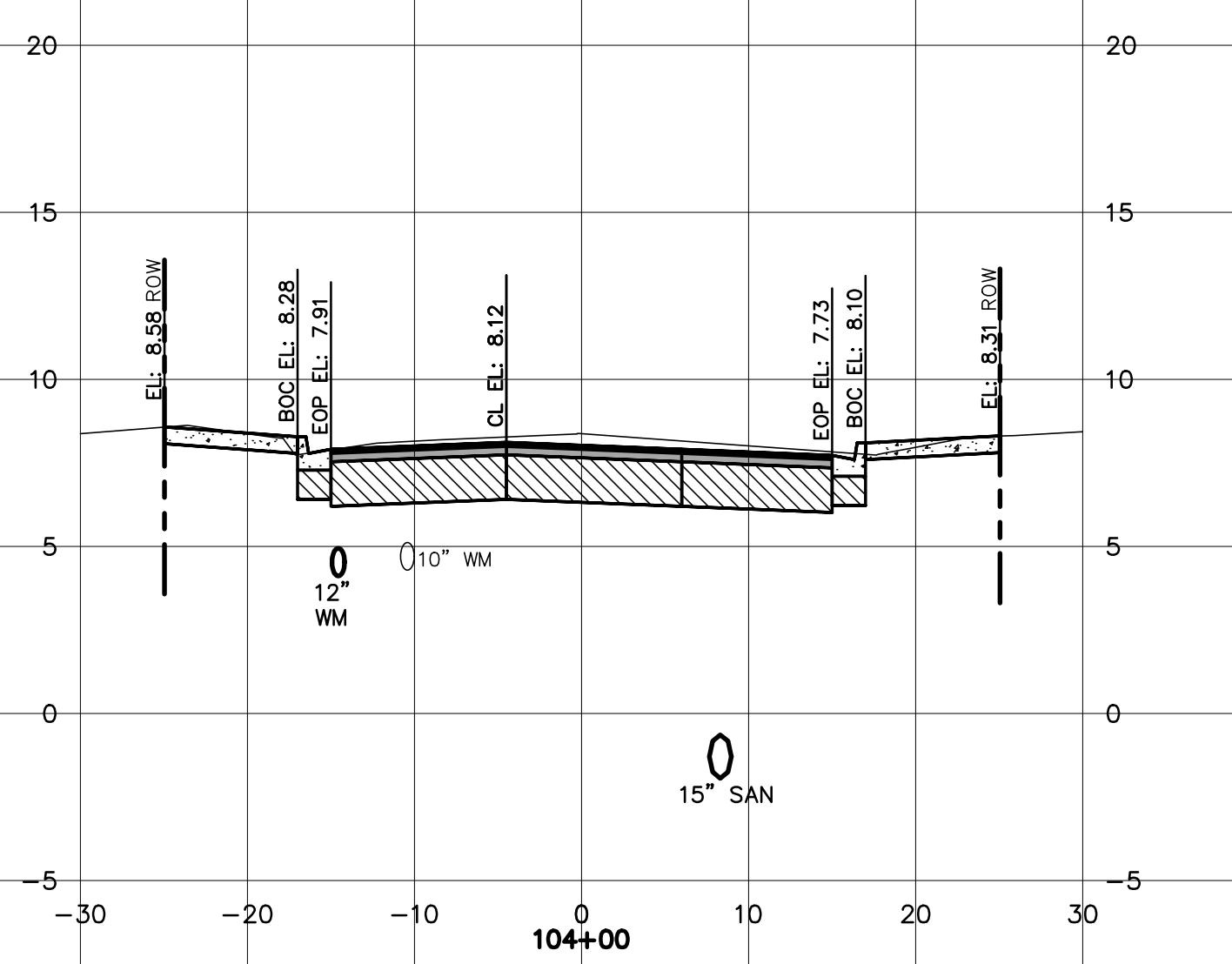
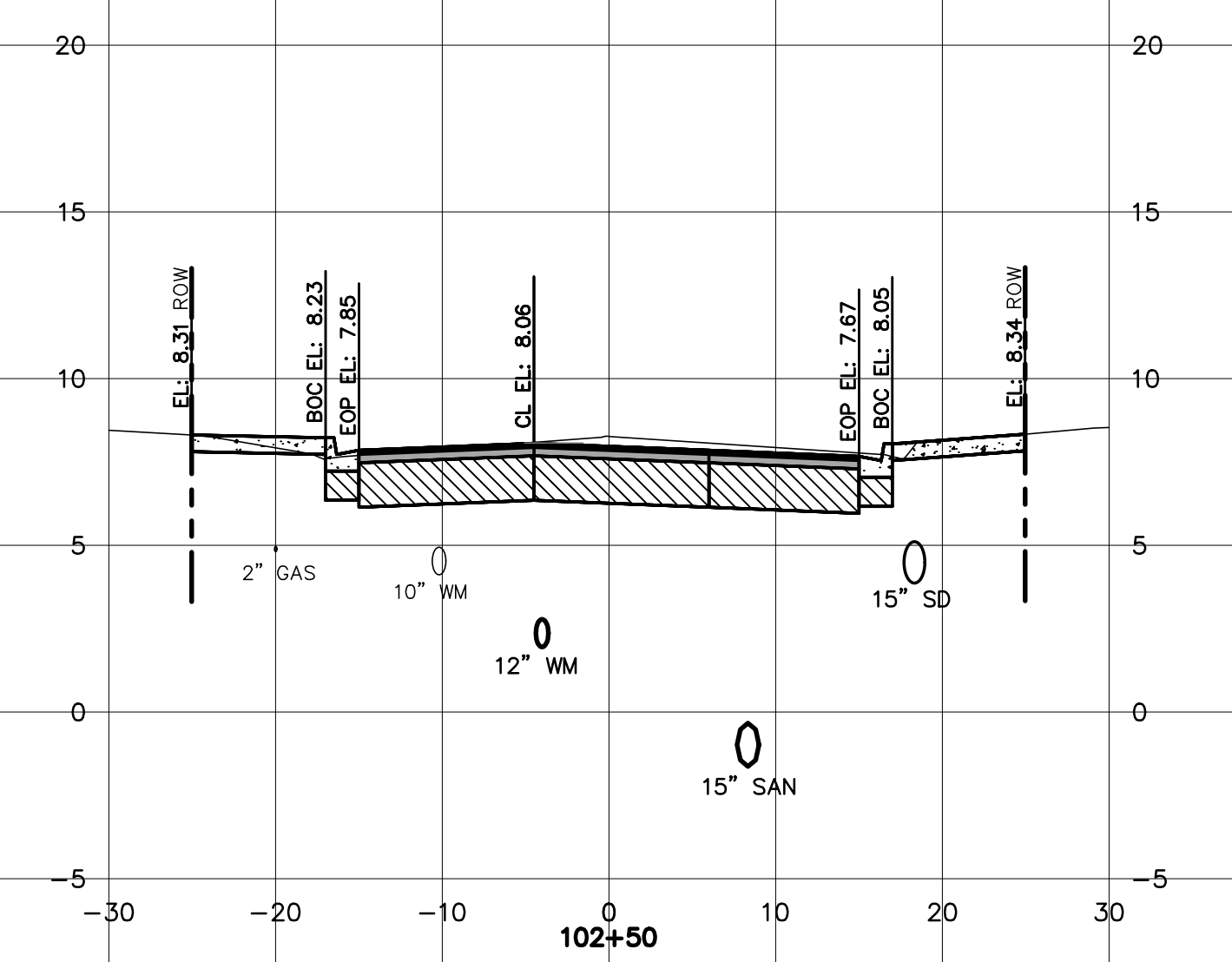
INTERSECTION PLAN  
3 OF 3

PROJECT NO. 2015-085

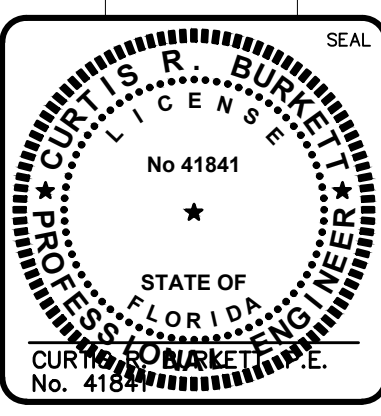
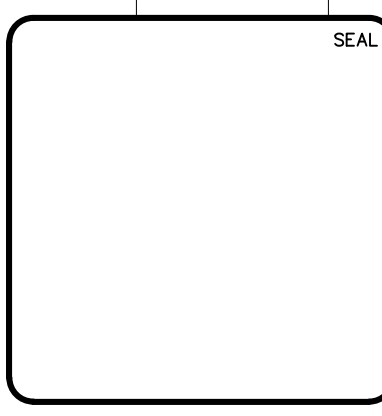
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STATUS: ISSUE FOR BIDDING

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REV. NO.	DESCRIPTIONS	DATE
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**THE CITY OF DAYTONA BEACH**  
 INCORPORATED JULY 20TH  
 THE CITY OF DAYTONA BEACH, FLORIDA

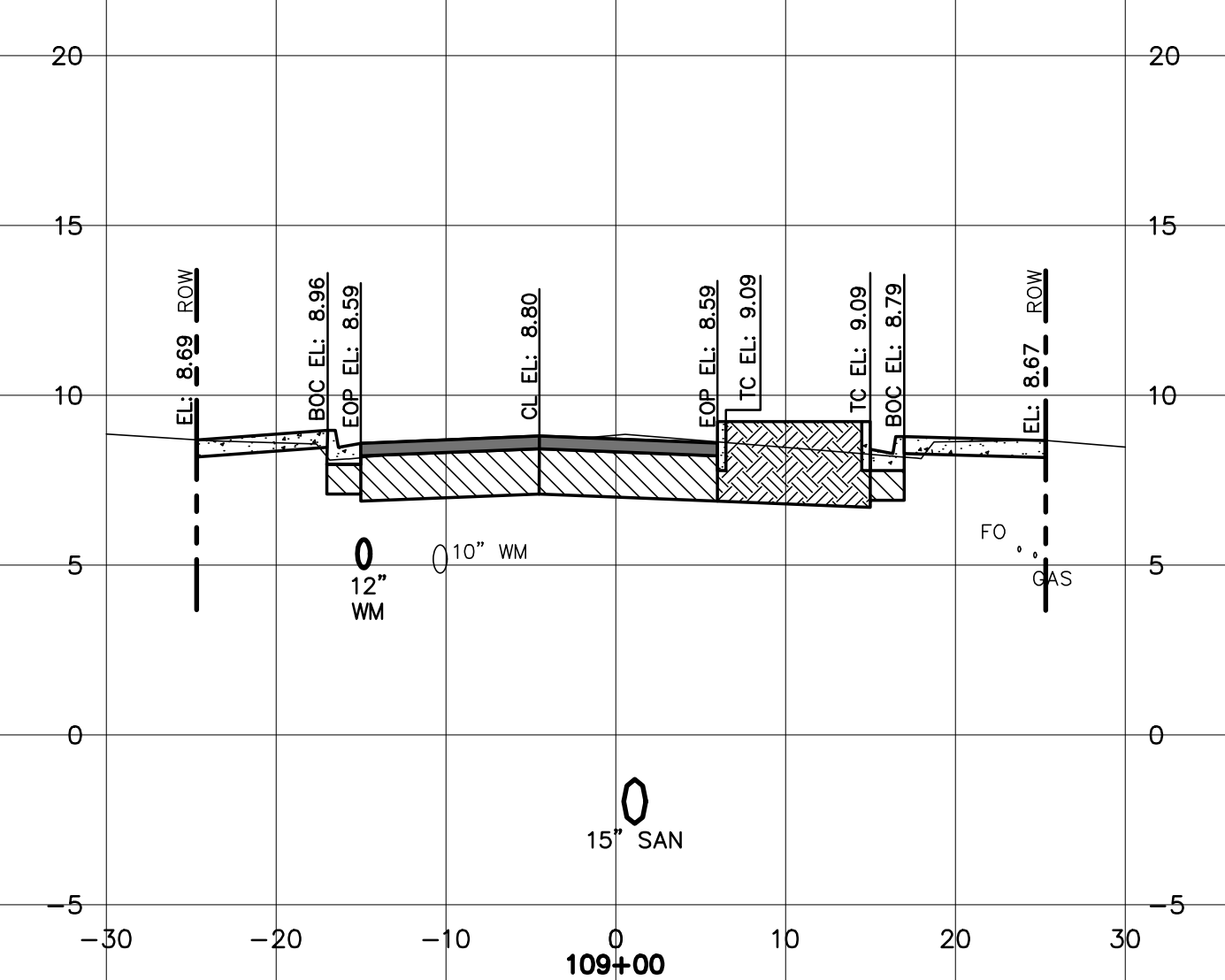
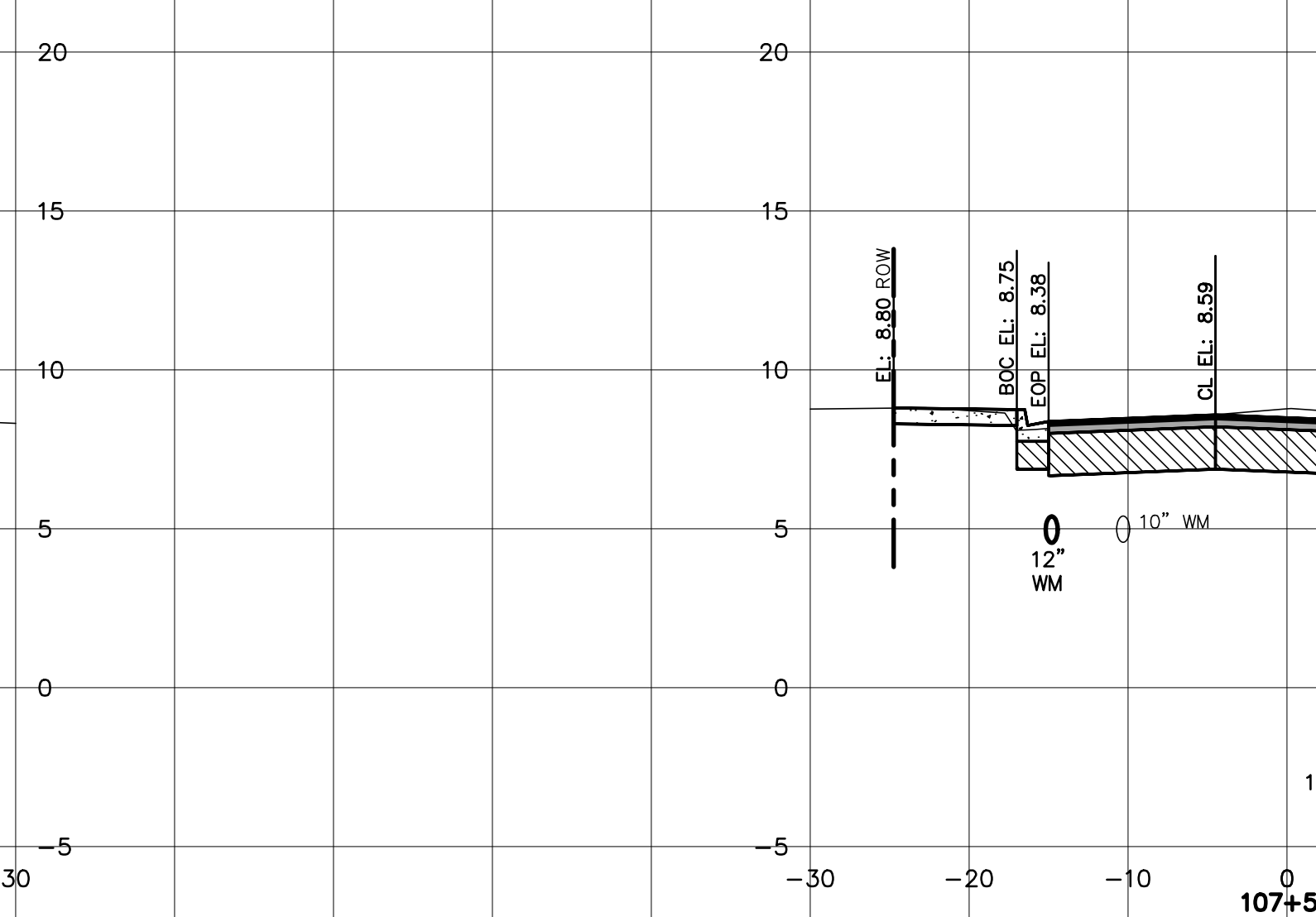
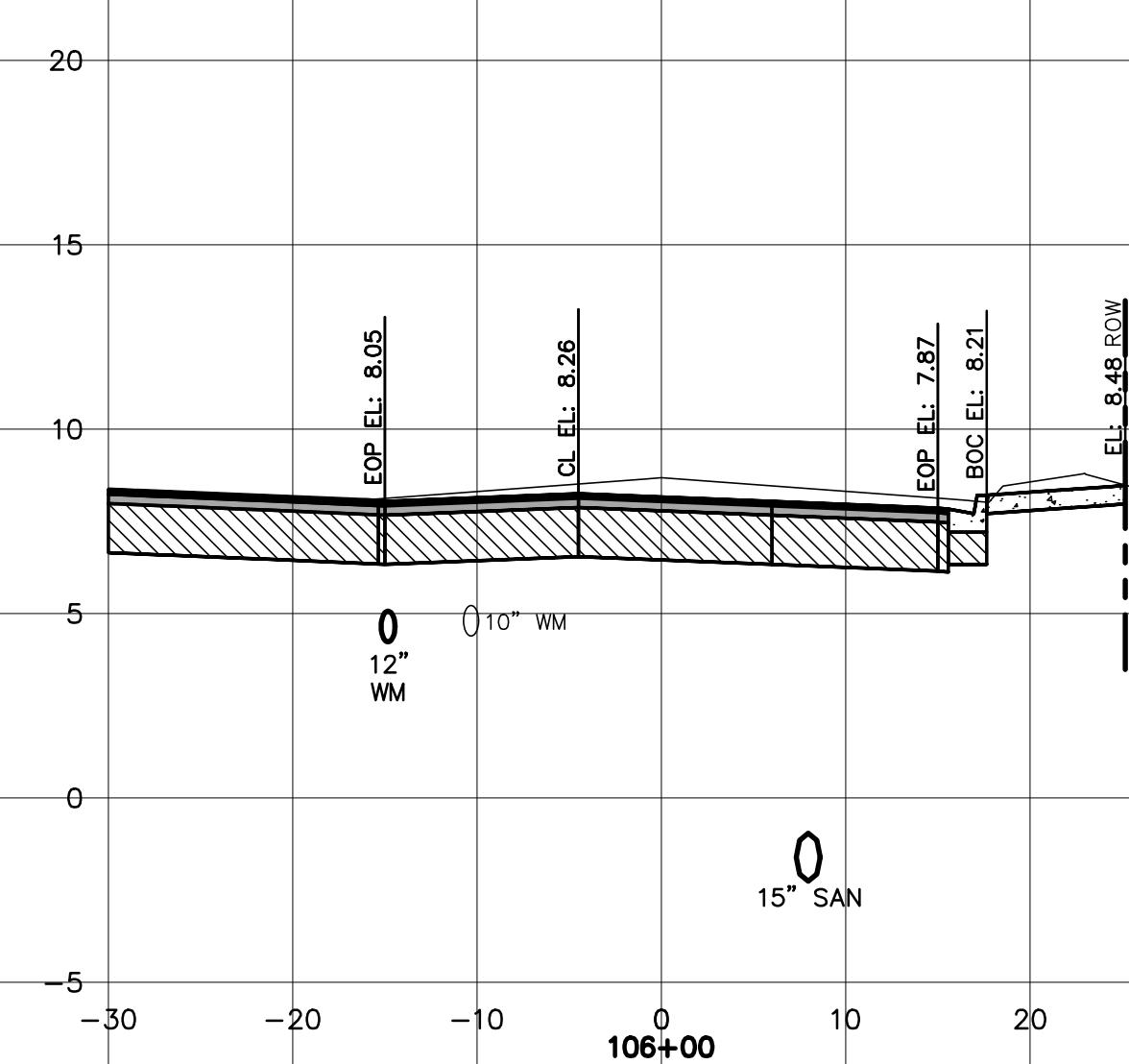
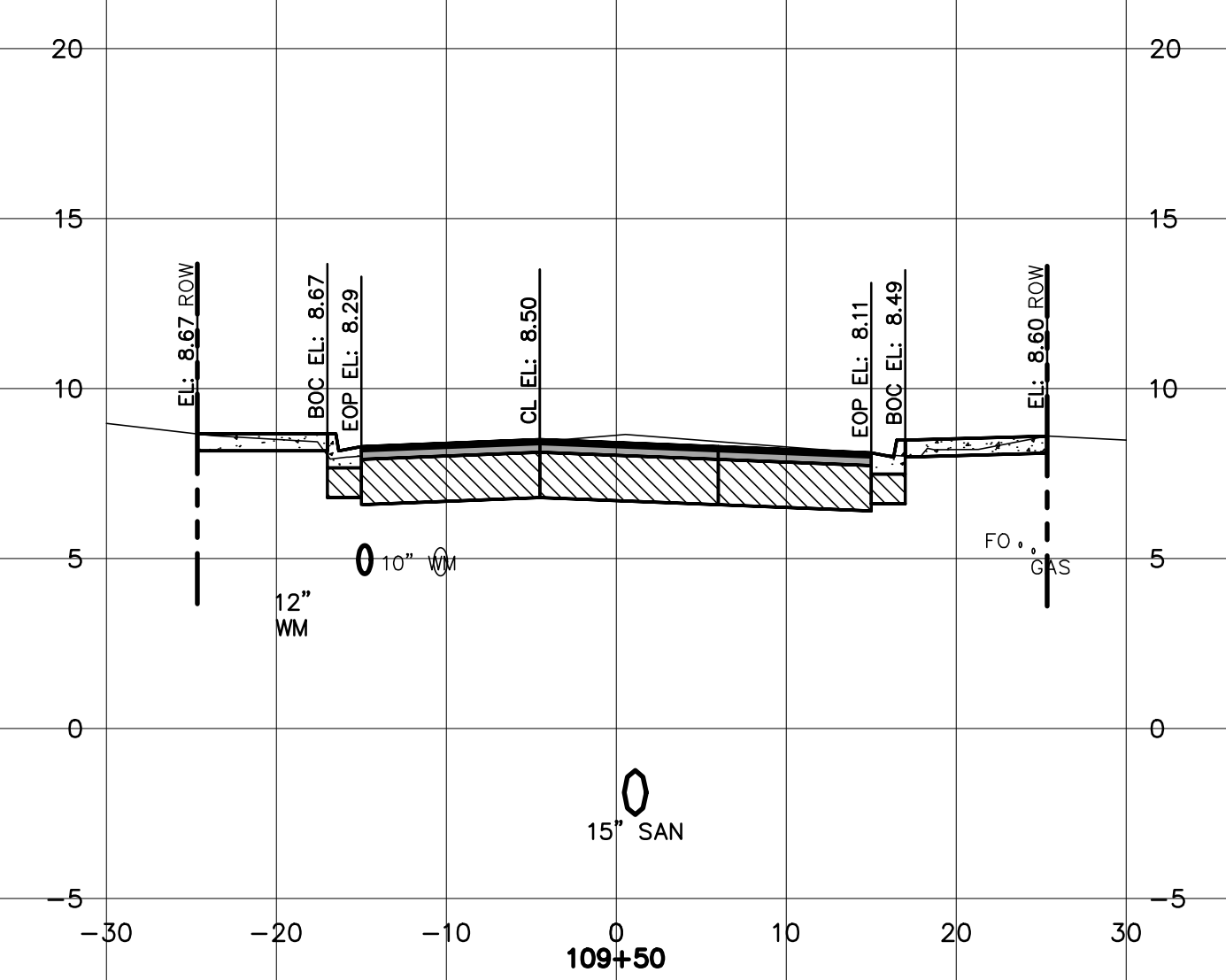
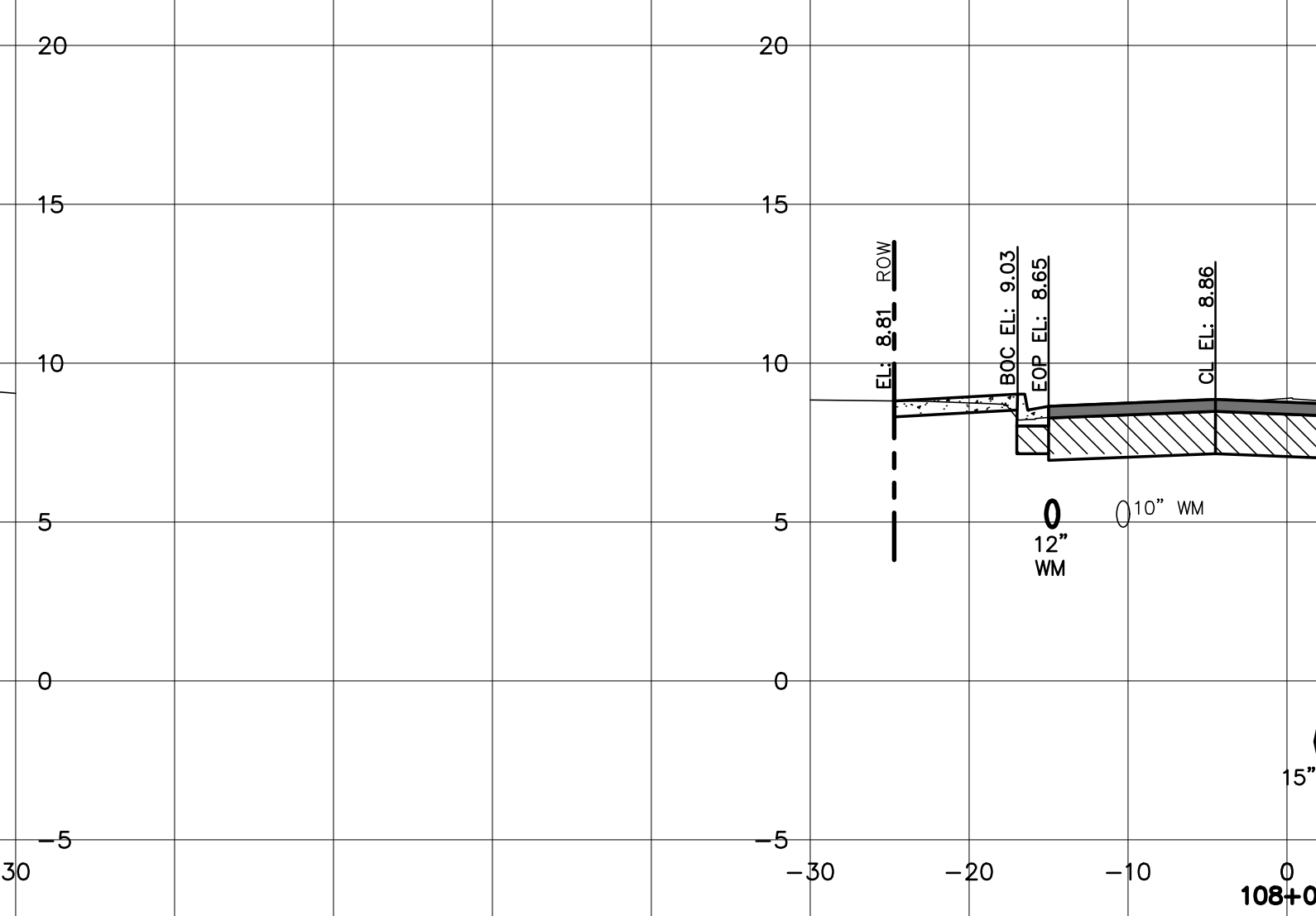
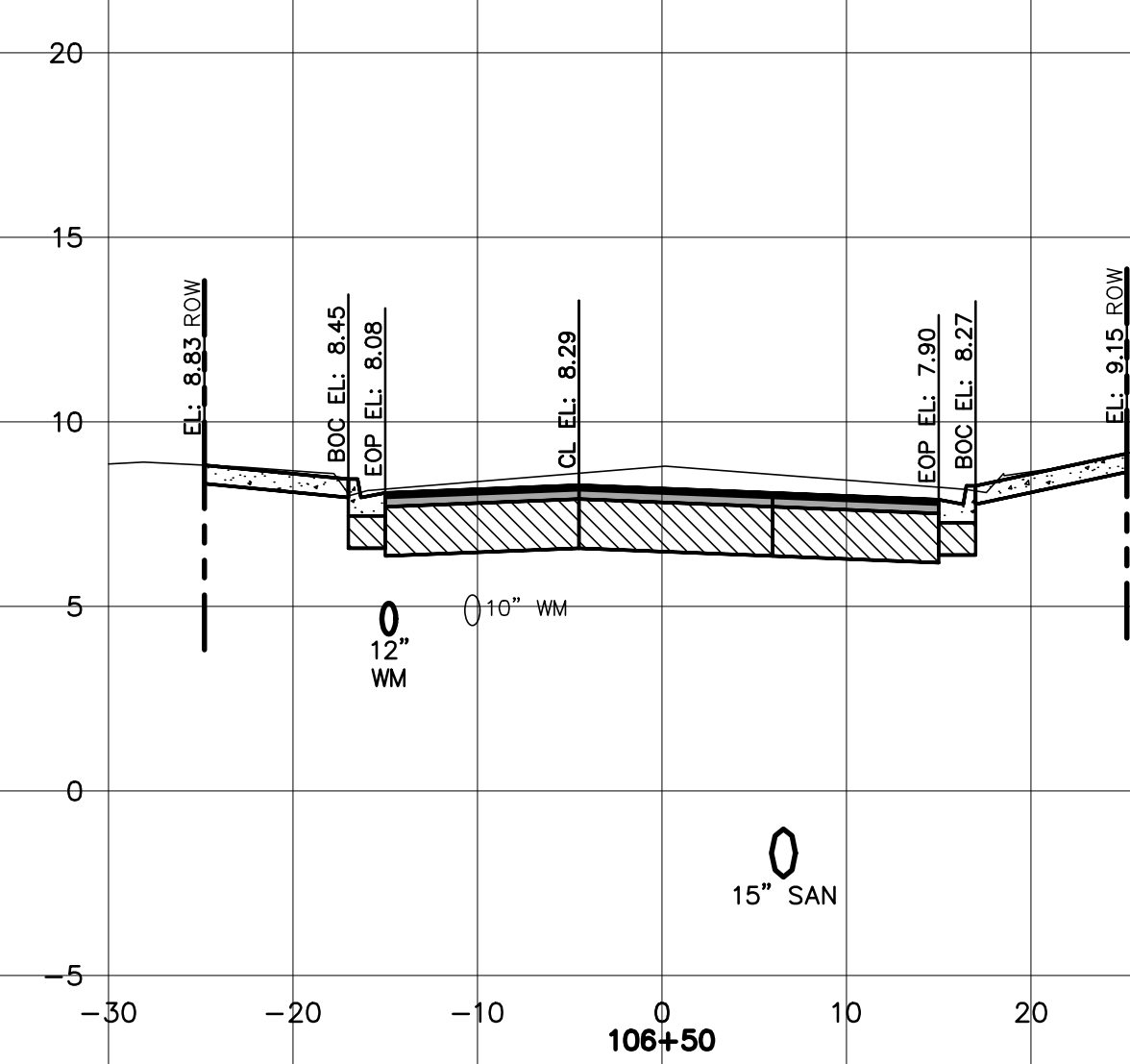
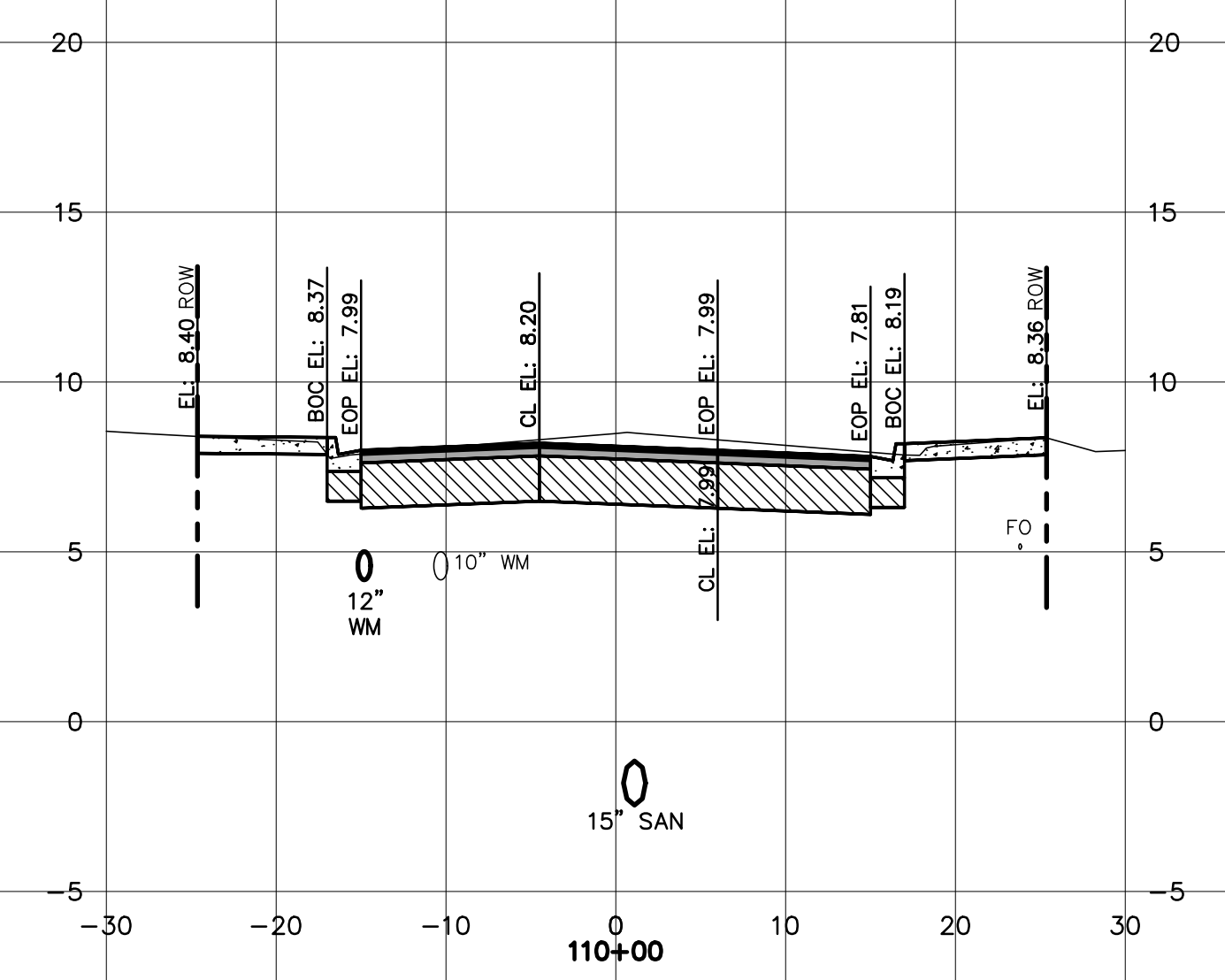
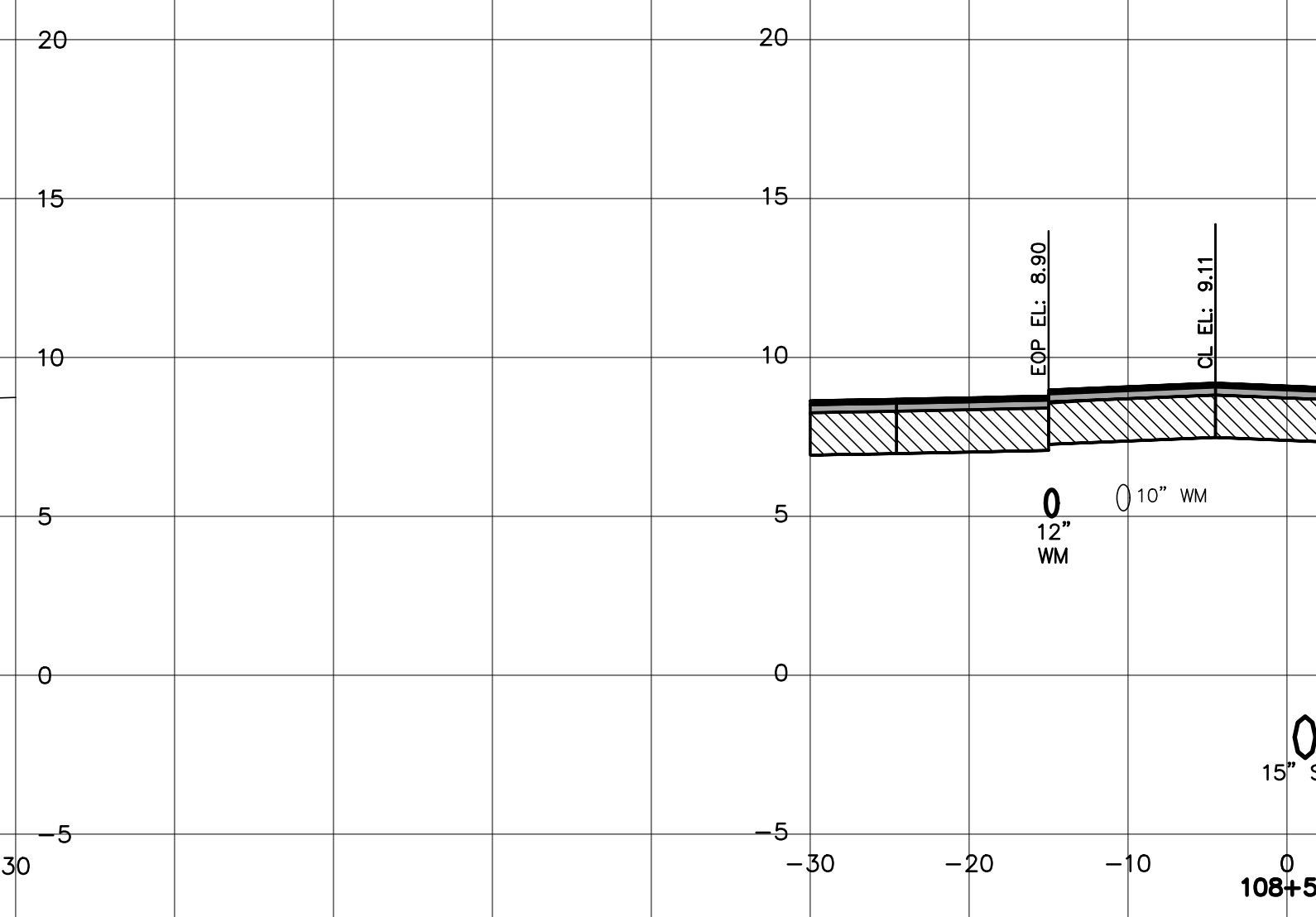
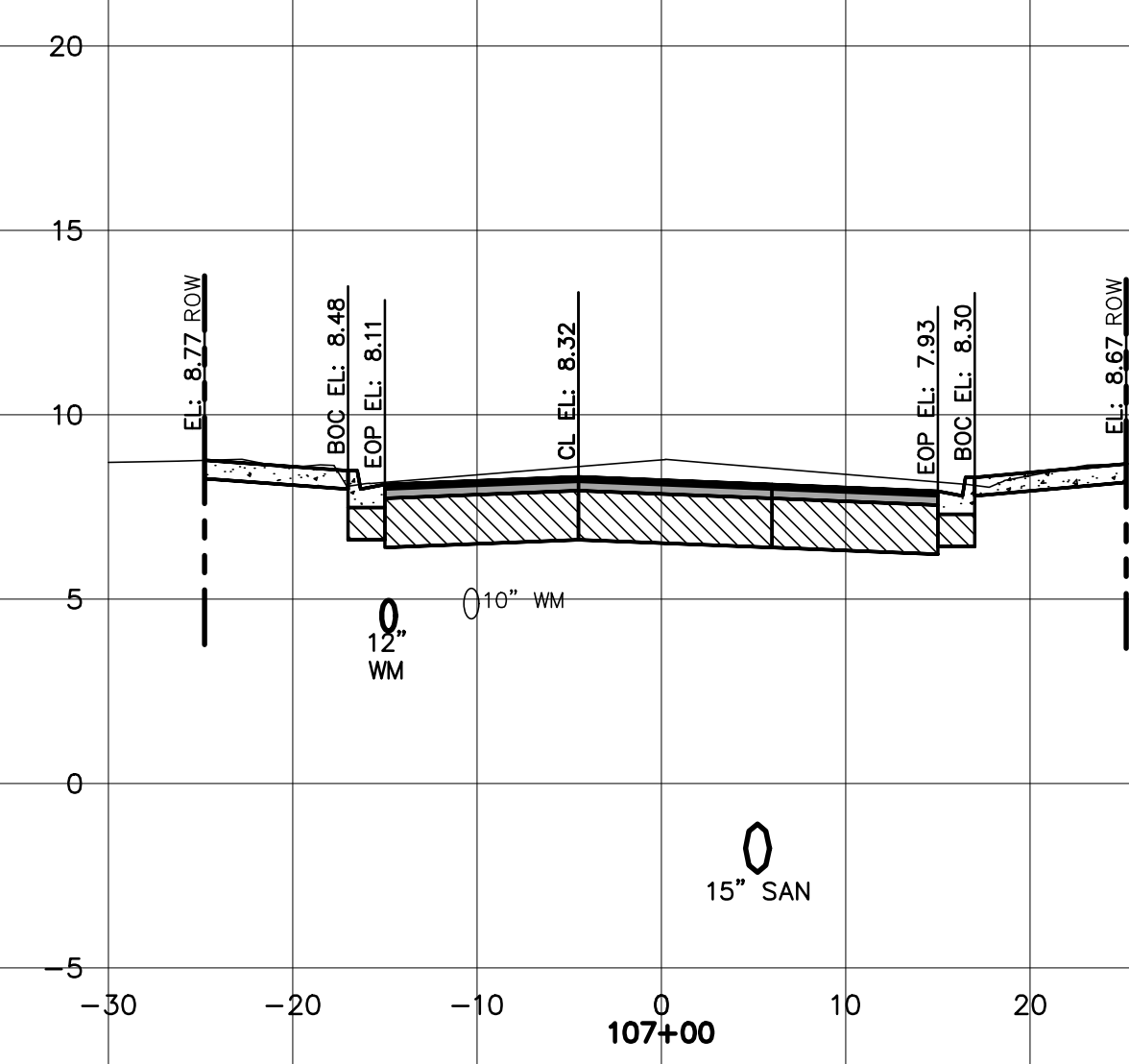
**DR. MARTIN LUTHER KING, JR.  
 BOULEVARD—ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT**  
 ROADWAY SECTIONS  
 1 OF 4

PROJECT NO. 2015-085

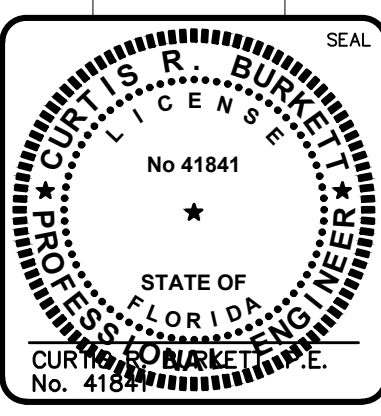
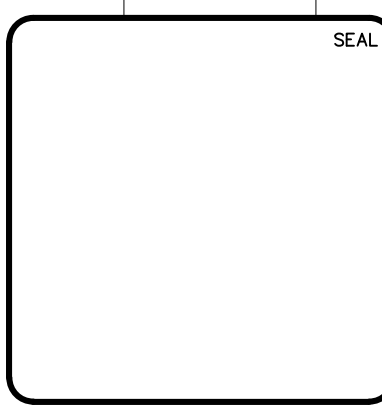
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DESIGNED:	P.J.L.		
CHECKED:	CRB		
PROJ. MGR.	CRB		

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 REVISION:

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REVISIONS	DESCRIPTIONS	DATE
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**DR. MARTIN LUTHER KING, JR.  
 BOULEVARD—ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT**  
**ROADWAY SECTIONS  
 2 OF 4**

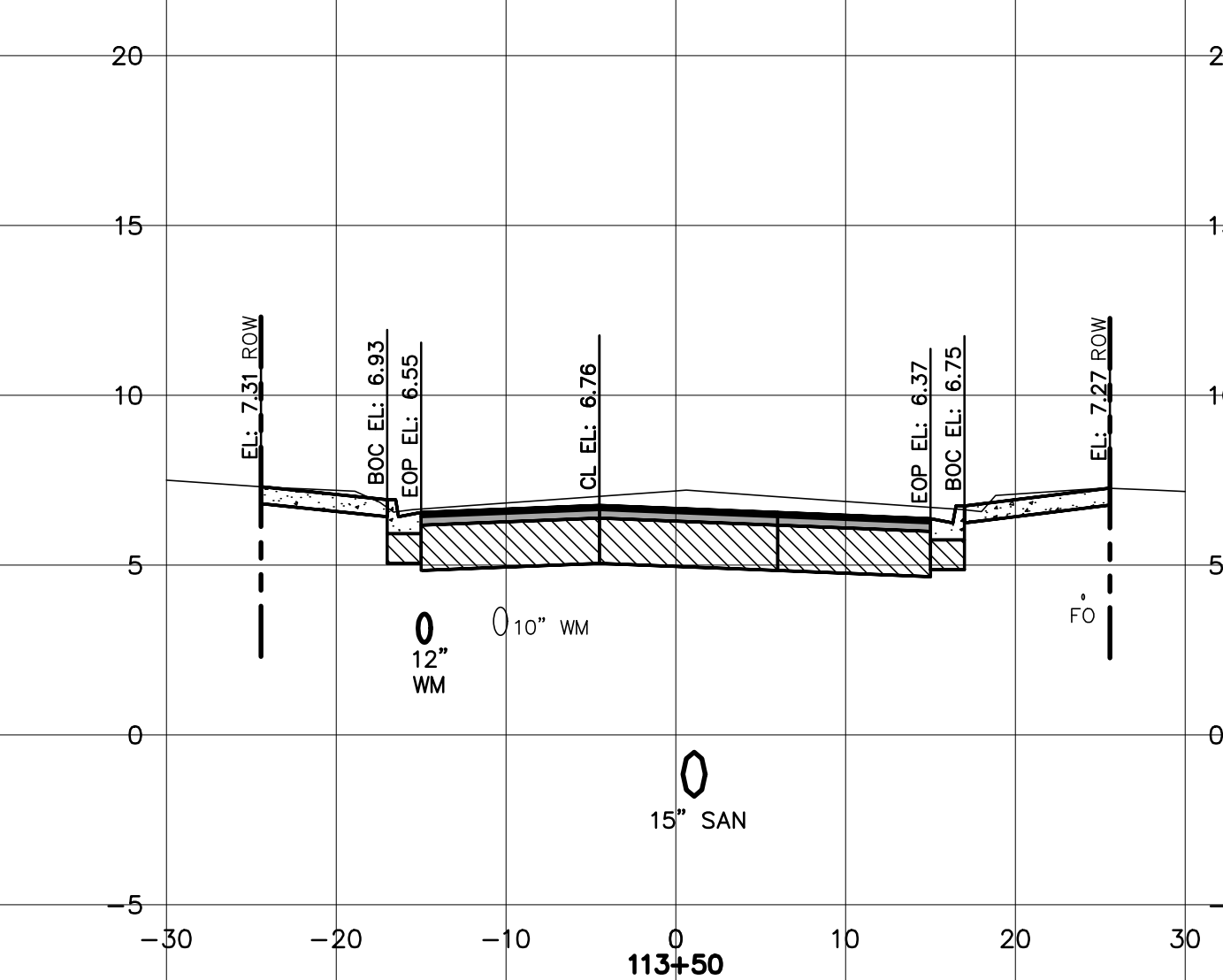
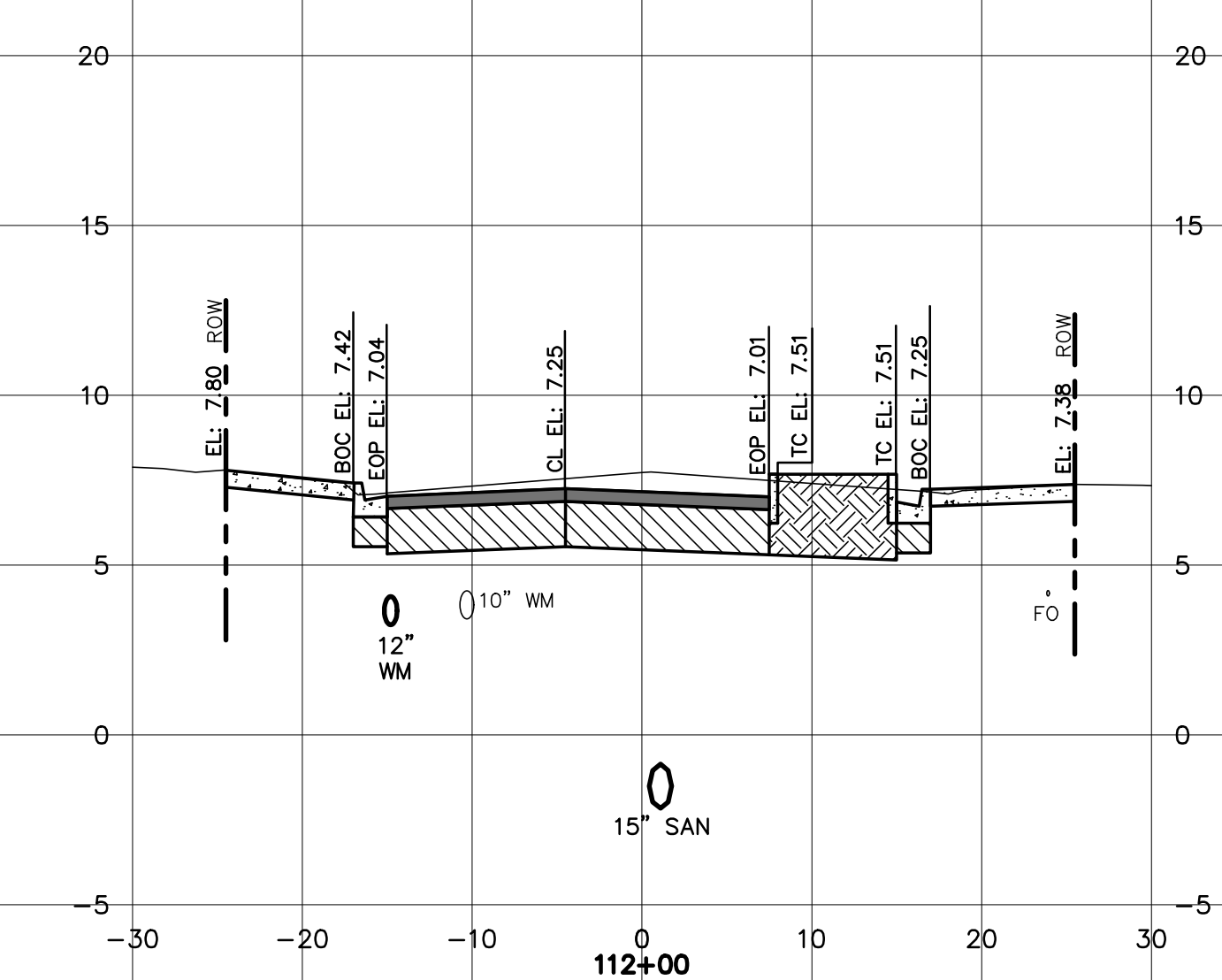
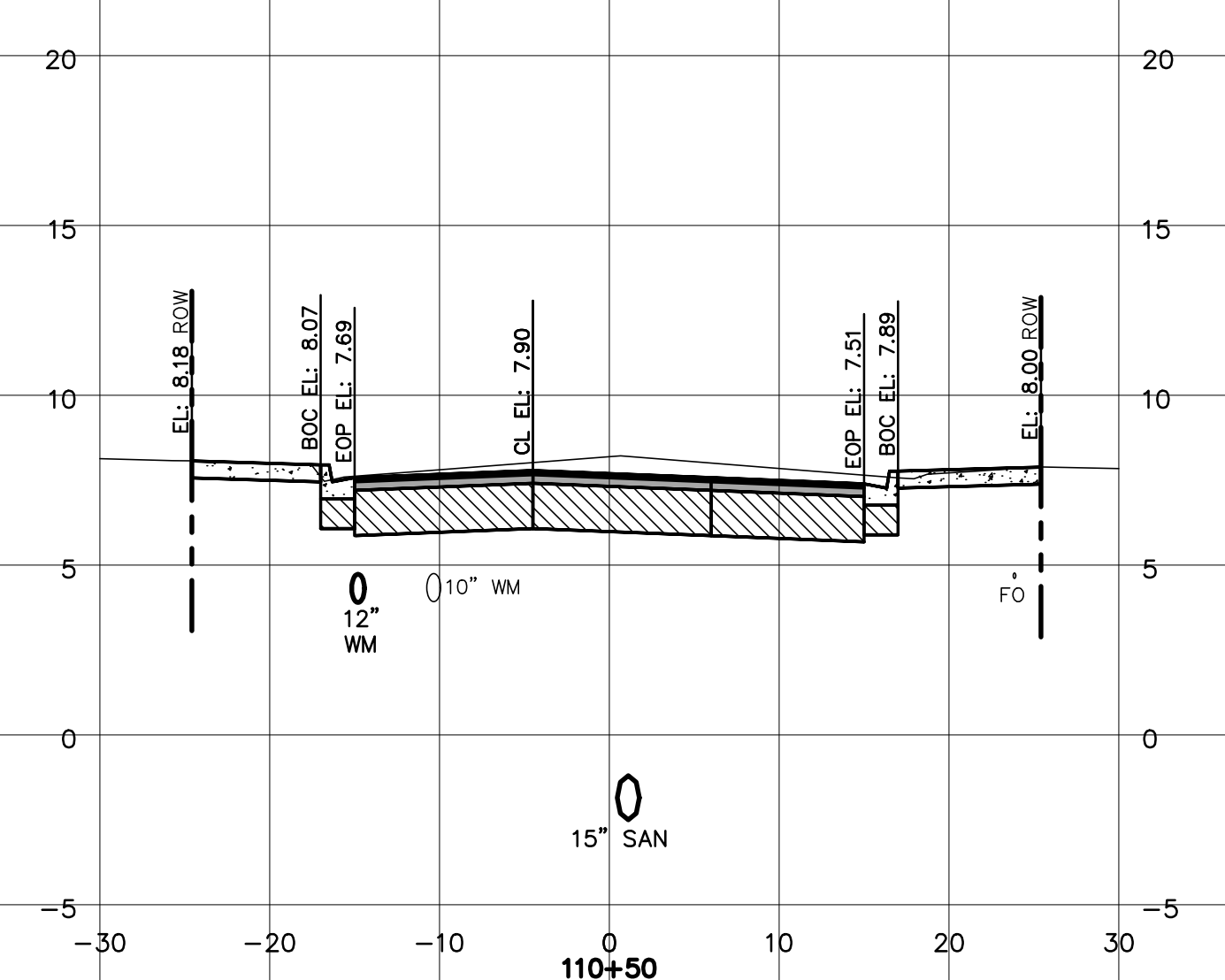
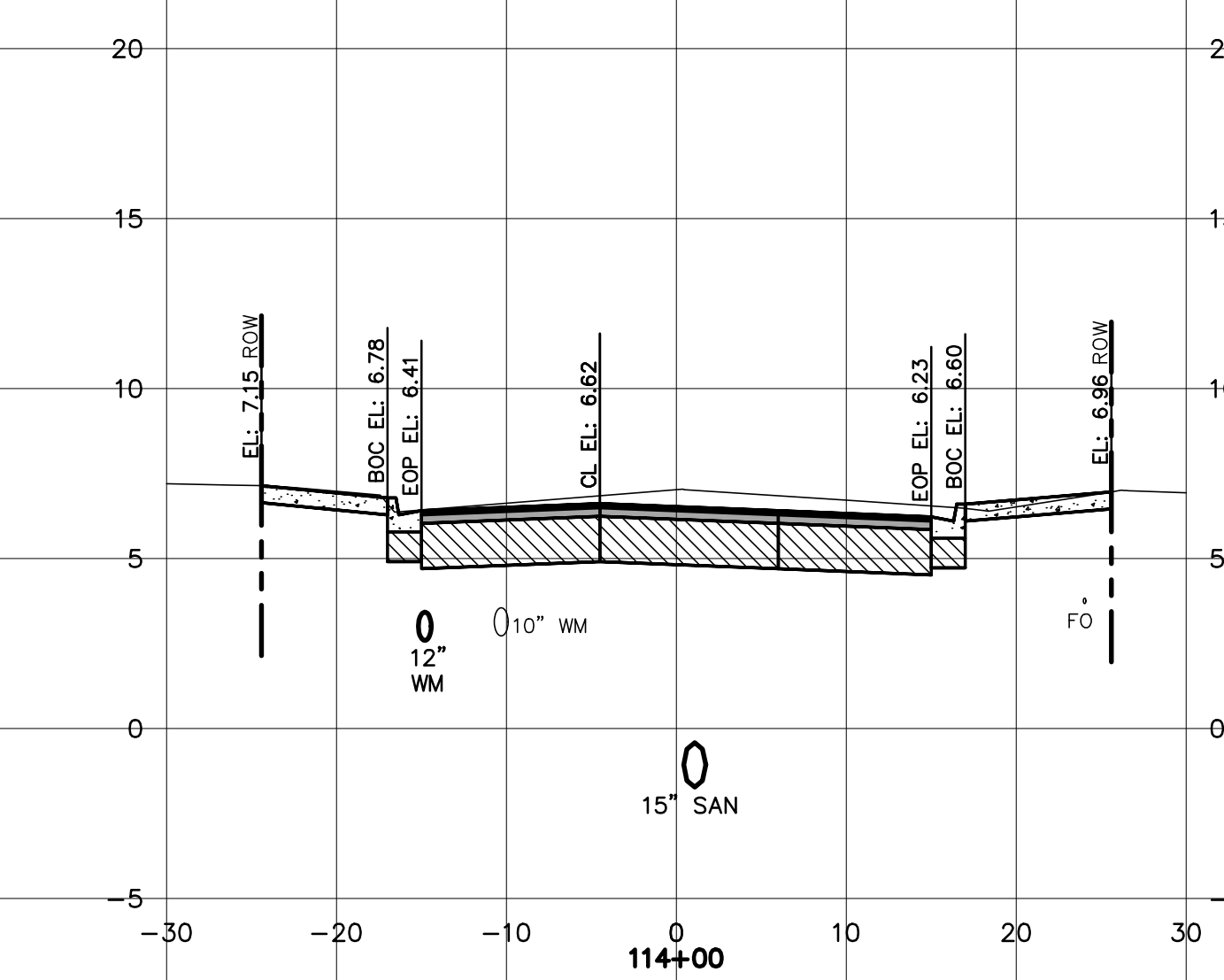
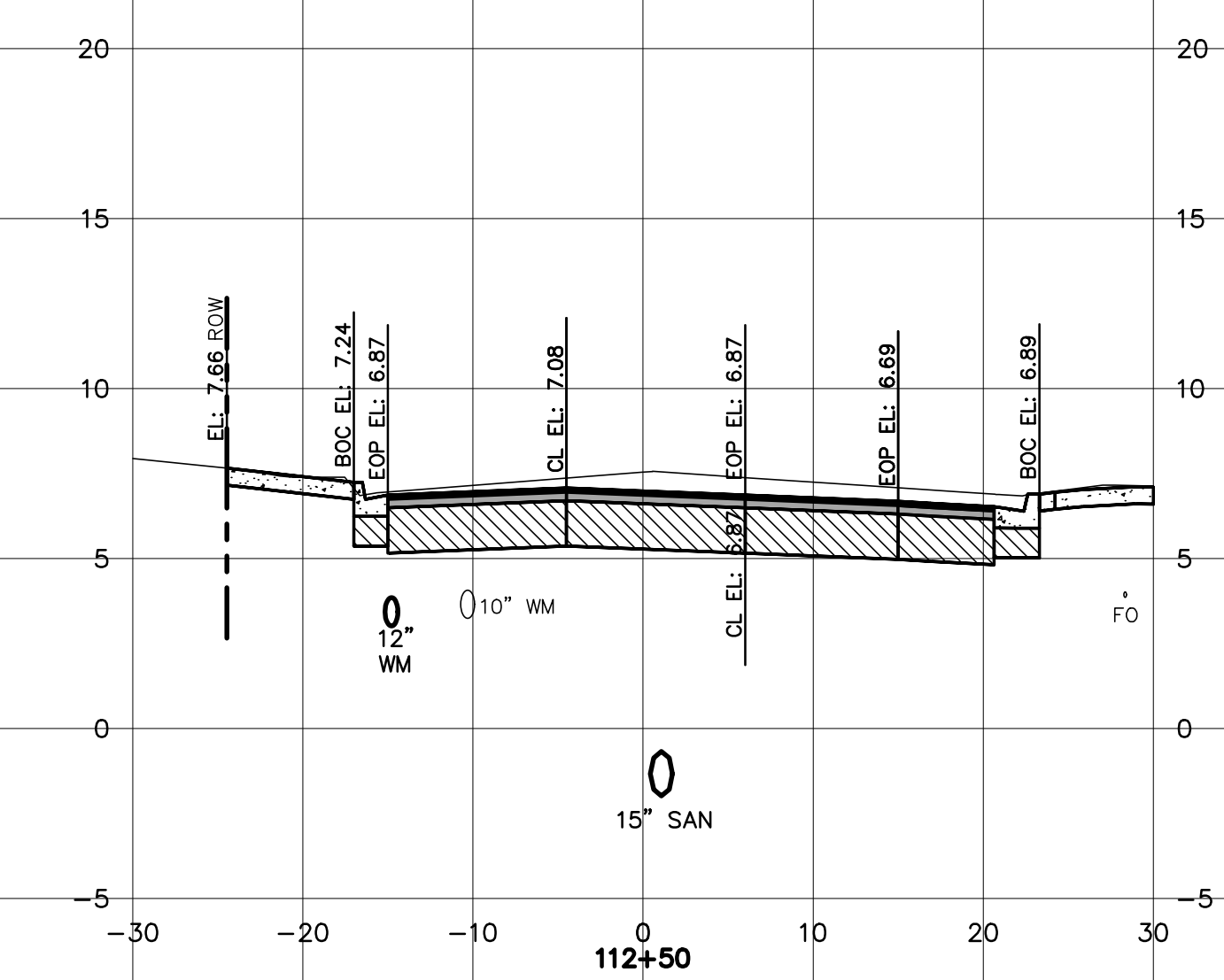
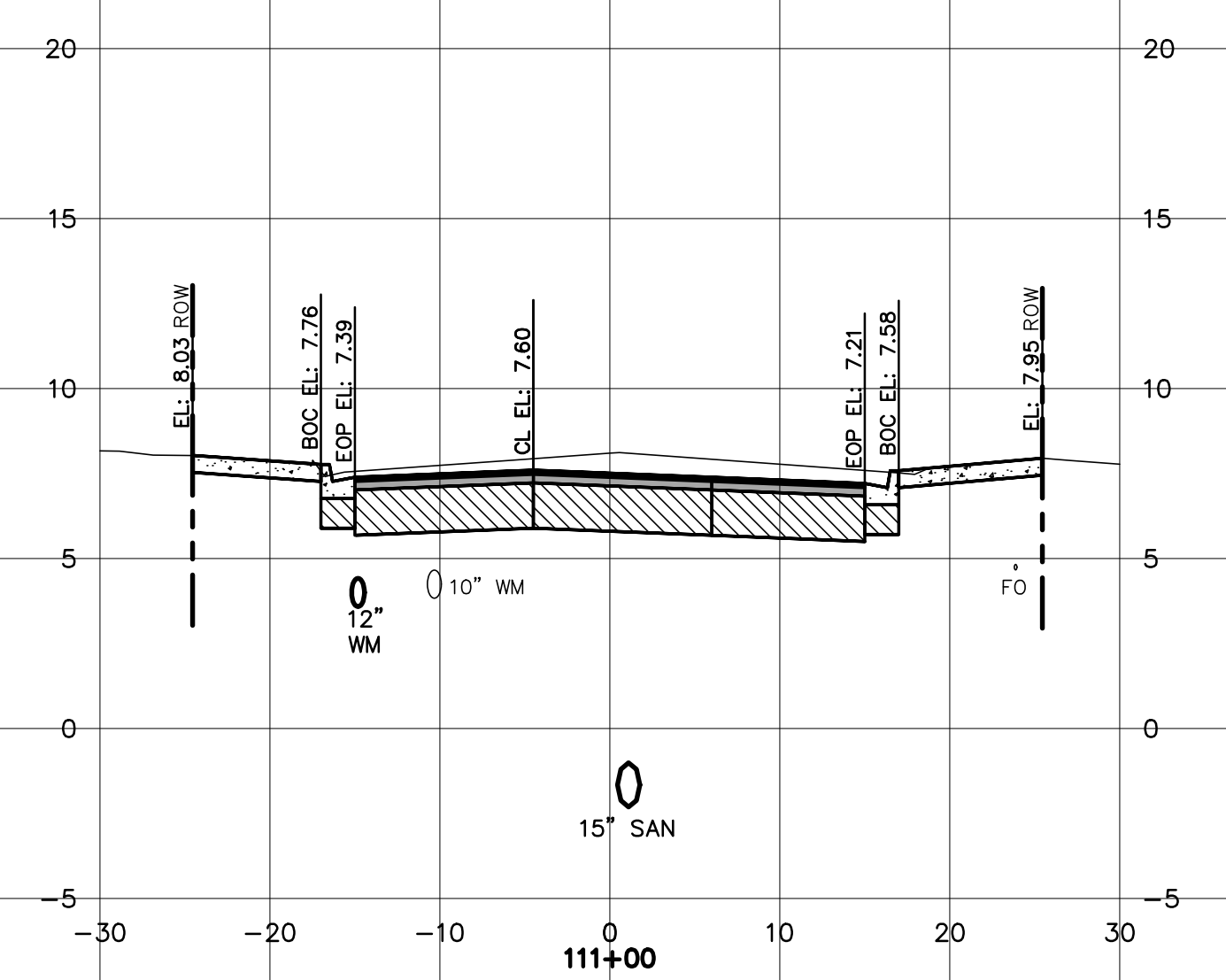
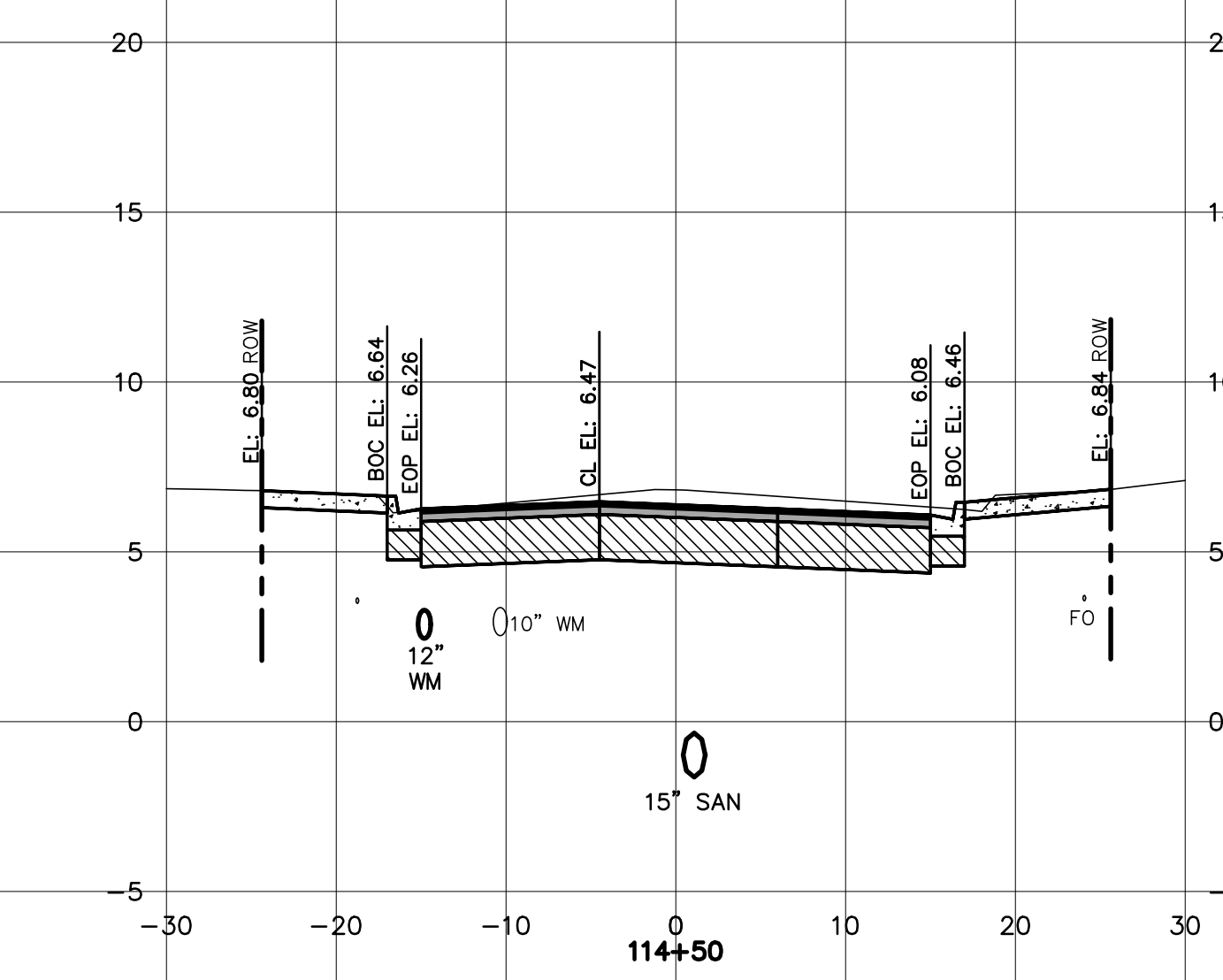
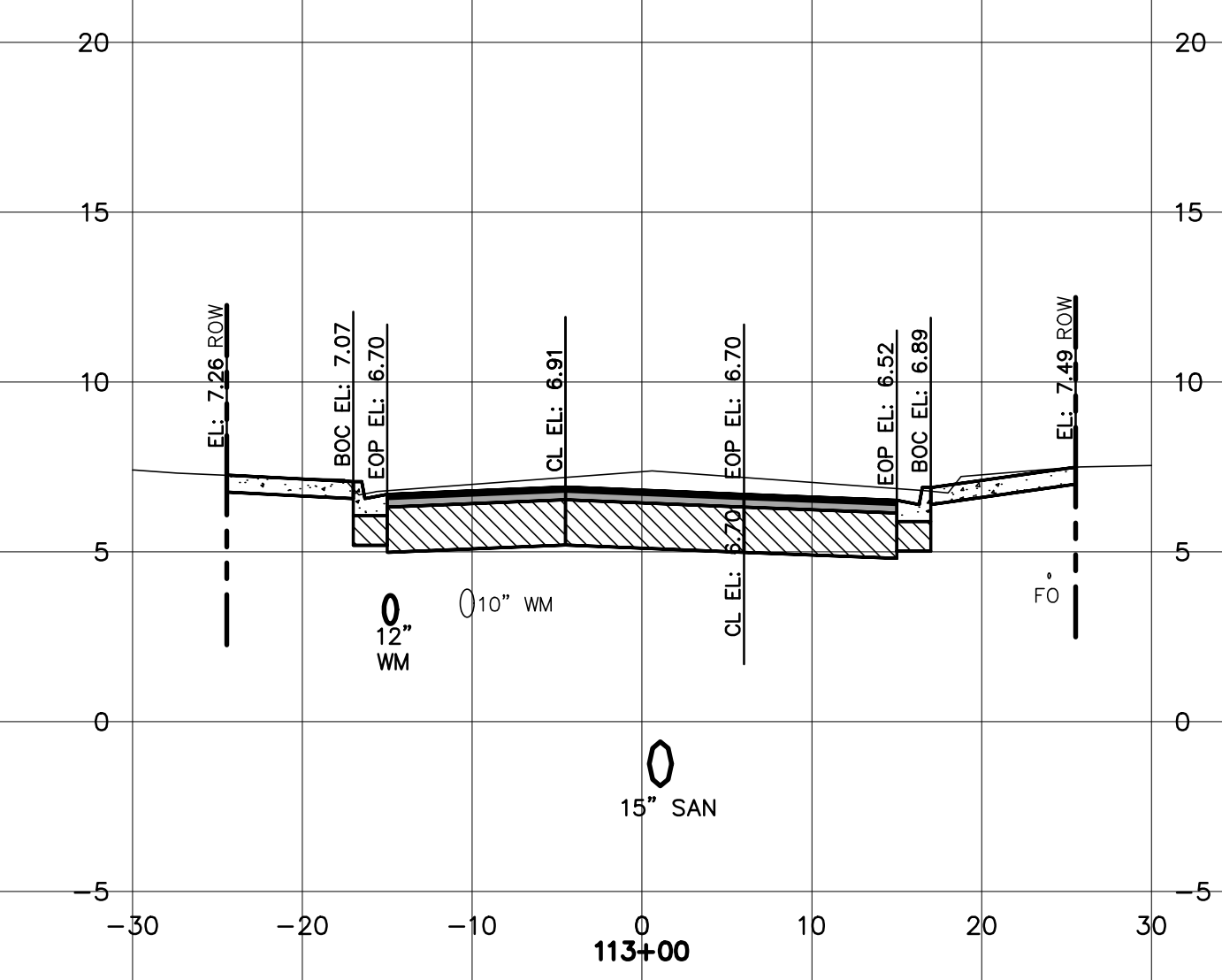
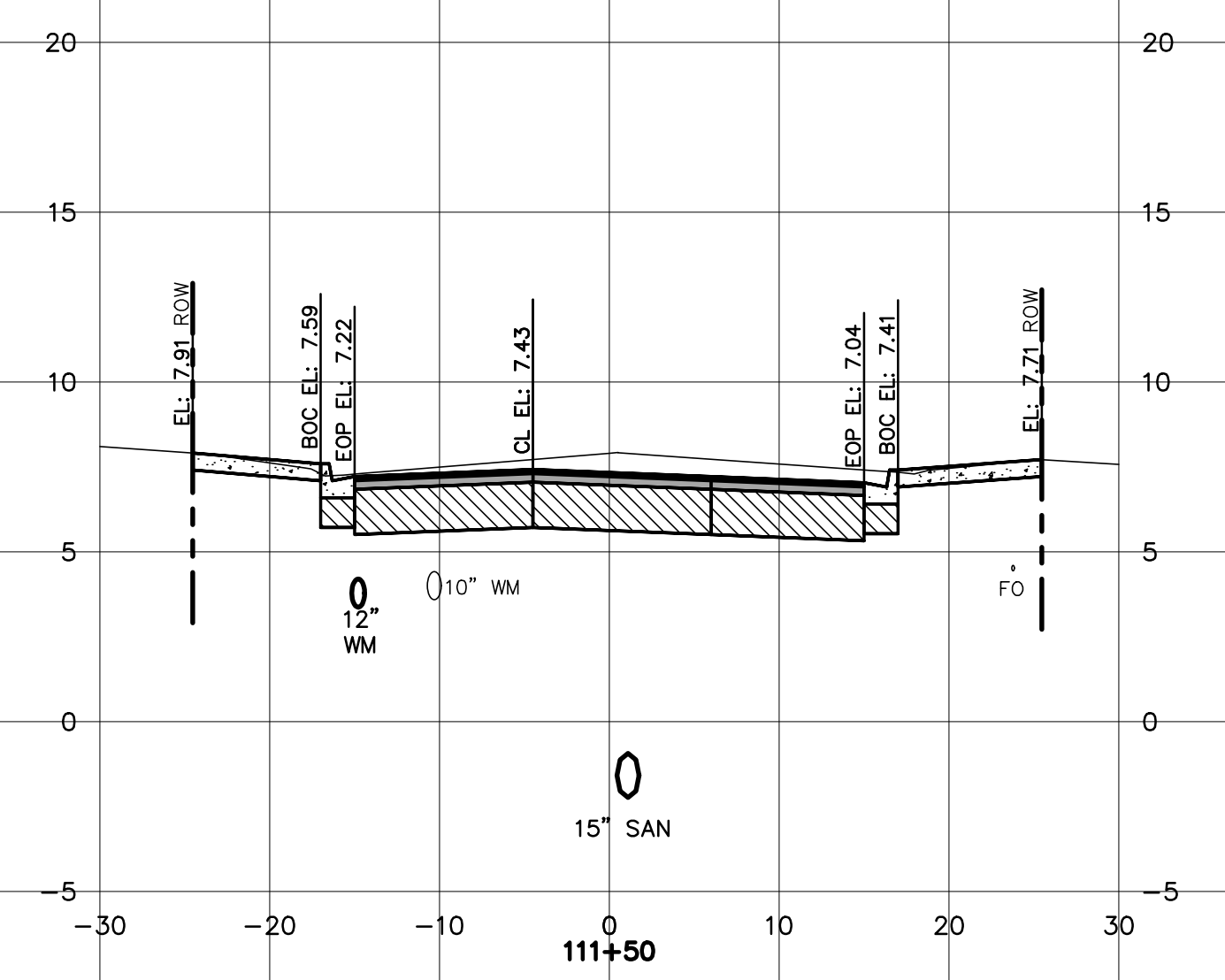
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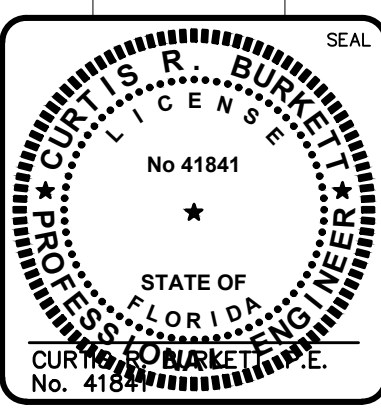
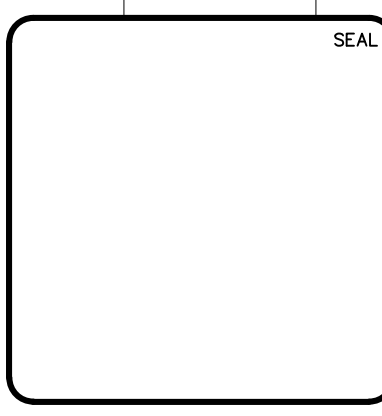
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REVISIONS	DESCRIPTIONS	DATE
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DR. MARTIN LUTHER KING, JR.  
 BOULEVARD—ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT

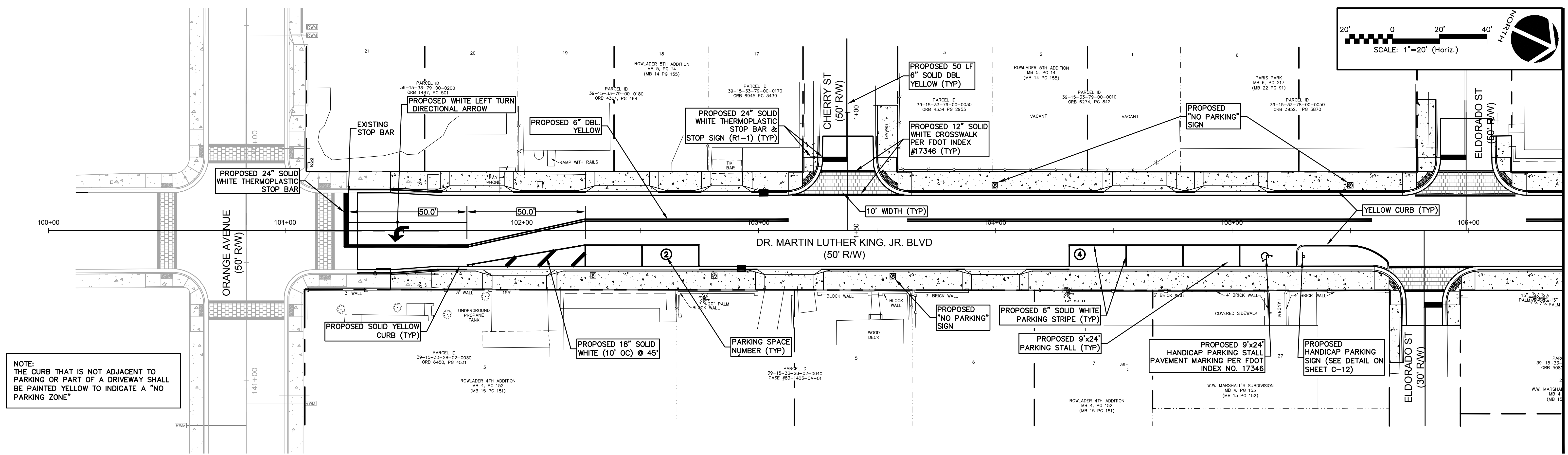
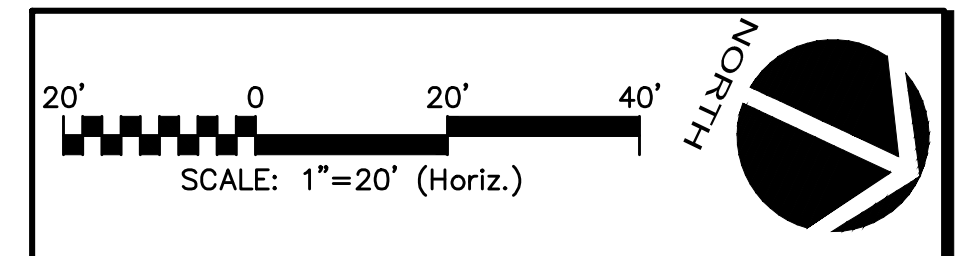
ROADWAY SECTIONS  
 3 OF 4

PROJECT NO. 2015-085

DATE:	APRIL 2017	SCALE:	HORIZONTAL: 1"=10'	VERTICAL: 1"=5'
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CHECKED	P.J.L.	PROJ. MGR.	CRB	CRB

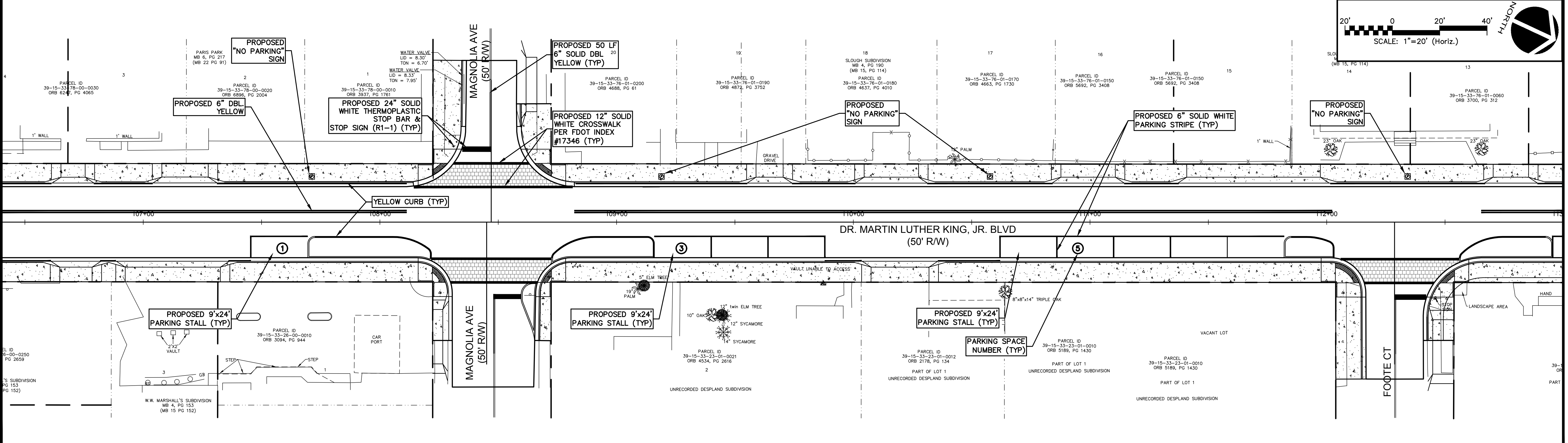
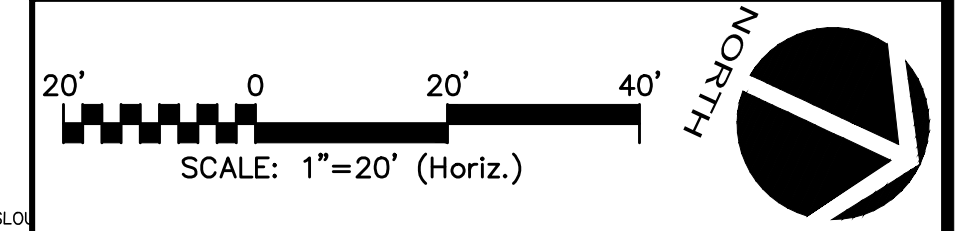
MAC FILE NUMBER: CU801-09960161  
 DRAWING NUMBER: C-9  
 REVISION: ISSUE FOR BIDDING





NOTE:  
THE CURB THAT IS NOT ADJACENT TO PARKING OR PART OF A DRIVEWAY SHALL BE PAINTED YELLOW TO INDICATE A "NO PARKING ZONE"

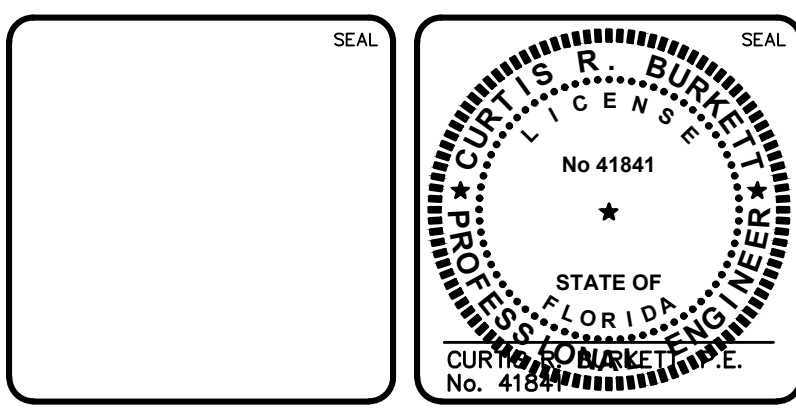
MATCH LINE STA. 16+40 SEE THIS SHEET FOR CONTINUATION



MATCH LINE STA. 106+40 SEE THIS SHEET FOR CONTINUATION

MATCH LINE STA. 113+00 SEE SHEET C-12 FOR CONTINUATION

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DR. MARTIN LUTHER KING, JR.  
 BOULEVARD-ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT

SIGNING & MARKING PLAN  
 1 OF 2

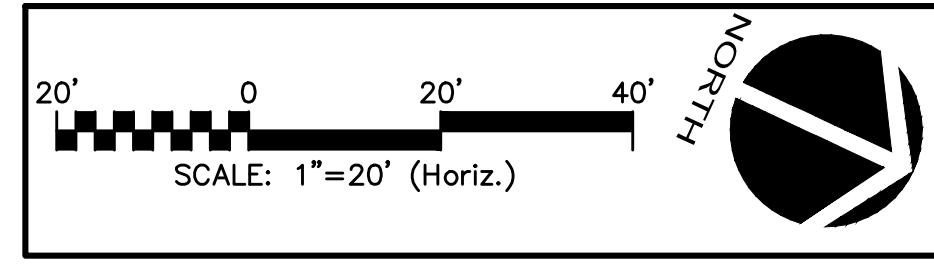
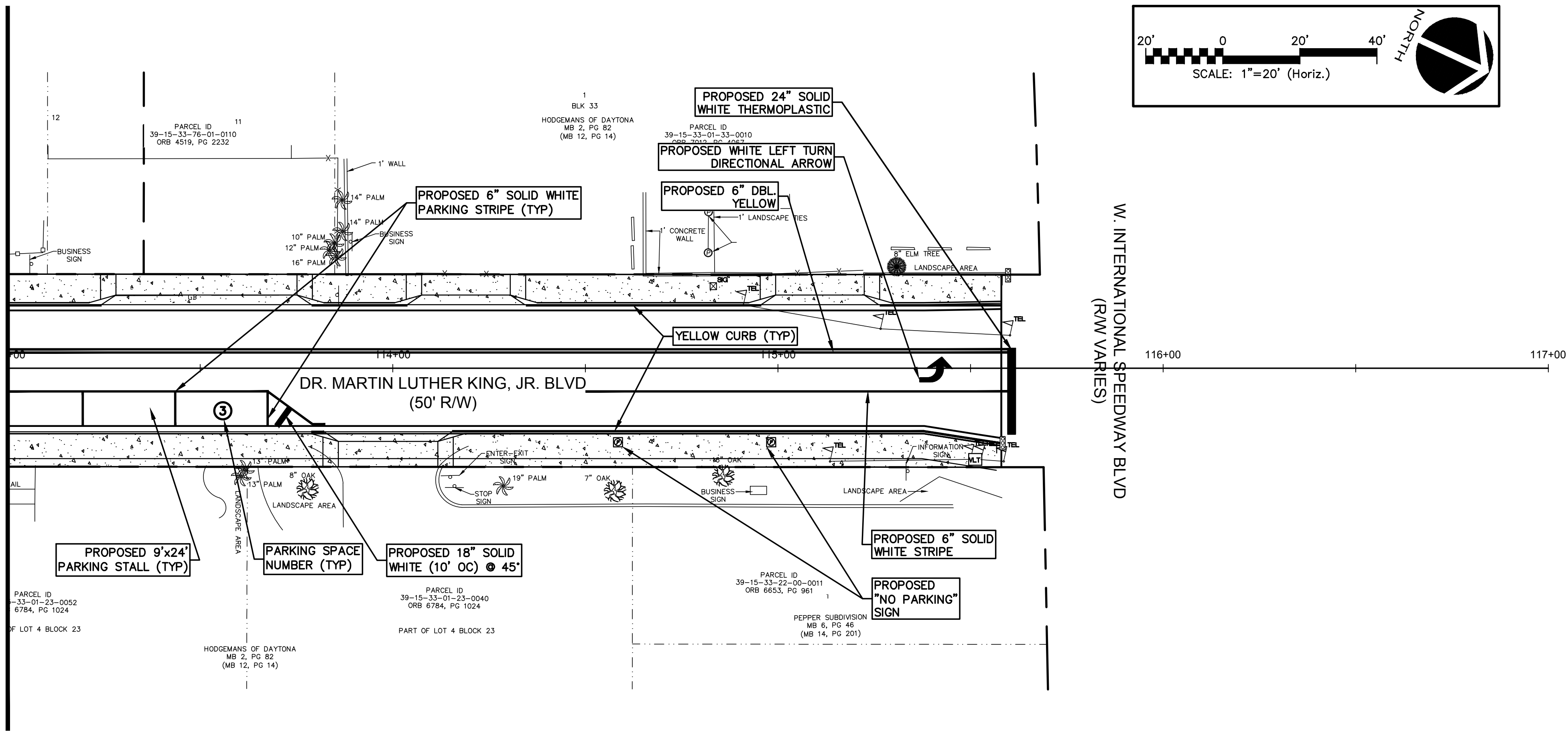
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DRAWN: BFN	VERTICAL: 1"=2'	REVISION:
DESIGNED: P.J.L.		
CHECKED: CRB		
PROJ. MGR: CRB		

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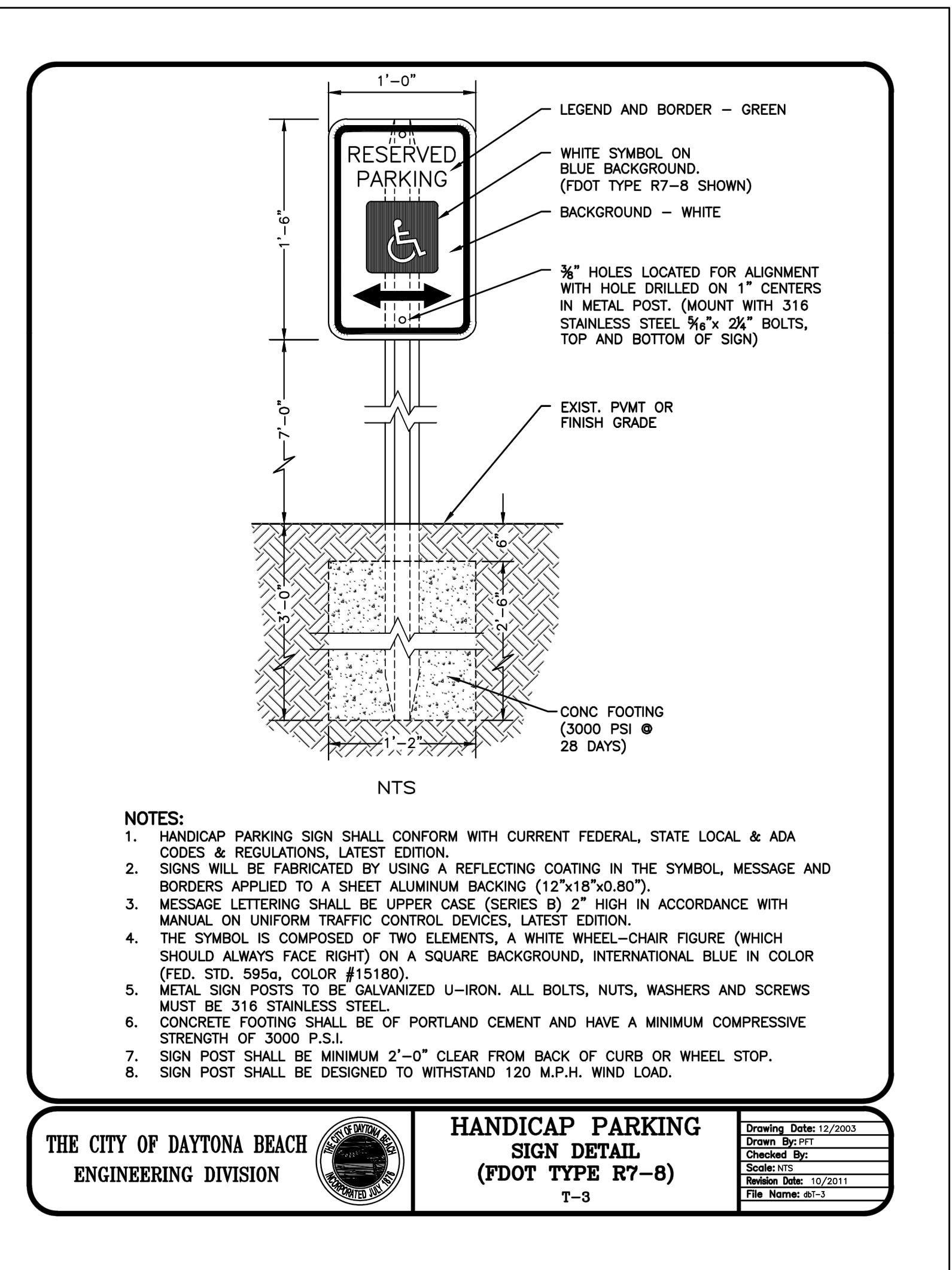
MATCH LINE STA. 113+00 SEE SHEET C-11 FOR CONTINUATION



W. INTERNATIONAL SPEEDWAY BLVD  
(R/W VARIES)

**NOTE:**

1. RPM'S ARE TO BE INCLUDED WITHIN CENTERLINE STRIPING COST.



THE CITY OF DAYTONA BEACH  
ENGINEERING DIVISION

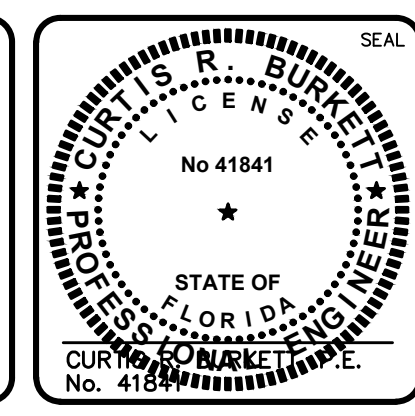
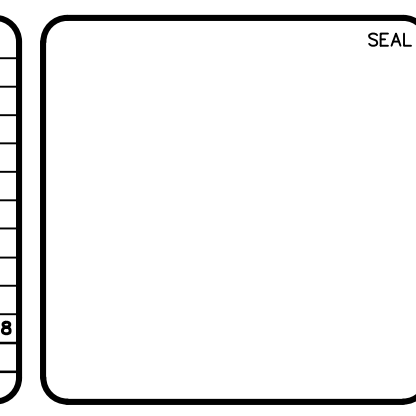


**HANDICAP PARKING  
SIGN DETAIL  
(FDOT TYPE R7-8)**

Drawing Date: 12/2003
Drawn By: JLL
Checked By:
Scale: N/A
Revision Date: 10/2011
File Name: 01-3

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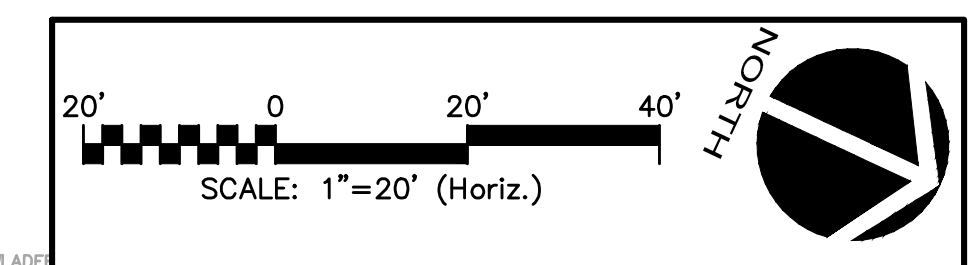
**DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT**

**SIGNING & MARKING PLAN  
2 OF 2**

PROJECT NO. 2015-085

DATE: APRIL 2017	SCALE:	MAC FILE NUMBER:
MCE PROJ. # 0996-0161	HORIZONTAL: 1"=20'	CP101-0990161
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CHECKED: CRB		REVISION:
PROJ. MGR.: CRB		

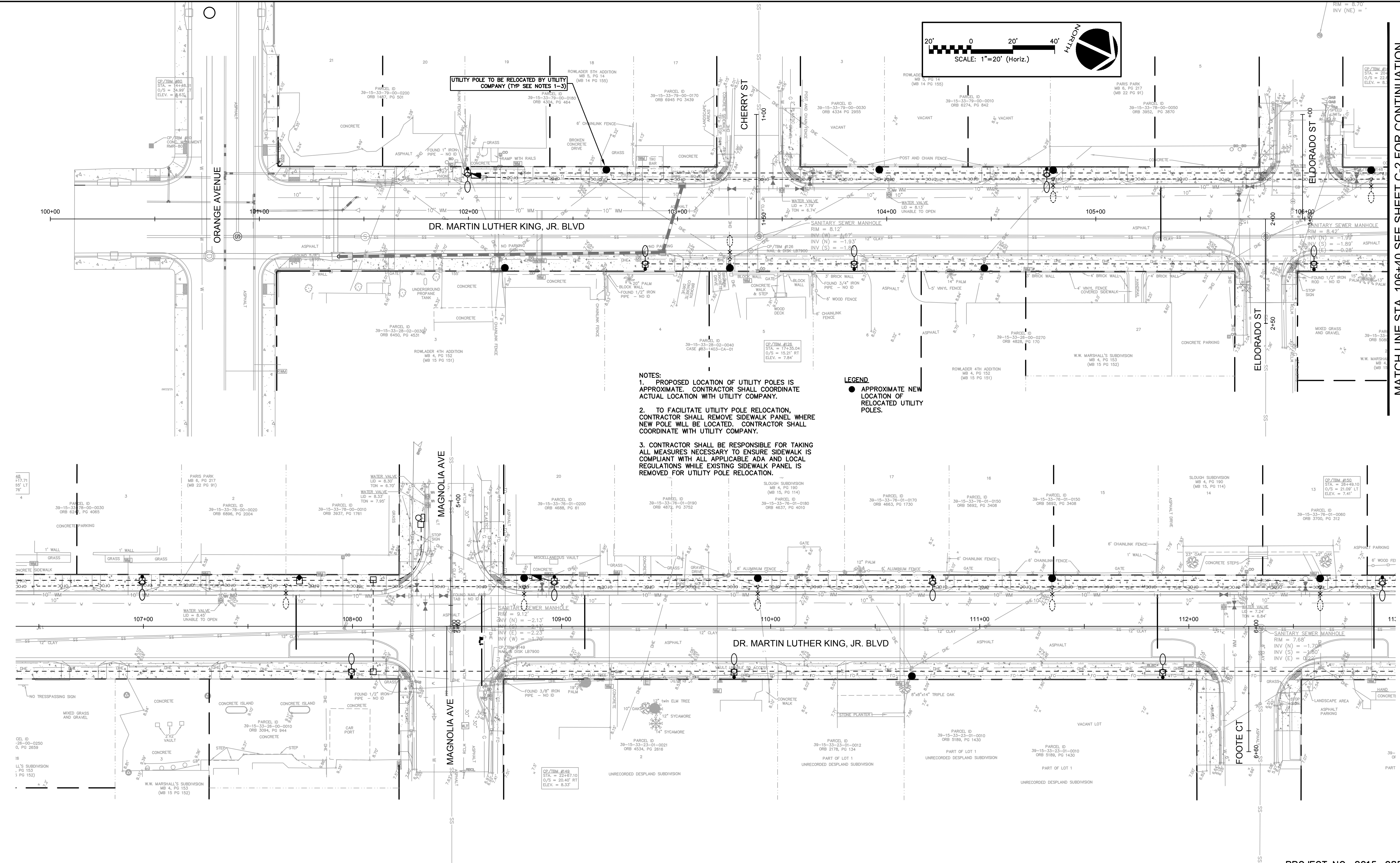
STATUS: **ISSUE FOR BIDDING**



UTILITY POLE TO BE RELOCATED BY UTILITY COMPANY (TYP SEE NOTES 1-3)

DR. MARTIN LUTHER KING, JR. BLVD

- NOTES:**
- PROPOSED LOCATION OF UTILITY POLES IS APPROXIMATE. CONTRACTOR SHALL COORDINATE ACTUAL LOCATION WITH UTILITY COMPANY.
  - TO FACILITATE UTILITY POLE RELOCATION, CONTRACTOR SHALL REMOVE SIDEWALK PANEL WHERE NEW POLE WILL BE LOCATED. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL MEASURES NECESSARY TO ENSURE SIDEWALK IS COMPLIANT WITH ALL APPLICABLE ADA AND LOCAL REGULATIONS WHILE EXISTING SIDEWALK PANEL IS REMOVED FOR UTILITY POLE RELOCATION.
- LEGEND:**
- APPROXIMATE NEW LOCATION OF RELOCATED UTILITY POLES.



MATCH LINE STA. 106+40 SEE SHEET C-2 FOR CONTINUATION

<b>REVISIONS</b> A ISSUE FOR BIDDING AUGUST 2018 REV. NO. DESCRIPTIONS DATE	

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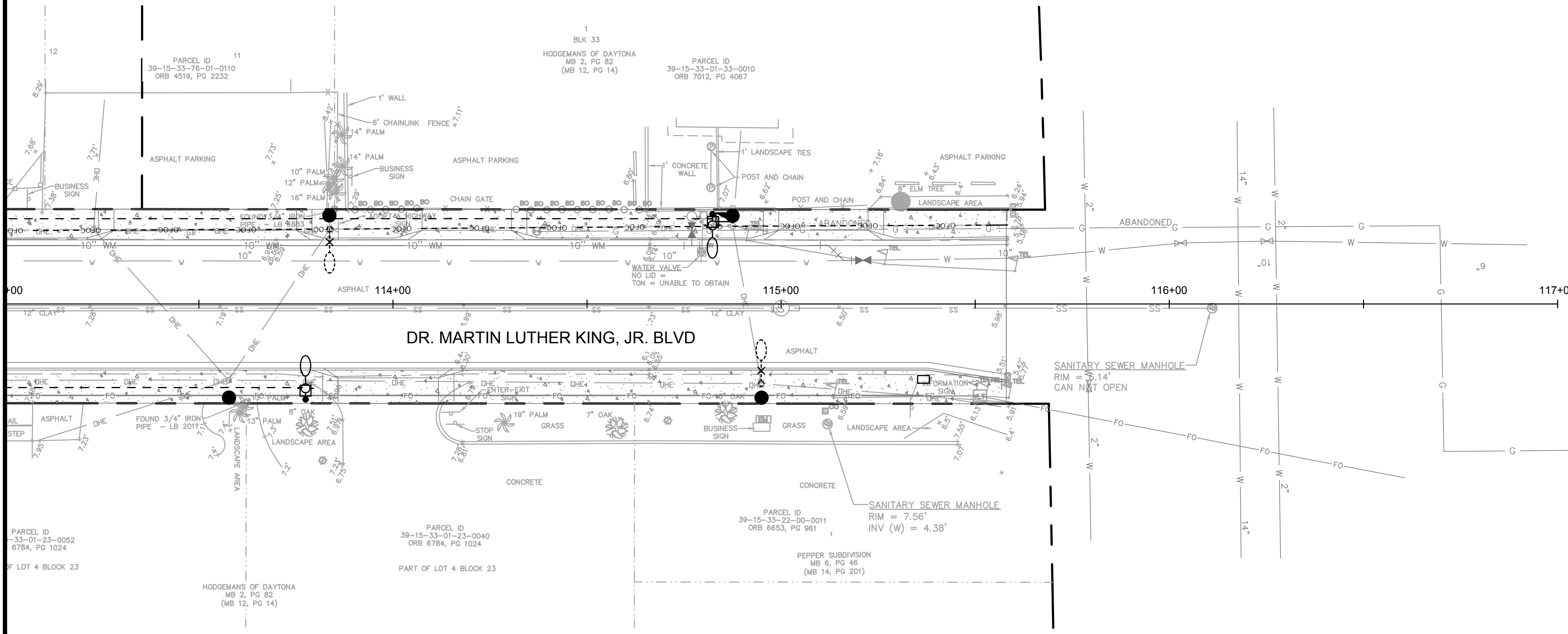
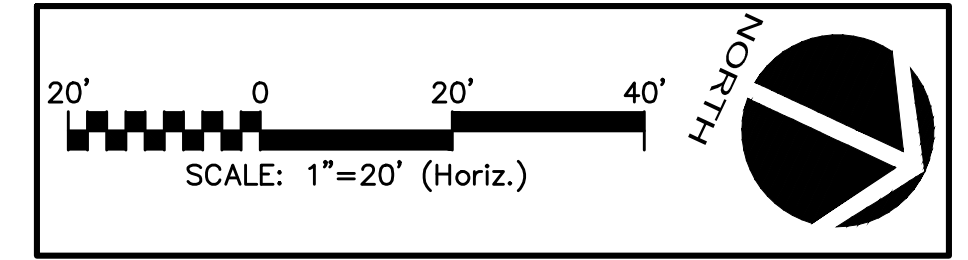
THE CITY OF  
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DR. MARTIN LUTHER KING, JR.  
 BOULEVARD-ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT  
 PRIVATE UTILITY  
 RELOCATION PLAN 1 OF 2

PROJECT NO. 2015-085	
DATE: APRIL 2017 MCE PROJ. # 0996-0161 DRAWN: BFN DESIGNED: P.J.L. CHECKED: CRB PROJ. MGR.: CRB	SCALE: HORIZONTAL: 1"=20' VERTICAL: 1"=2'
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MATCH LINE STA. 113+00 SEE SHEET C-2 FOR CONTINUATION

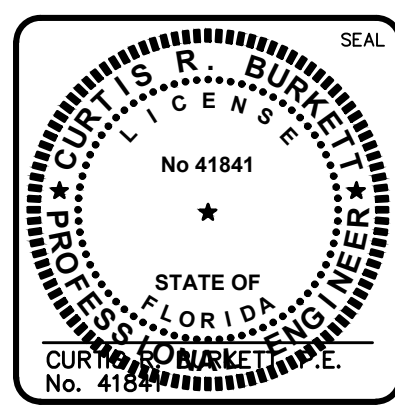
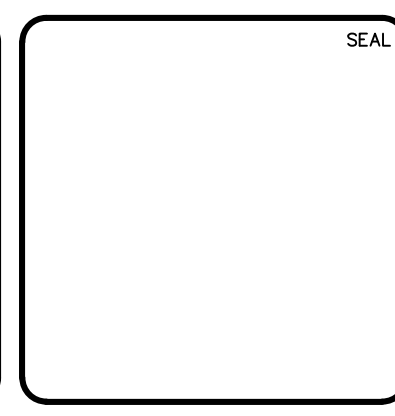


**LEGEND**  
 ● APPROXIMATE NEW LOCATION OF RELOCATED UTILITY POLES.

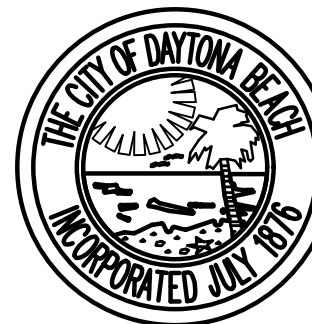
**NOTES:**  
 1. PROPOSED LOCATION OF UTILITY POLES IS APPROXIMATE. CONTRACTOR SHALL COORDINATE ACTUAL LOCATION WITH UTILITY COMPANY.  
 2. TO FACILITATE UTILITY POLE RELOCATION, CONTRACTOR SHALL REMOVE SIDEWALK PANEL WHERE NEW POLE WILL BE LOCATED. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY.  
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ALL MEASURES NECESSARY TO ENSURE SIDEWALK IS COMPLIANT WITH ALL APPLICABLE ADA AND LOCAL REGULATIONS WHILE EXISTING SIDEWALK PANEL IS REMOVED FOR UTILITY POLE RELOCATION.

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**DR. MARTIN LUTHER KING, JR.  
 BOULEVARD-ROADWAY AND PEDESTRIAN  
 IMPROVEMENTS PROJECT**  
 PRIVATE UTILITY  
 RELOCATION PLAN 2 OF 2

PROJECT NO. 2015-085

DATE: APRIL 2017	SCALE:	MAC FILE NUMBER: CU103-09960101
MCE PROJ. # 0996-0161	HORIZONTAL: 1"=20'	DRAWING NUMBER: C-14
DRAWN: BFN	VERTICAL: 1"=2'	REVISION:
DESIGNED: P.J.L.		
CHECKED: CRB		
PROJ. MGR.: CRB		

STATUS: **ISSUE FOR BIDDING**

### POTABLE WATER CONSTRUCTION & DESIGN STANDARDS

- THE CITY'S UTILITIES DEPARTMENT SHALL BE GIVEN A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS OR WEEKENDS) PRIOR TO BEGINNING ANY POTABLE WATER SYSTEM CONSTRUCTION.
- ALL DEWATERING ACTIVITIES EITHER DIRECTLY DISCHARGED OR THAT SUBSEQUENTLY USE THE CITY'S STORMWATER SYSTEM TO CONVEY GROUND OR SURFACE WATER FROM A SITE SHALL REQUIRE A STANDARD OR GENERAL USE PERMIT AS PER ARTICLE 7 SECTION 7 OF THE LAND DEVELOPMENT CODE. A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING ACTIVITIES, OR IN ANY CONSTRUCTION ACTIVITIES. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES ALLOWING CONSTRUCTION OR MAINTENANCE TO BE DONE IN THE DRY, OR ANY ACTIVITY WHICH CHANGES THE IMPERVIOUS AREA OF LAND. SITE SPECIFIC PERMITS SHALL REQUIRE THE PAYMENT OF A PER ACRES FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE THE PAYMENT OF AN ANNUAL FEE BASED ON ROUTINE SCHEDULE OF MAINTENANCE ACTIVITIES DISCHARGING DIRECTLY OR SUBSEQUENTLY INTO THE CITY'S MS4. DEWATERING PERMIT APPLICATIONS MAY BE FOUND AT <http://www.codb.us/index.cfm?PID=262>. FEES ARE SUBJECT TO ARTICLE 20 SECTION 3.1 OF THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED TO THE CITY OF DAYTONA BEACH UTILITY DEPARTMENT AT 125 BASIN STREET SUITE 100, DAYTONA BEACH FL 32114 BEFORE ANY USE OF THE MS4 WILL BE ALLOWED. FAILURE TO COMPLY WILL RESULT IN THE TERMINATION OF ACCESS TO THE CITY'S MS4 SYSTEM.
- ALL WORK PERFORMED UPON POTABLE WATER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY SHALL BE CONSTRUCTED BY AN UNDERGROUND UTILITY CONTRACTOR OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.
- UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE DEPARTMENT OF HEALTH, AND THAT AS-BUILT DRAWINGS (MEETING THE CITY'S AS-BUILT DRAWING REQUIREMENTS) ARE PROVIDED TO THE CITY PRIOR TO ANY USE OF THIS SYSTEM.
- WATER DISTRIBUTION SYSTEM SHALL BE DESIGNED TO COMPLY WITH THE CITY'S FIRE (WATER) FLOW CODE.
- ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH A 2" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, IN FRONT OF THE METER BOX WITH 2" OF ENDORACE COILED AND CAPPED WITH AN ELSTER HYDROSECT CAP INSIDE OF THE METER BOX.
- ALL WATER SERVICES SHALL BE MARKED WITH AN "A" SAW CUT INTO THE CURB.
- ALL WATER VALVES SHALL BE MARKED WITH AN "X" SAW CUT INTO THE CURB.
- ALL TAPPING OF MAINS SHALL BE PERFORMED WITH A UTILITY REPRESENTATIVE PRESENT. SCHEDULING OF THESE CONNECTIONS SHALL REQUIRE A MINIMUM OF 3 (THREE) BUSINESS DAYS FOR NOTIFICATION AND SHALL BE COORDINATED WITH THE WATER DISTRIBUTION DIVISION (386) 671-8815.
- FOR CONSTRUCTION PURPOSES, THE PLANS SHALL DIMENSION STATIONING & OFFSETS FROM THE CENTER LINE OF CONSTRUCTION AND RIGHT-OF-WAY LINES THE PROPOSED LOCATIONS OF ALL WATER MAINS.
- DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW MAIN BEING LAID.
- ALL WATER MAINS SHALL BE LAID ON A FIRM UNYIELDING FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
- TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 98% IN PAVED AREAS AND 95% IN UNPAVED AREAS IN ACCORDANCE WITH AASHTO T-180 MODIFIED PROCTOR TEST.
- ON PROJECTS THAT ARE NOT INITIATED BY THE CITY IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 12 INCHES ABOVE THE PIPE AND AT 12 INCH VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER CONSTRUCTION & DESIGN STANDARDS (PAGE 1 OF 4) W-1

15/16/18 Drawing Date: 01/08  
Drawn By: [Signature]  
Checked By: [Signature]  
Scale: NTS  
Revision Date: 05/13  
File Name: Water Mains W-1 Page 5

### POTABLE WATER CONSTRUCTION & DESIGN STANDARDS (CONT'D)

- WHERE POTABLE WATER AND SANITARY SEWER MAINS CROSS WITH LESS THAN TWELVE (12) INCHES OF VERTICAL CLEARANCE OR WHERE THE SEWER MAIN IS ABOVE THE WATER MAIN, THE SEWER MAIN SHALL BE ENCASED WITH CONCRETE, OR UPGRADED TO C-900 PVC PIPE FOR A MINIMUM LENGTH OF TWENTY (20) FEET, COVERED TO THE POINT OF CROSSING. A MINIMUM HORIZONTAL SEPARATION OF SIX (6) FEET (SIDE TO SIDE) BETWEEN POTABLE WATER MAINS AND SEWER MAINS SHALL BE MAINTAINED WHEN AT ALL POSSIBLE. WHEN THE SIX (6) FOOT HORIZONTAL SEPARATION CANNOT BE MAINTAINED, THE POTABLE MAIN SHALL BE INSTALLED IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELVE AT LEAST 18" ABOVE THE SEWAGE MAIN. ALTERNATIVELY, THE SEWER MAIN SHALL BE ENCASED WITH CONCRETE OR ENCLOSED IN A WATER TIGHT CARRIER PIPE, OR UPGRADED TO PRESSURE RATED PVC PIPE (MEETING THE AWWA C-900 OR C-905 SPECIFICATION) AND PRESSURE TESTED. \*SEE PIPE SEPARATION DETAIL (W-9).
- WATER MAINS ARE TO BE CONSTRUCTED A MINIMUM OF FOUR FEET MEASURED FROM THE OUTSIDE WALL OF THE WATER MAIN, BEHIND THE BACK OF CURB OR OUTSIDE OF THE EDGE OF ROADWAY PAVEMENT, WHICHEVER IS GREATER.
- A THREE INCH WIDE METALLIZED LOCATOR TAPE SHALL BE USED ON ALL PRESURIZED MAINS INSTALLED. THE LOCATOR TAPE SHALL BE NON-CORRODIBLE CONSISTING OF POLYETHYLENE FILM WITH METALLIC FILM AND SHALL BE CONSECUTIVELY MARKED TO IDENTIFY THE REFERENCED PIPELINE. THE TAPE SHALL BE INSTALLED EIGHTEEN INCHES DIRECTLY ABOVE THE PIPE.
- ALL NON-METALLIC WATERLINES SHALL HAVE #12 SINGLE STRAND UF RATED INSULATED COPPER WIRE ATTACHED. THE ENDS NEED TO BE SEALED WITH LIQUID TAPE.
- SINGLE RESIDENTIAL WATER SERVICES SHALL BE A COPPER 1" MINIMUM, OR ENDOT, ENDOTRACE POLY-TUBE (MEETS THE SPECIFICATIONS OF NSF-1A, AND AWWA C901-1).
- ALL WATER MAINS SHALL BE NSF-APPROVED FOR POTABLE WATER USE, AND SHALL HAVE A MINIMUM COVER OF 36 INCHES.
- WATER MAINS SHALL BE DUCTILE IRON PIPE (D.I.P.), CLASS 350, CEMENT LINED UNLESS OTHERWISE APPROVED BY THE CITY. ALL NON DUCTILE IRON PIPE HORIZONTAL DIRECTIONAL DRILL WATER MAINS SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING DEPENDENT ON SITE CONDITIONS.
- ALL POTABLE WATER MAINS SHALL USE A THRUST RESTRAINT JOINT METHOD IN COMPLIANCE WITH THE DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA) GUIDELINES.
- MEGALUGS, BOLTLESS RESTRAINED JOINTS, GRIPPER GASKETS, OR STAR GRIPS SHALL BE USED ON ALL RESTRAINED JOINT INSTALLATIONS. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES.
- GRIPPER RING GASKETS SHALL BE USED AS APPROPRIATE FOR RESTRAINING PRESSURE PIPE TO FITTINGS, VALVES, ETC.
- WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACING OF 750 FEET. SPACING OF VALVES ON PRIMARY TRANSMISSION MAINS WILL BE DETERMINED BY THE CITY.
- AT ALL WATER MAIN TEES AND VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
- APPROVED WATER VALVE TYPES ARE THE FOLLOWING:  
A. RESILIENT SEAT GATE VALVES (AWWA C-509)  
B. TAPPING VALVES WITH MECHANICAL TAPPING SLEEVE.
- ALL WATER VALVES, INCLUDING CONCRETE COLLAR (WITH DEBRIS CAP), SHALL BE ADJUSTED TO FINISHED GRADE AND THE VALVE BOX LID, PRIMED PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.
- UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS, WATER VALVES SHALL BE COMPLETELY OPENED BY PUBLIC UTILITIES PERSONNEL. AT NO TIME SHALL CONTRACTOR OPERATE ANY EXISTING VALVES WITHOUT A CITY INSPECTOR PRESENT.
- ALL VALVES 2" AND SMALLER SHALL BE CURB STOPS. VALVES LARGER THAN 2" SHALL BE GATE VALVES.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER CONSTRUCTION & DESIGN STANDARDS (PAGE 2 OF 4) W-2

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Scale: NTS  
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File Name: Water Mains W-2 Page 4

### POTABLE WATER CONSTRUCTION & DESIGN STANDARDS (CONT'D)

- TYPICALLY, A MINIMUM OF ONE FIRE HYDRANT SHALL BE LOCATED AT EVERY INTERSECTION. OTHER FIRE HYDRANTS SHALL BE LOCATED SO AS TO PRODUCE A MAXIMUM 500 FOOT RADIUS OF COVERAGE. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO FIRE PERSONNEL. THE PRIMARY HYDRANT PORT IS TO FACE THE STREET.
- IN AREAS WHERE RECLAIMED WATER IS NOT AVAILABLE THE CONTRACTOR SHALL BE REQUIRED TO TRANSFER THE WATER FROM THE POTABLE WATER LINES WITH NECESSARY BACKFLOW PREVENTION DEVICES TO THE NON-POTABLE WATER LINES FOR UTILIZATION IN THEIR PRESSURE TEST.
- THE CONTRACTOR SHALL BE REQUIRED TO PIG ALL POTABLE MAINS 6" OR GREATER IN DIAMETER. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR.
- WITH RESPECT TO FLUSHING, PIGGING, TESTING, AND TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE WORK TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6:00 A.M.) IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS.
- THE CITY RESERVES THE RIGHT TO PERFORM THE SAMPLING AND ANALYSIS FOR BACTERIOLOGICAL CLEARANCE OF THE WATER MAIN. ANY RETESTING WILL BE AT THE CONTRACTOR'S EXPENSE.
- POTABLE WATER SYSTEM EXTENSIONS MAY NOT BE USED PRIOR TO FINAL TESTING, UNTIL CLEARANCE IS ACCEPTED BY THE CITY OF DAYTONA BEACH AND THE VOLUISA COUNTY HEALTH DEPARTMENT.
- A BACK FLOW PREVENTER (BFP) SHALL BE PLACED ON ALL POTABLE AND FIRELINES SERVING COMMERCIAL PROPERTIES AND RESIDENTIAL WHERE ALTERNATIVE WATER IS AVAILABLE. THE TYPE OF BACKFLOW PREVENTERS REQUIRED ARE AS FOLLOWS:  
POTABLE WATER SERVICE: REDUCED PRESSURE ZONE BFP  
FIRELINE SERVING A FIRE SPRINKLER SYSTEM AND/OR PRIVATE FIRE HYDRANT: DOUBLE CHECK VALVE SYSTEM  
FIRELINE: DOUBLE CHECK VALVE SYSTEM  
IN CASES WHERE A WATER LINE SERVES BOTH DOMESTIC AND FIRE SERVICES, A REDUCED PRESSURE ZONE BFP SHALL BE REQUIRED.
- ALL JACK & BORES REQUIRED WITH COMMERCIAL DEVELOPMENTS SHALL BE AT THE SOLE COST OF THE OWNER / DEVELOPER.
- ALL C-900 PVC PIPE REQUIREMENTS ARE REFERENCED TO THE C-900-97 STANDARDS. OR UPGRADES FOR BEST PROTECTION MAY BE REQUIRED WHEN USING THE C-900-07 STANDARDS.
- CHLORINATED WATER MUST BE DE-CHLORINATED PRIOR TO DISCHARGE INTO ANY JURISDICTIONAL WETLAND OR WATER BODY AS PER AWWA STANDARD\_ANS/AWWA C655-09.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER CONSTRUCTION & DESIGN STANDARDS (PAGE 3 OF 4) W-3

15/16/18 Drawing Date: 01/08  
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### POTABLE WATER CONSTRUCTION & DESIGN STANDARDS TESTING REQUIREMENTS:

- ON ALL PROJECTS OTHER THAN THOSE INITIATED BY THE CITY THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING LABORATORY AT HIS OWN EXPENSE TO INSURE THAT COMPACTION OF ALL FILL MATERIAL IS COMPLETED PROPERLY. HOWEVER, ON ALL CITY PROJECTS THE TESTING WILL BE DONE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. TESTS SHALL BE DONE ONE FOOT ABOVE THE PIPE AND THEN AT ONE FOOT VERTICAL INTERVALS UNTIL FINAL GRADE IS REACHED. IDENTIFICATION OF TEST LOCATIONS SHALL BE CLEARLY INDICATED ON TEST REPORTS. TEST RESULTS SHALL BE FORWARDED PROMPTLY TO THE CITY'S DESIGNATED SITE INSPECTOR.
- ALL POTABLE WATER MAINS SHALL BE FLUSHED, DISINFECTED, PRESSURE TESTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE WHEN APPROPRIATE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED INSPECTOR WHO SHALL COORDINATE WITH CITY PERSONNEL AT THE WATER TREATMENT PLANT AND/OR TRENCH BUSINESS DAYS PRIOR TO BEGINNING FLUSH OF THE MAINS PRIOR TO THE COMMENCEMENT OF PRESSURE TESTING. NO HOSE OR FIRE HYDRANT SHALL BE USED IN THE COLLECTION OF BACTERIOLOGICAL SAMPLES. THE SAMPLING TAP MUST BE DEDICATED AND CLEAN, AND DISINFECTED AND FLUSHED PRIOR TO SAMPLING. SAMPLING TAP SHALL BE SMOOTH UNTHREADED 1/2" HOSE BIB. DISINFECTION & SAMPLING SHALL BE SCHEDULED AT THE CITY'S CONVENIENCE.
- PRESSURE TEST FOR TAPPING SADDLES AND VALVES. (MINIMUM OF 30 MINUTES AT 150 PSI OR 30 MINUTES AT MANUFACTURERS LABELED TESTING PRESSURE).
- WATERLINES SHALL BE PRESSURE TESTED TO 150 PSI FOR 4 HOURS. TESTING SHALL BE IN ACCORDANCE WITH AWWA C-600 AND AWWA C-605 AS APPLICABLE, WITH ALLOWABLE LEAKAGE TO BE X GAL/HR PER X" DIA. OF PIPE, PER X' OF MAIN TO BE TESTED.

ALLOWABLE LEAKAGE PER 1000 FT. OF PIPELINE \* -GPH

AVERAGE PRESSURE TEST (PSI)	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	54"	60"	64"	AVERAGE TEST PRESSURE (PSI)
450	0.48	0.64	0.96	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82	4.78	5.73	6.69	7.64	8.60	9.56	10.19	450
400	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60	4.50	5.41	6.31	7.21	8.11	9.01	9.61	400
350	0.42	0.56	0.84	1.12	1.40	1.68	1.97	2.25	2.53	2.81	3.37	4.21	5.06	5.90	6.74	7.58	8.43	8.99	350
300	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12	3.90	4.68	5.46	6.24	7.02	7.80	8.32	300
275	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99	3.73	4.48	5.23	5.98	6.72	7.47	7.97	275
250	0.36	0.47	0.71	0.95	1.19	1.43	1.66	1.90	2.14	2.37	2.85	3.56	4.27	4.98	5.70	6.41	7.12	7.60	250
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38	4.05	4.73	5.41	6.03	6.76	7.21	225
200	0.33	0.43	0.64	0.85	1.06	1.26	1.46	1.66	1.86	2.12	2.55	3.19	3.82	4.45	5.09	5.73	6.37	6.80	200
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.99	2.36	2.98	3.59	4.17	4.77	5.36	5.96	6.36	175
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76	3.31	3.86	4.41	4.97	5.52	5.88	150
125	0.25	0.34	0.51	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52	3.03	3.54	4.03	4.53	5.04	5.37	125
100	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80	2.25	2.70	3.15	3.60	4.05	4.50	4.80	100

\* IF THE PIPELINE UNDER TEST CONTAINS SECTIONS OF VARIOUS DIAMETERS, THE ALLOWABLE LEAKAGE WILL BE THE SUM OF THE COMPUTED LEAKAGE FOR EACH SIZE.

WHERE:  
L = ALLOWABLE LEAKAGE, IN GALLONS PER HOUR  
L = LENGTH OF PIPE TESTED, IN FEET  
D = NOMINAL DIAMETER OF PIPE, IN INCHES  
P = AVERAGE TEST PRESSURE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH (GAUGE)

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER CONSTRUCTION & DESIGN STANDARDS (PAGE 4 OF 4) W-4

15/16/18 Drawing Date: 01/08  
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Revision Date: 07/2014  
File Name: Water Mains W-4 Page 8

### Guidelines for the Acceptance of New Water Mains from Contractors

- Contact the Utilities Department at 386-671-8871 or 386-671-8827 a min. of 3 business days prior to beginning any potable water system construction. Utilities Inspector will coordinate with the City's Water Distribution Division to schedule the tap of the main. DOH Permit to be forwarded to the Water/Wastewater (W/W) Inspector with the Regulatory Compliance Division.
- Contractor to install tapping saddle/sleeve and disinfected valve on the existing water main under inspection of the Utilities Department. All materials must be swabbed with a 5% chlorine solution.
- Pressure test the tapping saddle/sleeve and valve. (Min. 30 minutes at manufacturer recommended pressure.)
- City's Water Distribution Department will tap the existing main.
- All mains 6" and larger (greater than 100 LF) must be pigged and flushed by the contractor under inspection of the water/wastewater inspectors. Contact Bob Terpstra between 07:30 - 14:00 hrs. Monday - Thursday excluding holidays at 386-671-8809 or 386-717-7839 to schedule.
- Contractor must pressure test the new main under inspection of the W/W Inspector. (Minimum 4 hrs at 150 psi) Refer to CODB Standard Details.
- Pressure Test Passed | Pressure Test Failed | Repair leaks
- Submit Preliminary As-Built to Utilities Engineering (1 AutoCAD CD and 1 Paper Copy in State Plane Coordinates NAD 83). Once preliminary as-builts are acceptable, W/W Inspector will schedule the chlorination. (Chlorination is scheduled Mon. thru Wed. with 48 hrs advance notice required.)
- Contractor will super chlorinate the new main in accordance with AWWA C651-05 (or most recent version). The chlorine solution must be greater than 25 mg/L (50 mg/L preferred) and must remain in the water main for at least 24 hrs with a final residual of 10 mg/L. The chlorination must be monitored by the W/W Inspector. An alternative method of "slug" chlorination can be utilized. Initial chlorine dose of 100 mg/L in contact for 3 hours with a final residual of 30 mg/L.
- Flush main and reduce the chlorine residual to proper level (1-3 mg/L typical, not to exceed ambient chlorine residual from the WTP). Any water discharged to receiving water bodies shall be dechlorinated per AWWA standards.
- Re-chlorination is required if the 2nd consecutive fails.
- W/W Inspector/CODB Lab will collect and test samples for 2 consecutive days per FDEP requirements.
- Bacteriological test passed for 2 consecutive days | Bacteriological test failed
- Submit Final As-Built Drawings (1 Mylar & 2 Paper Copies, 1 CD with CAD drawings and pdf's). Bacteriological Test Results and FDEP Clearance Application to the Utilities Engineering Division.
- Utilities Engineering signs and delivers the FDEP clearance app. to the Health Department.\*
- FDEP Letter of Clearance Received.
- Water Distribution Division will open valve and place water main into service.

\*Should the bacteriological samples expire prior to DOH submittal re-chlorination and re-sampling will be required at the contractor's cost using the City personnel and laboratory.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

GUIDELINES FOR THE ACCEPTANCE OF NEW WATER MAINS FROM CONTRACTORS W-5

15/16/18 Drawing Date: 03/15  
Drawn By: [Signature]  
Checked By: [Signature]  
Scale: NTS  
Revision Date:  
File Name: AS-BUILT  
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### TYPICAL PIPE CROSSING DETAIL W-8

NOTES:

- TYPE "A" CROSSING SHALL BE THE PREFERRED CONFIGURATION. TYPE "B" MAY BE USED ONLY UPON SPECIFIC APPROVAL.
- CONCRETE ENCASEMENT OF A SANITARY SEWER MAIN IS AN ALTERNATIVE METHOD OF ADDRESSING A CONFLICT WHEN 12" VERTICAL SEPARATION DISTANCE CANNOT BE MAINTAINED. IN SUCH INSTANCES, THE MINIMUM PIPE VERTICAL SEPARATION SHALL BE 9" (NOTE THAT THIS DOES NOT APPLY TO SERVICE LATERALS. SEE STANDARD DETAILS S-3A AND S-3B).
- LOWERING OF EXISTING WATER MAIN & FORCE MAIN BY DEFLECTION METHOD MAY BE ACCEPTABLE IF EXISTING FIELD CONDITIONS PERMIT AND APPROVAL IS RECEIVED FROM CODB.
- LENGTH OF SECTION BASED ON MINIMUM LENGTH AS DETERMINED BY DIPRA RESTRAINED JOINT MANUAL.
- INSTALL RESTRAINED JOINTS, AS REQUIRED, FROM DEFLECTION POINT IN BOTH DIRECTIONS (20' MIN.).

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER MAIN SEPARATION CHART W-9

15/16/18 Drawing Date: 01/08  
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Scale: NTS  
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File Name: Pipe Crossing W-8  
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### LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing or Crossings (Joint Centered)
Sanitary Sewer, Stormwater Force Main, Reclaimed Water (9)	Water Main 3 ft. minimum Water Main 10 ft. preferred	Water Main 12 inches vertical clearance, complete sewer system than 6 inches is the minimum and 12 inches is preferred	Alternate 3 ft. minimum Water Main
Vacuum Sanitary Sewer	Water Main 3 ft. minimum Water Main 10 ft. preferred	Water Main 12 inches vertical clearance, complete sewer system than 6 inches is the minimum and 12 inches is preferred	Alternate 3 ft. minimum Water Main
Sanitary or Pressure Sanitary Sewer, Stormwater Force Main, Reclaimed Water (9)	Water Main 3 ft. minimum Water Main 10 ft. preferred	Water Main 12 inches vertical clearance, complete sewer system than 6 inches is the minimum and 12 inches is preferred	Alternate 3 ft. minimum Water Main

Notes:  
(1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.  
(2) 12" for gravity sanitary sewer where the bottom of the water main is held at least 6 inches above the top of the gravity sanitary sewer.  
(3) Reclaimed water not regulated under Part III of Chapter 62-550, F.A.C.  
Source: \*Adaptation is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER MAIN SEPARATION CHART W-9

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### SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)

PIPE SIZE (IN.)	90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE OR DEAD END
4"	21 (26)	18 (18)	18 (18)	18 (18)	37 (55)
6"	30 (36)	18 (18)	18 (18)	18 (18)	52 (78)
8"	38 (45)	18 (18)	18 (18)	18 (18)	67 (100)
10"	45 (54)	18 (22)	18 (18)	18 (18)	81 (122)
12"	52 (63)	22 (26)	18 (18)	18 (18)	94 (141)
14"	60 (72)	25 (30)	18 (18)	18 (18)	107 (160)
16"	66 (80)	27 (33)	18 (18)	18 (18)	120 (180)
18"	74 (87)	31 (36)	18 (18)	18 (18)	132 (198)
20"	80 (94)	33 (39)	18 (18)	18 (18)	144 (216)
24"	92 (108)	38 (45)	18 (22)	18 (18)	167 (250)
30"	106 (128)	44 (53)	21 (25)	18 (18)	199 (298)
36"	121 (144)	49 (58)	24 (28)	18 (18)	229 (343)
42"	137 (162)	55 (65)	27 (32)	18 (18)	267 (399)
48"	154 (180)	61 (72)	30 (35)	18 (18)	303 (451)

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (18' MIN.) OF PIPE TO BE RESTRAINED.  
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.  
TABLE APPLIES TO DUCTILE IRON PIPE FOR THE FOLLOWING CONDITIONS:  
TEST PRESSURE: 150 PSIG  
SOIL TYPE: SP  
COVER DEPTH: 3 FEET (MIN.)  
SAFETY FACTOR: 1.5  
TRENCH TYPE: 2  
VALUES IN PARENTHESIS (X) ARE FOR PIPE ENCASED IN POLYETHYLENE.  
\* VALUES APPLY TO DUCTILE IRON PIPE AT 50 PSI TEST PRESSURE.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

DIP RESTRAINED JOINT TABLE W-10

15/16/18 Drawing Date: 01/08  
Drawn By: [Signature]  
Checked By: [Signature]  
Scale: NTS  
Revision Date:  
File Name: Restraint Joint W-10  
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PROJECT NO. 2015-085

DATE: APRIL 2017  
MCE PROJ. # 0996-0161  
DRAWN: DMP  
DESIGNED: P.J.L.  
CHECKED: CRB  
PROJ. MGR. CRB

SCALE: HORIZONTAL: 1"=20'  
VERTICAL: 1"=4'

MAC FILE NUMBER: 0001-09960161  
DRAWING NUMBER: CD-1

STATUS: ISSUE FOR BIDDING

REVISION

REVISIONS

NO. DESCRIPTION DATE

1 AUGUST 2016

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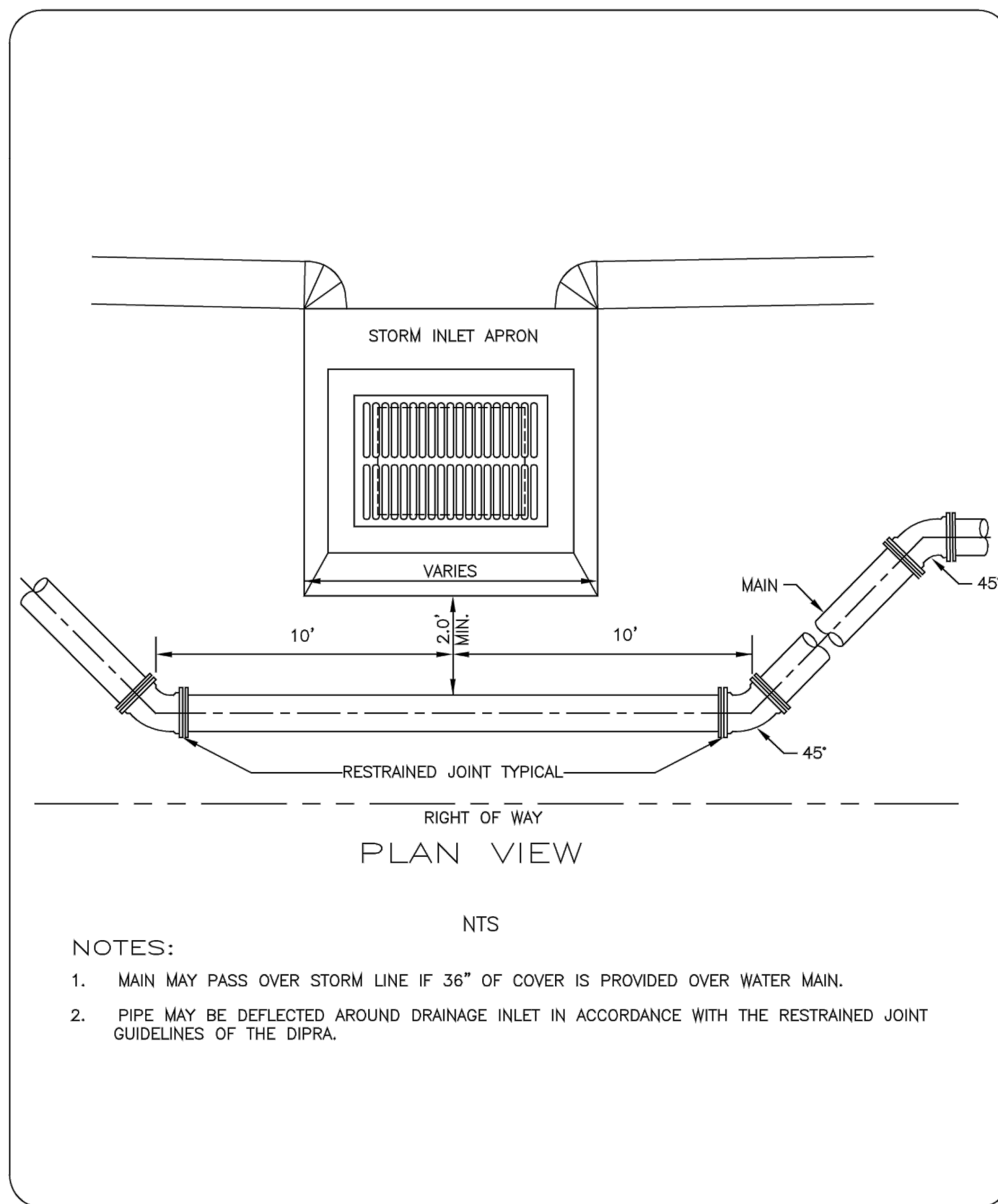
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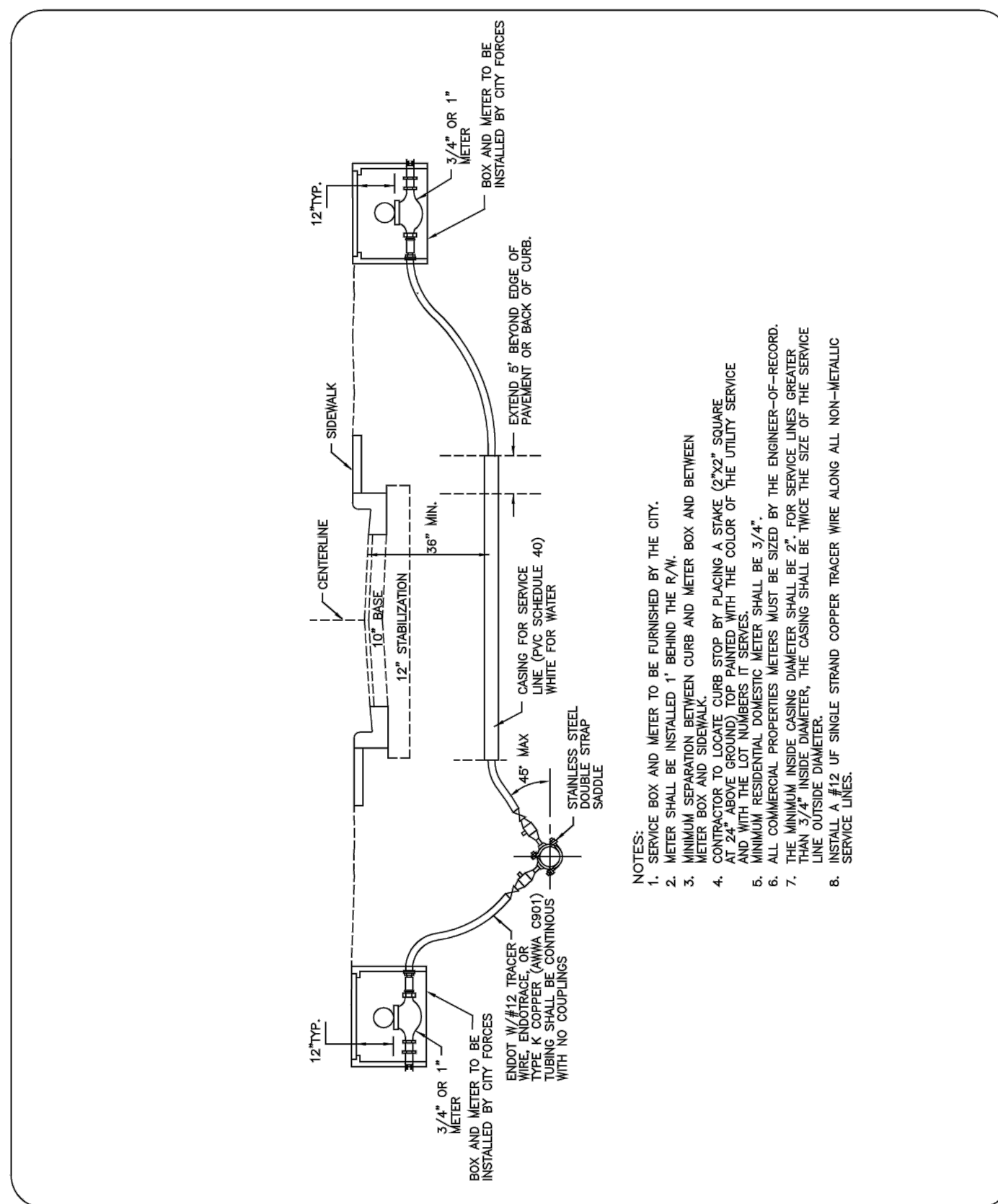
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THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATERMAIN INSTALLATION BETWEEN STORM INLET AND R.O.W. DETAIL  
W-13

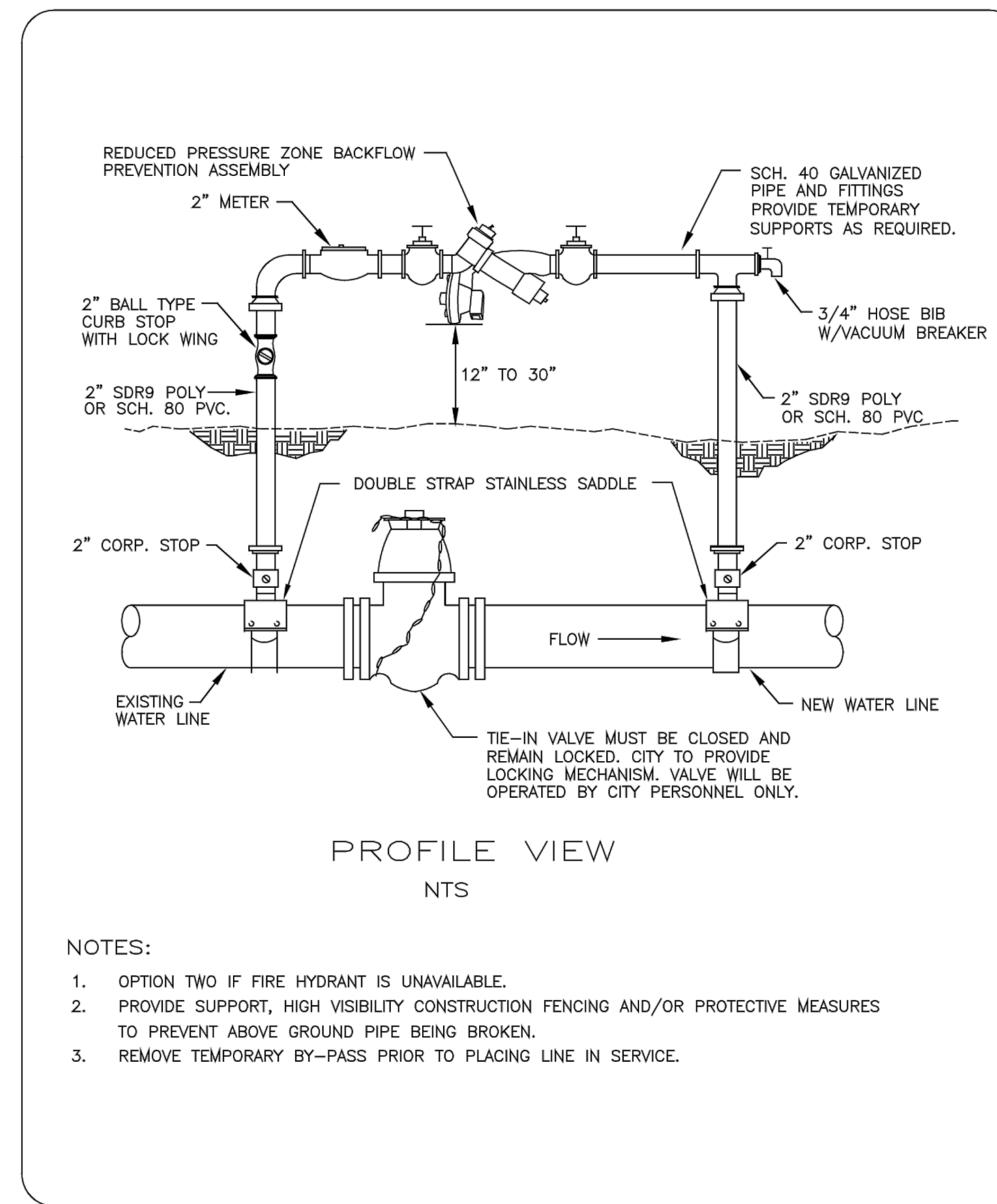
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Drawing Date: 01/08  
Drawn By: KJM  
Checked By: JAP  
Scale: NTS  
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THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER SERVICE CONNECTION (UNDER ROAD)  
PAGE 2 OF 2  
W-21

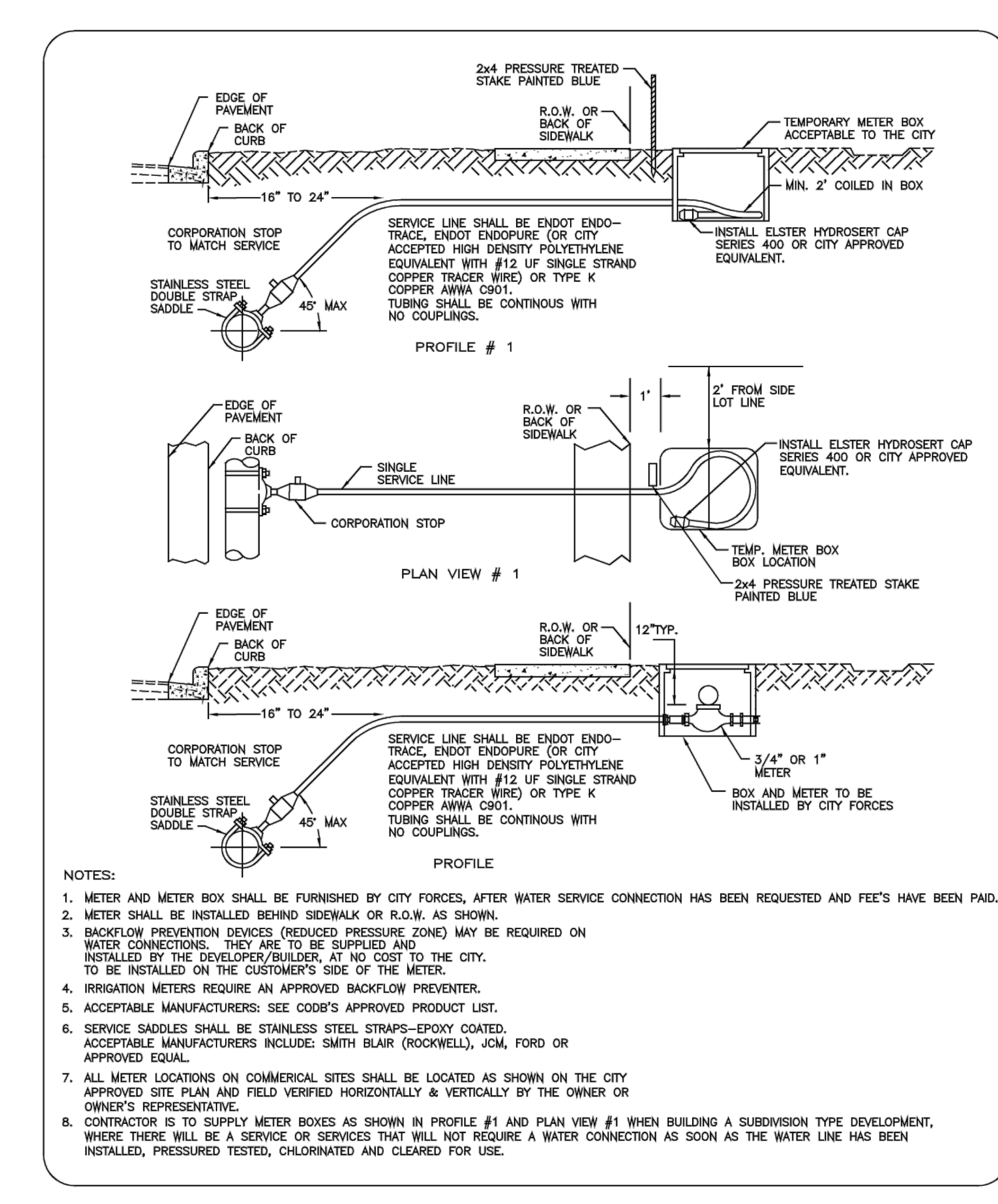
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Page 25



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

TEMPORARY FILL CONNECTION DETAIL  
W-22

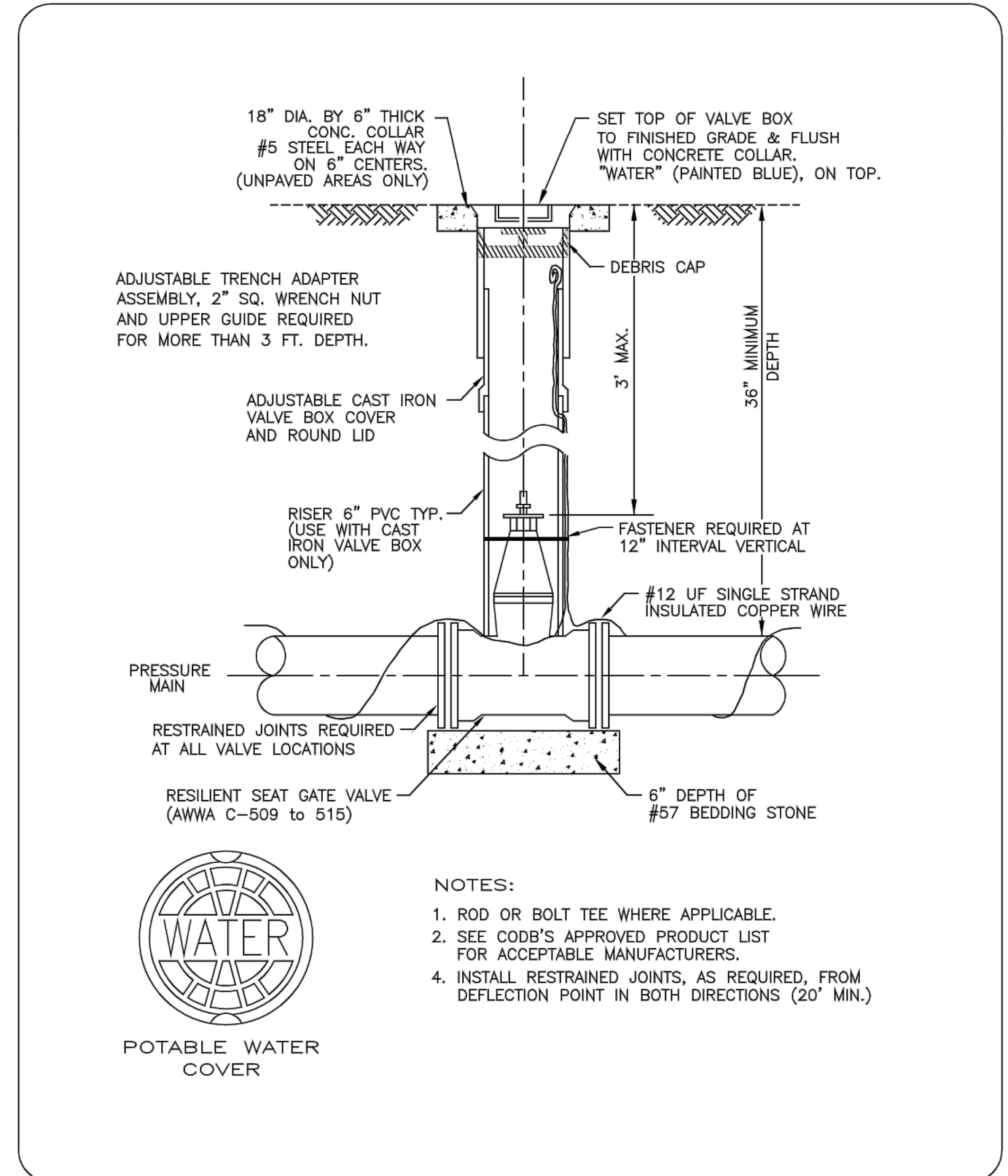
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Page 26



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER SERVICE CONNECTION  
PAGE 1 OF 2  
W-20

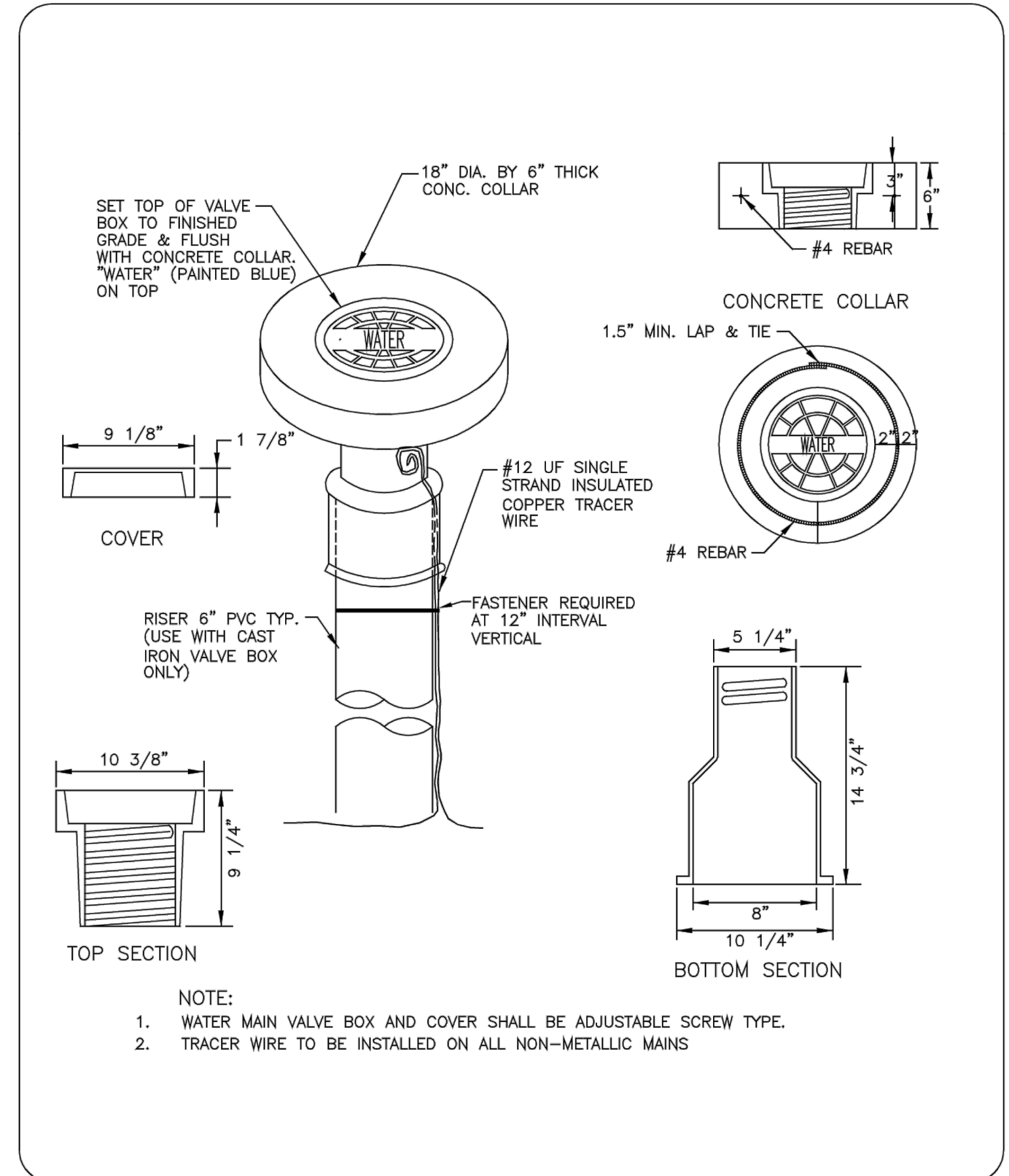
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Revision Date: 12/12  
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Page 24



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

WATER VALVE AND VALVE BOX DETAIL  
W-16

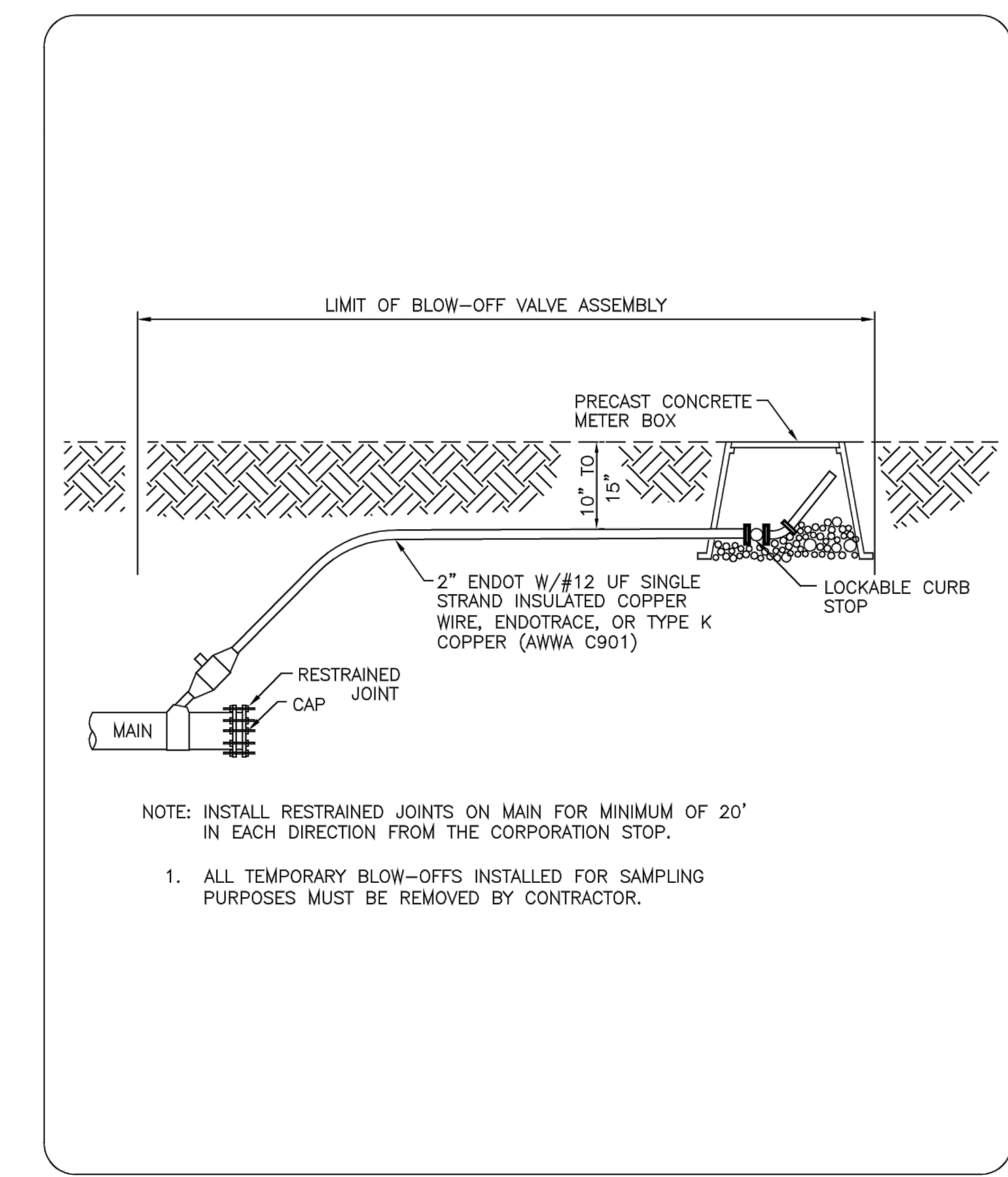
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Revision Date: 12/12  
File Name: Water Valve Box W-16  
Page 20



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

MAIN VALVE BOX DETAIL  
W-17

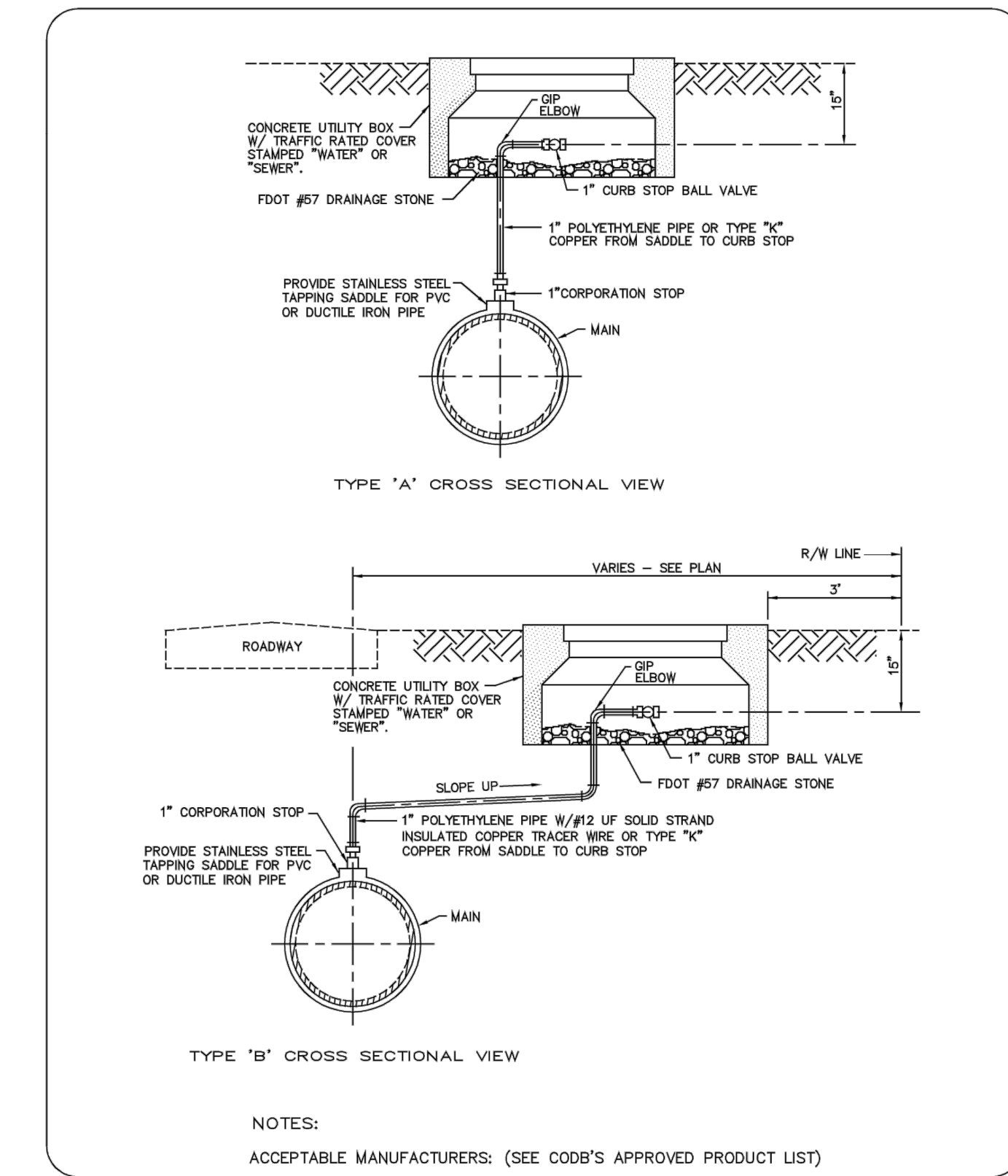
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Revision Date: 12/12  
File Name: Main Valve Box W-17  
Page 21



THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

STANDARD 2" BLOW-OFF VALVE ASSEMBLY DETAIL  
W-30

PY-15/16  
Drawing Date: 01/08  
Drawn By: KJM  
Checked By: JAP  
Scale: NTS  
Revision Date: 12/12  
File Name: Water Blow Off Valve W-30  
Page 34



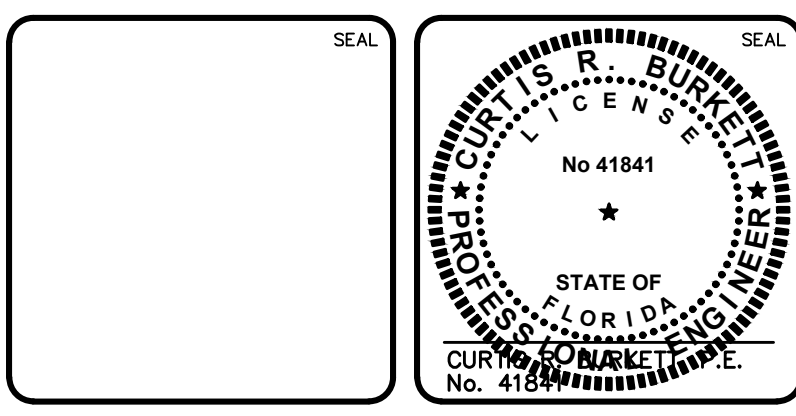
THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

MANUAL AIR RELEASE VALVE DETAIL  
W-24

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Drawing Date: 01/08  
Drawn By: KJM  
Checked By: JAP  
Scale: NTS  
Revision Date: 12/12  
File Name: Manual Air Release Valve W-24  
Page 28

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REV. NO.	DESCRIPTION	DATE
A	ISSUE FOR BIDDING	AUGUST 2018



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THE CITY OF DAYTONA BEACH  
DAYTONA BEACH, FLORIDA

DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT

WATER DETAILS 2

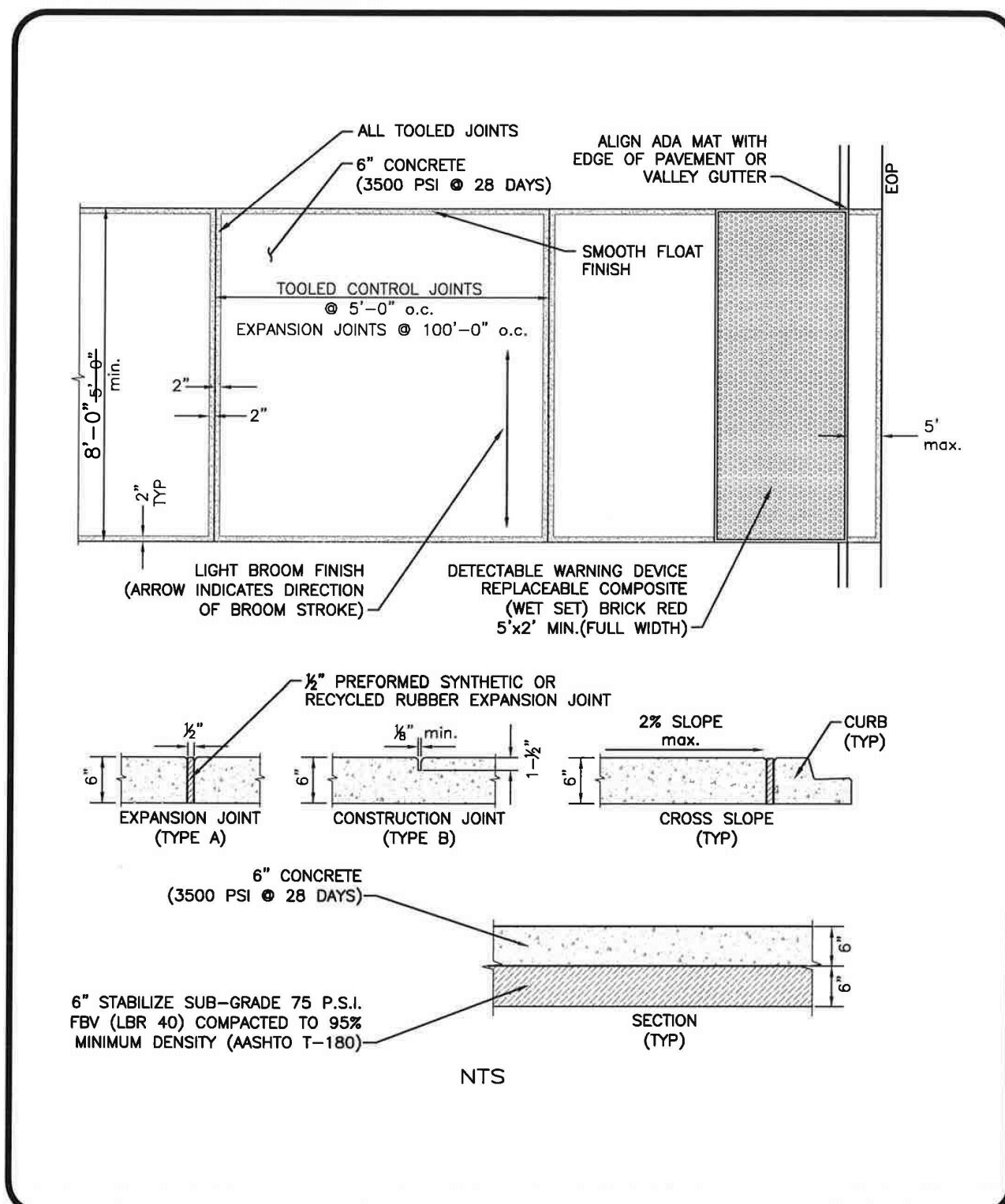
PROJECT NO. 2015-085

DATE: APRIL 2017	SCALE: 1"=20'	MAC FILE NUMBER: 0001-09960161
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DRAWN: DJM	VERTICAL: 1"=4'	
DESIGNED: P.L.		
CHECKED: CRB		
PROJ. MGR. CRB		

STATUS: ISSUE FOR BIDDING



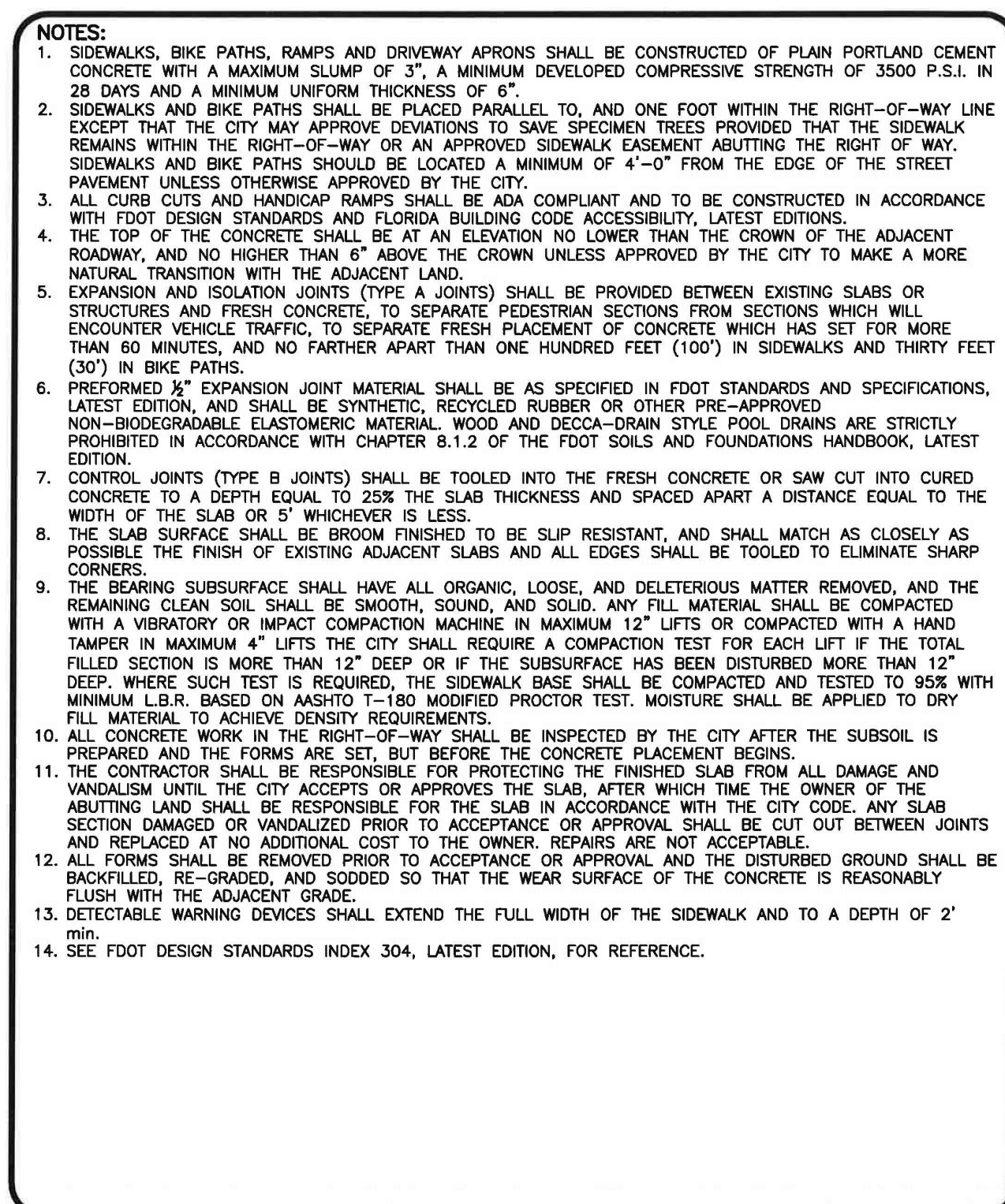




**THE CITY OF DAYTONA BEACH ENGINEERING DIVISION**

**SIDEWALK CONSTRUCTION DETAIL**  
C-1

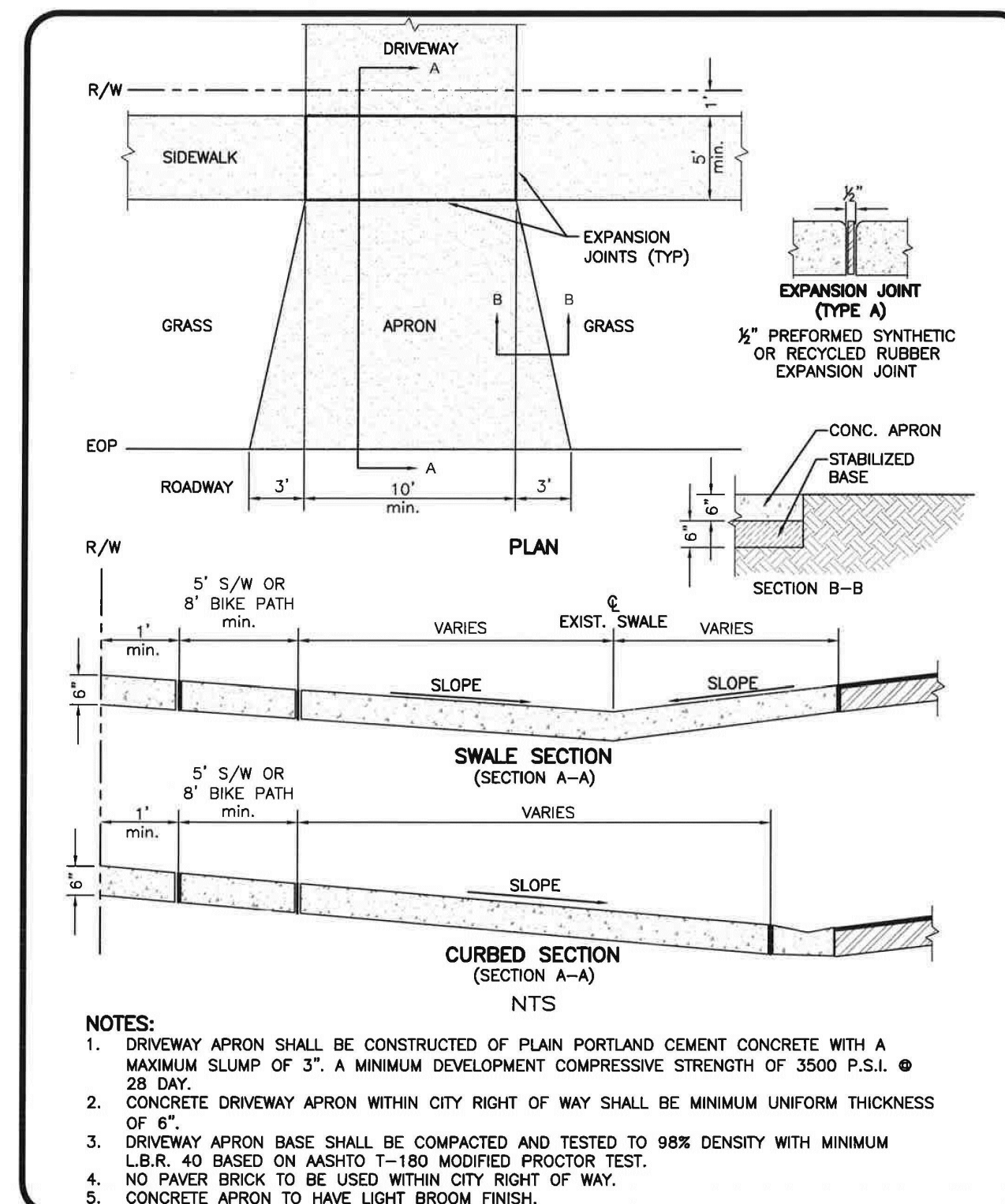
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File Name: ac-1



**THE CITY OF DAYTONA BEACH ENGINEERING DIVISION**

**SIDEWALK/BIKE TRAIL CONSTRUCTION NOTES**  
C-3

Drawing Date: 09/2003  
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Checked By: [Signature]  
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Revision Date: 12/2013  
File Name: ac-3



**THE CITY OF DAYTONA BEACH ENGINEERING DIVISION**

**CONCRETE DRIVEWAY APRON DETAIL**  
C-8

Drawing Date: 09/2003  
Drawn By: [Signature]  
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Revision Date: 02/2014  
File Name: ac-8

**SITE CLEARING AND GRADING NOTES**

THE FOLLOWING REPRESENTS MINIMUM STANDARDS TO BE ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION OF A PROJECT. THE CITY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO BE EMPLOYED WHEN WARRANTED BY EXTREME CONDITIONS AND/OR THE FAILURE OF THE CONTRACTOR TO EMPLOY THE APPROPRIATE EROSION CONTROL BEST MANAGEMENT PRACTICES. FAILURE TO COMPLY WITH THESE PROVISIONS SHALL RESULT IN THE ISSUANCE OF A "STOP WORK ORDER".

- NO DISTURBANCE OF EXISTING OR PROPOSED CONSERVATION EASEMENTS, NATURAL BUFFERS, OR WATER BODIES IS PERMITTED WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER OR DESIGNEE. THE CONTRACTOR SHALL LOCATE THESE AREAS ON SITE AND BARRICADE THEM TO AVOID ANY UNAUTHORIZED CLEARING, BARRICADES AND OTHER PROTECTIVE FENCING ARE TO BE LOCATED AT THE DRIP LINE OF EXISTING NATIVE TREES OR AT THE EDGE OF THE NATIVE UNDER-STORY HABITAT, WHICHEVER IS NEAREST TO THE CONSTRUCTION ACTIVITY.
- SPECIMEN AND HISTORIC TREES, CONSERVATION EASEMENTS, NATURAL VEGETATION BUFFERS, AND SIMILAR AREAS MUST BE PROTECTED BY BARRICADES OR FENCING PRIOR TO CLEARING. BARRICADES ARE TO BE SET AT THE DRIP LINE OF THE TREES AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. BARBED WIRE IS NOT PERMITTED AS A PROTECTIVE BARRIER.
- WHERE A CHANGE OF GRADE OCCURS AT THE DRIP LINE OF A SPECIMEN TREE, SILT FENCE WILL BE REQUIRED DURING CONSTRUCTION AND RETAINING WALLS MUST BE INSTALLED PRIOR TO FINAL ACCEPTANCE BY THE CITY.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL PROTECTIVE VEGETATION BARRICADES AND EROSION CONTROL STRUCTURES AND MEASURES IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK, INCLUDING PRELIMINARY GRUBBING. THESE MEASURES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY CONSTRUCTION FENCES, SYNTHETIC JUTE BALES, SILT FENCES, AND FLOATING TURBIDITY BARRIERS. FURTHER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION CONTROL DEVICES THROUGHOUT THE DURATION OF THE ENTIRE PROJECT. MAINTENANCE SHALL INCLUDE PERIODIC INSPECTION AND REMOVAL OF DEBRIS ABUTTING EROSION CONTROL DEVICES IN ACCORDANCE WITH THE CITY'S UTILITY DEPARTMENT STANDARDS.
- PRIOR TO THE INSTALLATION OF MATERIAL ON SUBJECT SITE, SILT FENCE SHALL BE INSTALLED:
- ALONG SUBJECT SITE BOUNDARY AND PROPERTY LINES,
- AT THE EDGE OF CONSERVATION EASEMENTS AND WETLANDS,
- ADJACENT TO NATURAL LANDSCAPE BUFFERS,
- AROUND THE PERIMETER OF EXISTING STORM WATER TREATMENT FACILITIES.
- AT ANY ADDITIONAL AREAS THAT THE CITY DEEMS NECESSARY TO BE PROTECTED FROM POTENTIAL EROSION IMPACTS DURING CONSTRUCTION. THESE CONDITIONS SHALL APPLY IN ALL INSTANCES WHERE FILL MATERIAL IS BEING INSTALLED WITHIN 25 FEET OF ANY OF THE AFOREMENTIONED LOCATIONS. WHILE THESE ITEMS REPRESENT THE MINIMUM REQUIREMENTS, THE CITY RESERVES THE RIGHT TO IMPOSE ADDITIONAL PROTECTIVE MEASURES, AS DETERMINED DURING ACTUAL SITE VISITS CONDUCTED AS PART OF THE STANDARD REVIEW OF THE SITE-SPECIFIC CLEARING PERMIT AND THROUGHOUT PROJECT CONSTRUCTION.
- WHERE FILL MATERIAL IS INTENDED TO BE INSTALLED ADJACENT TO EXISTING VEGETATION WHICH IS INTENDED TO REMAIN NATURAL, THE CONTRACTOR MAY INSTALL SILT FENCING AS A TREE PROTECTION MEASURE. IN LIEU OF INSTALLING EITHER WOOD BRACING OR ORANGE MESH FENCING, THIS PRACTICE IS ENCOURAGED BY THE CITY, IF THE SILT FENCE FAILS TO PROVIDE ADEQUATE PROTECTION FROM IMPACT DUE TO CONSTRUCTION, THEN ADDITIONAL CONSTRUCTION FENCING OR WOOD BRACING SHALL BE REQUIRED.
- AT A MINIMUM, THE CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS. GRASS COVERAGE IS TO BE ESTABLISHED WITHIN THIRTY DAYS.
- IF IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THROUGH SCHEDULING, TO MINIMIZE THE DISTURBANCE OF SITE AREAS THAT HAVE BEEN BROUGHT TO THEIR PROPOSED FINAL GRADE, WITHIN TWENTY DAYS OF BRINGING A SUBJECT AREA TO ITS FINAL GRADE, THE CONTRACTOR SHALL INSTALL SEED AND MULCH OR SOD AND WATERING, AS REQUIRED.
- FOR INDIVIDUAL CONSTRUCTION PROJECTS INVOLVING MULTIPLE PHASES, UPON COMPLETION OF EACH PHASE OF THE PROJECT, SEEDING AND MULCHING AND/OR SODDING IS TO BE PERFORMED PRIOR TO COMMENCING THE NEXT PHASE OF CONSTRUCTION.

**THE CITY OF DAYTONA BEACH ENGINEERING DIVISION**

**SITE CLEARING & GRADING NOTES**  
C-16A

Drawing Date: 07/2003  
Drawn By: [Signature]  
Checked By: [Signature]  
Scale: [Blank]  
Revision Date: 10/2011  
File Name: ac-16

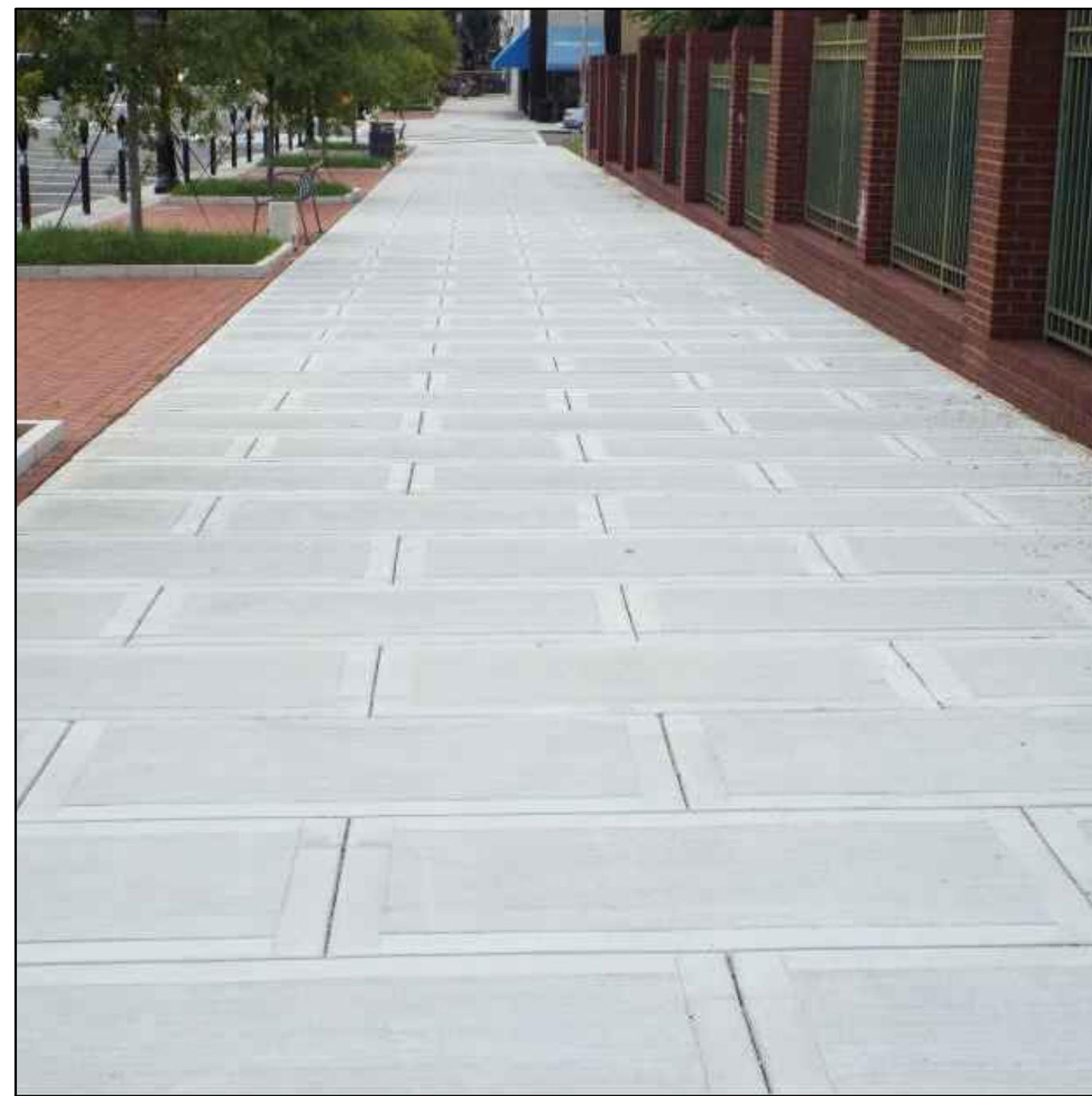
**SITE CLEARING AND GRADING NOTES (CONT)**

- ONCE AN AREA IS SEEDED OR SODDED, IT MUST BE MAINTAINED, INCLUDING WATERING AND TRIMMING BY THE CONTRACTOR TO ALLOW THE GRASS TO BECOME ESTABLISHED.
- ANY BURNING OF CLEARED MATERIALS MUST BE INSPECTED AND PERMITTED ON A DAILY BASIS. CONTACT THE PERMITS AND LICENSING DIVISION PRIOR TO EACH DAY OF DESIRED BURNING.
- ABSOLUTELY NO BURYING OF CLEARED & GRUBBED MATERIALS IS PERMITTED.
- THE REMOVAL OF ALL VEGETATION AND TOPSOIL ON THE FUTURE ROADWAY, PARKING AND BUILDING LOT AREAS IS REQUIRED TO BE COMPLETED PRIOR TO THE PLACEMENT OF FILL ON THOSE AREAS. THE TOPSOIL MAY BE TEMPORARILY STOCKPILED AND USED AS TOPSOIL OVER PROPOSED GREEN AREAS SUCH AS PLANT BEDS, SODDED AREAS, AND WHERE TREES ARE TO BE INSTALLED OR RELOCATED. TEMPORARY STOCKPILE SLOPES SHALL NOT EXCEED 4:1 (H:V).
- A SIGNED, DATED, AND SEALED LETTER FROM A SOILS ENGINEER OR THE ENGINEER OF RECORD CERTIFYING THAT THE AREAS TO BE FILLED HAVE BEEN STRIPPED OF ORGANIC MATERIALS, MUST BE SUBMITTED TO THE CITY PRIOR TO FILLING.
- FILL MATERIAL IS TO BE PLACED IN ONE FOOT LIFTS AND COMPACTED TO THE APPROPRIATE DENSITY (98% FOR PAVED AREAS AND 90% FOR BUILDING PADS AND ALL OTHER AREAS AS PER MODIFIED AASHTO T-180).
- DURING SUBDIVISION DEVELOPMENT WHEN FUTURE BUILDING LOTS ARE FILLED AS PART OF THE OVERALL SUBDIVISION IMPROVEMENTS, COMPACTION TEST REPORTS MUST BE PERFORMED ON THESE LOTS AT 300' INTERVALS. THESE TESTS ARE TO BE PERFORMED IN 1' VERTICAL INCREMENTS. THE RESULTS OF THESE TESTS ARE TO BE SUBMITTED TO THE CITY UPON COMPLETION OF THE TESTS.
- IF ANY MUCK OR ANY UNSUITABLE MATERIAL IS DISCOVERED, IT SHALL BE REMOVED AND REPLACED WITH A SUITABLE MATERIAL THAT IS PROPERLY BACKFILLED, COMPACTED AND TESTED USING AASHTO T-180 MODIFIED PROCTOR METHOD.
- STOCKPILING IS NOT GENERALLY PERMITTED BY THE CITY. WHEN ALLOWED, STOCKPILES SHALL NOT EXCEED SIX FEET IN HEIGHT MEASURED FROM THE ORIGINAL GRADE. AT A MINIMUM, STOCK PILES THAT WILL REMAIN IN PLACE IN EXCESS OF FIVE DAYS SHALL BE COVERED OR WATERED TO MINIMIZE THE ADVERSE IMPACT ON ADJACENT PROPERTY OWNERS AT NO ADDITIONAL COST TO THE CITY OR OWNER. SEED AND MULCH IMMEDIATELY UPON PLACEMENT OF THE FINAL LIFT.
- SOILS ARE TO BE STABILIZED BY WATER OR OTHER MEANS DURING CONSTRUCTION. THIS IS INTENDED TO REDUCE SOIL EROSION AND THE IMPACT TO NEIGHBORING COMMUNITIES. ADEQUATE WATERING METHODS SHOULD BE EMPLOYED TO ALLOW DAILY COVERAGE OF THE ENTIRE LIMITS OF ALL AREAS THAT DO NOT HAVE AN ESTABLISHED VEGETATIVE COVER. METHODS TO BE EMPLOYED INCLUDE, BUT ARE NOT LIMITED TO, WATER TRUCKS, PERMANENT IRRIGATION SYSTEMS, TEMPORARY SPRINKLER SYSTEMS OPERATED BY PUMPING UNITS CONNECTED TO WET RETENTION PONDS, WATER CANNONS, TEMPORARY IRRIGATION SYSTEMS MOUNTED ATOP STOCKPILE AREAS, AND OTHER METHODS AS DEEMED NECESSARY BY THE CITY.
- ALL FILL MATERIALS LOCATED BENEATH STRUCTURES AND PAVEMENT SHALL CONSIST OF CLEAN GRANULAR SAND FREE FROM ORGANICS AND SIMILAR MATERIAL THAT COULD DECOMPOSE.
- ALL FILL TO BE PLACED IN LANDSCAPED AREAS SHALL HAVE A PH RANGE BETWEEN 6.5 AND 7.5, BE ORGANIC IN NATURE, FREE OF ROCKS AND DEBRIS, OR MATCH NATIVE EXISTING SOILS.

**THE CITY OF DAYTONA BEACH ENGINEERING DIVISION**

**SITE CLEARING & GRADING NOTES**  
C-16B

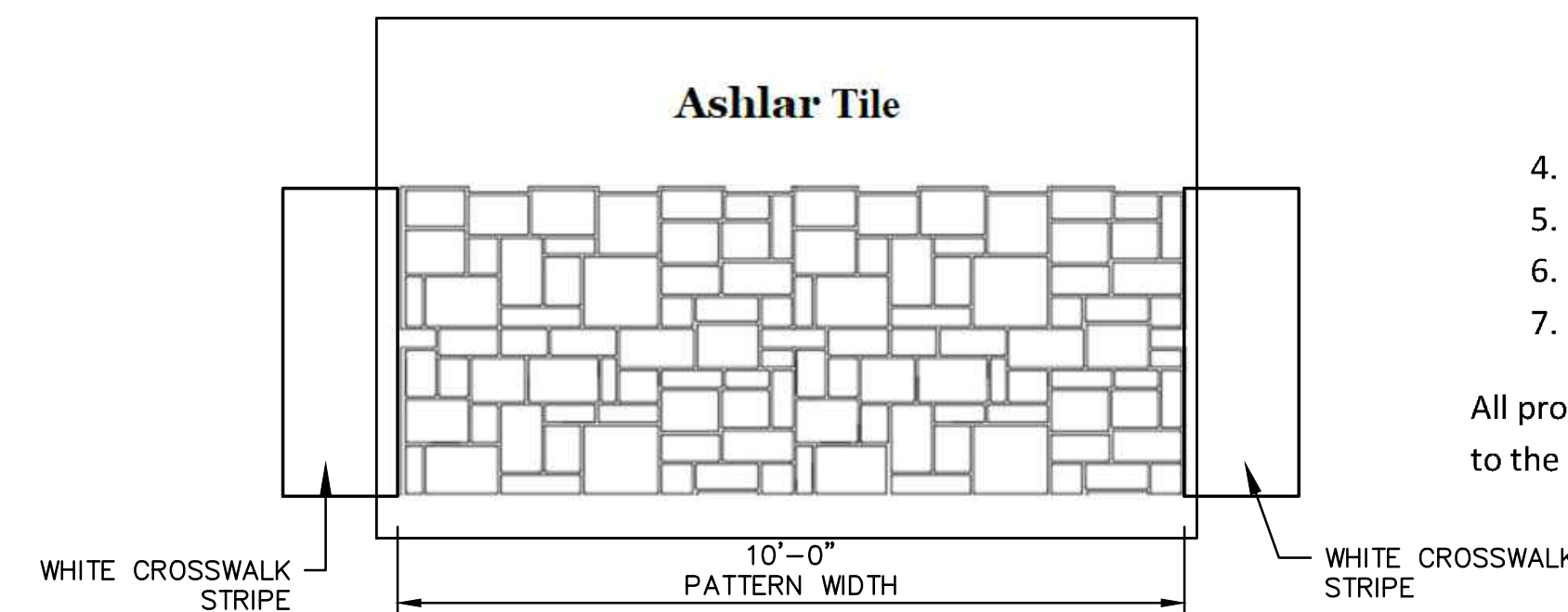
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Drawn By: [Signature]  
Checked By: [Signature]  
Scale: [Blank]  
Revision Date: 10/2011  
File Name: ac-16



**TYPICAL SIDEWALK PATTERN & DETAIL**  
NOT TO SCALE

**NOTE:** SIDEWALK TO DEVIATE FROM CITY STANDARD BY PROVIDING THE FOLLOWING:

- SMOOTH TROWEL FINISH
- WINDOW PATTERN (STAGGERED) (SEE PHOTO)



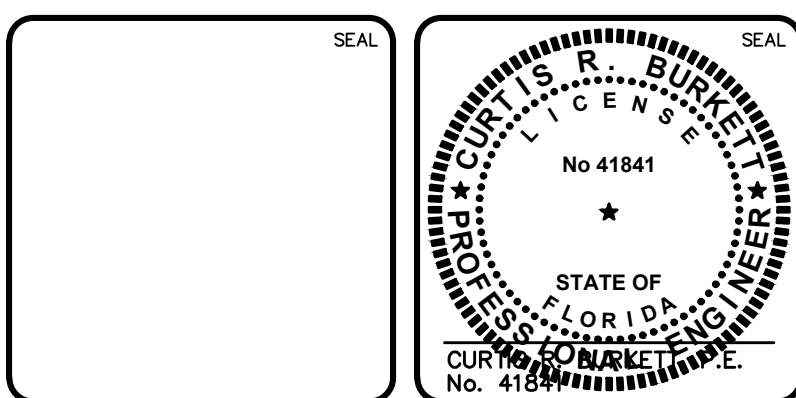
**STAMPED ASPHALT CROSSWALK**  
NOT TO SCALE

**STAMPED ASPHALT CROSSWALK NOTES:**

- Installation is to take place on a fully cured substrate. The asphalt surface is to have a full cure of 14 days, minimum.
- Product is to be as follows"
  - Florida Department of Transportation (FDOT)
  - Section 523: S523, Patterned – Textured Pavement
  - Approved Product List (APL) Certification No.: 523-000-003
- Paveway Systems, Inc.;
  - 114 Indian Lakes Lane, Florahome, Florida 32140
  - Phone: 386/659-1316
  - [www.pavewaysystems.com](http://www.pavewaysystems.com)
- Proposed Color shall be Amber B-20 for all crosswalks
- Proposed Pattern Shall be Ashlar Tile
- Crosswalks are to match the color and style of the existing crosswalks on Orange Avenue
- Shop Drawing submittal is required.

All product and installation shall be in accordance with Paveway Systems, Inc. or equal and shall adhere to the produce specifications provided by the manufacture.

REV. NO.	ISSUE FOR BIDDING	DESCRIPTIONS	DATE
A	ISSUE FOR BIDDING		AUGUST 2016



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**THE CITY OF DAYTONA BEACH, FLORIDA**

**DR. MARTIN LUTHER KING, JR. BOULEVARD-ROADWAY AND PEDESTRIAN IMPROVEMENTS PROJECT**

**CIVIL DETAILS**

**PROJECT NO. 2015-085**

DATE: APRIL 2017  
MCE PROJ. #: 0996-0161  
DRAWN: DMP  
DESIGNED: P.J.L.  
CHECKED: CRB  
PROJ. MGR.: CRB

SCALE: HORIZONTAL: 1"=20'  
VERTICAL: 1"=4'

M&C FILE NUMBER: 0001-09960161  
DRAWING NUMBER: CD-4

STATUS: ISSUE FOR BIDDING

SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS

- 1. THE CITY'S UTILITIES DEPARTMENT SHALL BE GIVEN A MINIMUM OF 2 BUSINESS DAYS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS) PRIOR TO BEGINNING ANY SANITARY SEWER CONSTRUCTION.
2. ALL DEWATERING ACTIVITIES EITHER DIRECTLY DISCHARGED OR THAT SUBSEQUENTLY USE THE CITY'S STORMWATER SYSTEM TO CONVEY GROUND OR SURFACE WATER FROM A SITE SHALL REQUIRE A STANDARD OR GENERAL USE PERMIT AS PER ARTICLE 7 SECTION 7 OF THE LAND DEVELOPMENT CODE.
3. UPON COMPLETION, THE CONTRACTOR SHALL PROVIDE THE CITY UTILITIES DEPARTMENT WITH A CCTV INSPECTION LOG ON DVD AND A PRINTED REPORT FOR ALL GRAVITY MAINS AND LATERALS.
4. SEWER LATERALS LOCATIONS SHALL BE MARKED ALONG THE OUTSIDE OF THE CURB WITH A SAW CUT 'X', OR BY A METAL TAB SET INTO THE PAVEMENT.
5. THE CONTRACTOR SHALL BE REQUIRED TO PIG ALL FORCE MAINS EQUAL TO OR GREATER THAN 6" IN DIAMETER AND PRIMARY TRANSMISSION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS.
6. WITH RESPECT TO THE IN-CONNECTIONS AND CORING OPERATIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6:00 A.M.) IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS.
7. ALL WORK PERFORMED UPON SANITARY SEWER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY SHALL BE CONSTRUCTED BY A LICENSED UNDERGROUND UTILITY CONTRACTOR OR LICENSED GENERAL CONTRACTOR, WHO IS LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.
8. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND AS-BUILTS ARE PROVIDED TO THE CITY UTILITIES DEPARTMENT PRIOR TO ANY USE OF THE SYSTEM.
9. FOR CONSTRUCTION PURPOSES, THE PLANS SHALL DIMENSION THE LOCATION OF ALL FORCE MAINS, VALVES, MANHOLES & LATERALS FROM THE BASELINE CONSTRUCTION AND FROM RIGHT-OF-WAY BOUNDARIES.
10. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORM WATER INFRASTRUCTURE IN ORDER TO EVALUATE POTENTIAL CONFLICTS.
11. ALL SANITARY STANDARD DETAILS SHALL APPLY TO ALL CONSTRUCTION WORK PERFORMED IN THE CITY OF DAYTONA BEACH BY REFERENCE TO THESE NOTES (S-1 TO S-16).
12. ALL PLUG VALVES SHALL BE IDENTIFIED AS SUCH WITH AN ENGRAVED BRASS 2" x 6" NAME PLATE EMBEDDED IN SURFACE OF CONCRETE COLLAR.
13. FOR AS-BUILTS INFORMATION SEE THE CITY'S AS-BUILT DRAWING REQUIREMENTS ATTACHED TO THE BACK OF THE UTILITIES DEPARTMENT'S STANDARD DETAILS.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (PAGE 1 OF 4) S-1

SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (CONTD)

- 14. ALL LIFT STATION WETWELL FASTENERS AND THROUGH-TOP CONNECTORS THAT CONTACT THE WETWELL (SUCH AS NUTS) SHALL BE 3/8" SS FASTENERS.
15. ALL GRAVITY SANITARY SEWER MAIN LINES SHALL BE 8" DIAMETER MINIMUM COMMERCIAL SERVICE LATERALS ALL SHALL BE GREEN 6" DIA. OR LARGER. ALL SINGLE FAMILY RESIDENTIAL SERVICE LATERALS SHALL BE 6" - SINGLE SERVICES WITH CLEAN OUTS INSTALLED AT PROPERTY LINE.
16. ALL GRAVITY SANITARY SEWER MAIN LINES SHALL BE GREEN PVC SDR-26, ASTM D-3034, OR C-900 (20" MINIMUM PRESSURE CLASS 100) IN PLACES WHERE A MINIMUM COVER OF 4'-0" CANNOT BE MAINTAINED OR IN DEPTHS OF TEN (10) FEET OR GREATER C-900 OR C-1000 GREEN PVC SDR-26, MINIMUM PRESSURE CLASS 100 SHALL BE USED.
17. FOR SINGLE FAMILY HOMES, SINGLE SIX INCH SEWER SERVICE LATERALS SHALL BE CONSTRUCTED AT EACH LOT OR UNIT AND LOCATED ON THE DOWNSTREAM SIDE OF THE LOT CENTER LINE.
18. FOR MULTI-FAMILY AND COMMERCIAL SITES, SIX INCH MINIMUM SEWER SERVICES AND CLEANOUTS SHALL BE PROVIDED AS APPROVED BY THE CITY.
19. ALL SANITARY SEWER FORCE MAINS, INCLUDING FITTINGS, SHALL BE DUCTILE IRON PIPE (DIP), EXCEPT CLASS 3000 FORCE MAIN MINIMUM DEPTH OF COVER SHALL BE 36" ALL FORCE MAINS SHALL BE DISTINGUISHED BY GREEN PAINT OR WRAP. ALL NON-PIP PROFESSIONAL CONDITIONING (PVC) SHALL BE USED FOR ALL NON-PIP. ALL NON-PIP HORIZONTAL DIRECTIONAL DRILL FORCE MAINS SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 160 PSI. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING DEPENDENT ON SITE CONDITIONS.
20. ALL SANITARY SEWER FORCE MAINS SHALL USE A THRUST RESTRAINT JOINT METHOD IN COMPLIANCE WITH THE DUCTILE IRON PIPES RESEARCH ASSOCIATION GUIDELINES. IN NO INSTANCE SHALL THRUST BLOCKS BE PERMITTED.
21. AS A GENERAL RULE, THE NUMBER OF JOINTS SHALL BE LIMITED WHENEVER POSSIBLE. IN SPECIAL CASES WHERE A JOINT NEAR TO AN 8" TO 12" PVC SEWER MAIN IS REQUIRED, THE PROPER RIGID WRAP AROUND SLAVE MAY BE ALLOWED BY SPECIAL APPROVAL BY THE CITY.
22. ALL IN-LINE SANITARY SEWER FORCE MAIN VALVES SHALL BE RESILIENT SEAT GATE VALVES UNLESS OTHERWISE NOTED. VALVES SHALL BE SPACED A MAXIMUM OF 1000 FEET APART.
23. ALL C-900 PVC PIPE REQUIREMENTS ARE REFERENCED TO THE C-900-97 STANDARDS, OR UPDATES THERE TO. BURST PROTECTION MAY BE REQUESTED WHEN USING THE C-900-97 STANDARDS.
24. MINIMUM GRAVITY SANITARY SEWER SLOPES ARE AS FOLLOWS:
10" PIPE: 0.40%
12" PIPE: 0.26%
15" PIPE: 0.22%
18" PIPE: 0.15%
OR OTHERWISE NOTED BY THE UTILITIES DEPARTMENT.
25. GRAVITY SANITARY SEWER LINES SHALL BE INSTALLED WHENEVER POSSIBLE UNDER PAVED AREAS WITH PUBLIC RIGHT-OF-WAY. UTILITY EASEMENTS SHALL BE PROVIDED WHEN SEWER PUBLICLY-OWNED SEWER LINES ARE CONSTRUCTED OUTSIDE OF A PUBLIC RIGHT-OF-WAY.
26. GRAVITY SANITARY SEWER LINE CONSTRUCTION SHALL BE ACCOMPLISHED BY THE USE OF A LASER INSTRUMENT UNLESS ANOTHER METHOD IS PREVIOUSLY APPROVED BY THE CITY.
27. THE CONTRACTOR SHALL AT ALL TIMES, DURING PIPE LAYING OPERATIONS, DEWATER THE GROUND SUFFICIENTLY TO KEEP THE GROUNDWATER ELEVATION A MINIMUM OF 6" BELOW THE PIPE BEING LAID WITHIN THE AREA OF THE TRENCH.
28. ALL PIPES SHALL BE LAID ON A FIRM FOUNDATION, SOFT OR SPONGY BEDDING FOR PIPES IS NOT ACCEPTABLE. ANY UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH A DRY, COMPACTED, GRANULAR MATERIAL, SATISFACTORY TO THE CITY.
29. ON ALL EXCAVATION AND BACKFILLING THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING AND BRACING IN ORDER TO PROVIDE FOR THE SAFETY OF WORKERS, AS WELL AS REPRESENTATIVES OF THE CITY, THE DESIGN ENGINEER, AND THE DEVELOPER.
30. ALL TRENCHES SHALL BE BACKFILLED WITH ACCEPTABLE MATERIAL AND COMPACTED TO THE SPECIFIED MINIMUM COMPACTION (SEE IN UNPAVED AREAS AND 8% IN PAVED AREAS) OF THE OPTIMUM DENSITY OF THAT MATERIAL BASED ON THE AASHTO T-180 MODIFIED PROCTOR TEST.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (CONTD) (PAGE 2 OF 4) S-2

SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (CONTD)

- 31. THE CONTRACTOR SHALL INSTALL A #12 UF SINGLE STRAND COPPER WIRE, OR SIMILAR DEVICE AS MAY BE APPROVED BY THE CITY FOR THE FULL LENGTH OF ALL NON-METALLIC SEWER FORCE MAINS. THIS PIPE LOCATOR AND SHALL BE INSTALLED BETWEEN 15" AND 24" BELOW FINISHED GRADE OR AS DIRECTED BY THE MANUFACTURER. TAPE SHALL BE COLOR CODED GREEN FOR SANITARY SEWER AND FORCE MAIN, LOCATOR WIRE/DEVICE SHALL TERMINATE AT A LOCATION AND IN A MANNER CONVENIENT FOR CITY LOCATOR STAFF.
32. ALL SEWER LINES WHICH ARE CONSTRUCTED OUTSIDE OF PUBLIC RIGHT-OF-WAYS WITHIN SIDE YARDS, BACKYARDS, AND OTHER POORLY ACCESSIBLE AREAS SHALL BE CONSTRUCTED OF 18" DIA. LOCAL COLLECTION SANITARY SEWER MANHOLES SHALL BE PRECAST WITH A MINIMUM INSIDE DIAMETER OF 4 FEET. MANHOLES OVER 6 FEET IN DEPTH SHALL HAVE THE BOTTOM PRE-CAST SECTION AT A MINIMUM OF FOUR FEET TALL.
33. STANDARD MANHOLES SHALL BE LOCATED AT INTERVALS NOT EXCEEDING 400 FEET.
34. ALL SEWER FITTINGS TO BE "HARGO" OR APPROVED EQUAL.
35. MANHOLE RIMS SHALL MATCH FLUSH WITH THE FINISH GRADE ELEVATION IN PAVED AREAS AND A MINIMUM OF 0.5 FEET AND MAXIMUM OF 1.0 FEET ABOVE GRADE GENERALLY IN UNPAVED AREAS.
36. THE CONTRACTOR SHALL CONSTRUCT SANITARY SEWER MANHOLES IN SUCH A WAY THAT SEWER LINES DO NOT INTERSECT SEALED JOINTS BETWEEN SECTIONS OF THE MANHOLE.
37. RUBBER ROOTS AND STAINLESS STEEL BANDS SHALL BE UTILIZED IN THE CONNECTION OF THE SEWER MAIN TO THE MANHOLES (SEE STANDARD MANHOLE AND ROOT DETAIL).
38. INDIVIDUAL SANITARY SERVICE CONNECTORS ON MANHOLE CONSTRUCTION SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES, AND MUST BE CONNECTED TO SEWER MAIN LINES BY USE OF WYE CONNECTIONS, UNLESS OTHERWISE APPROVED BY THE CITY.
39. SANITARY SEWER DROP MANHOLES SHALL ONLY BE USED UNDER SPECIAL CONDITIONS AS APPROVED BY THE CITY.
40. ALL SANITARY SEWER MANHOLE COVERS SHALL HAVE THE WORD "SANITARY" CAST INTO THEM AS SHOWN ON DETAIL S-9.
41. SANITARY SEWER MANHOLES WHICH HAVE SEWER FORCE MAINS DISCHARGING DIRECTLY INTO THEM SHALL BE FIBERGLASS OR POLY-ETHYLENE LINED. RETRO-FITTING OF MANHOLES WITH LINERS SHALL BE REQUIRED WHEN NEW CONNECTIONS SUCH AS THIS ARE MADE. FIBERGLASS SHALL BE A MINIMUM 1/2" THICKNESS UNLESS APPROVED OTHERWISE BY THE CITY. OTHER TYPES OF LINING MATERIALS AND MATERIALS MAY BE CONSIDERED ON A CASE BY CASE BASIS. UNDER SPECIAL CIRCUMSTANCES WHERE HYDROGEN SULFIDE IS A MAJOR CONCERN MANHOLES UPSTREAM AND/OR DOWNSTREAM OF THE FORCE MAIN TIE-IN OR WET WELL MAY ALSO BE REQUIRED TO HAVE LININGS INSTALLED.
42. POLY-ETHYLENE PLASTIC, AS MANUFACTURED BY PRESS SEAL GASKET CORPORATION, SHALL BE USED ON THE OUTSIDE OF ALL MANHOLE AND WETWELL JOINTS. APPLY ONE LAYER OF 9" JOINT SEALS PRIOR TO BACKFILLING OPERATIONS.
43. ANY NEW OR EXISTING ESTABLISHMENT WITH THE POTENTIAL TO DISCHARGE INDUSTRIAL OR COMMERCIAL WASTES INTO THE SEWER SYSTEM SHALL CONSTRUCT AND MAINTAIN AT HIS EXPENSE, A SUITABLE CONTROL MANHOLE OR MANHOLES, DOWNSTREAM FROM ANY TREATMENT, STORAGE OR OTHER APPROVED WORKS, PRIOR TO THE CITY'S COLLECTION SYSTEM TO FACILITATE OBSERVATION, MEASUREMENT, AND SAMPLING OF ALL WASTES, INCLUDING ALL DOMESTIC SEWAGE FROM THE ESTABLISHMENT.
44. THE CONTROL MANHOLE OR MANHOLES SHALL BE CONSTRUCTED AT SUITABLE AND SATISFACTORY LOCATIONS MAKING THE MANHOLE ACCESSIBLE TO CITY PERSONNEL AT ALL TIMES FOR SAMPLING.
45. SANITARY SEWER LIFT STATIONS AND FORCE MAINS SIZE, MATERIAL, AND DESIGNS SHALL BE APPROVED BY THE CITY. LIFT STATIONS SHALL BE CONSTRUCTED WITH A MINIMUM WET WELL AS PER THE CITY STANDARD DETAIL. A MINIMUM OF 6 FEET SHALL BE MAINTAINED BETWEEN LOWEST INFLUENT INVERT AND WETWELL FLOOR.
46. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO PREPARE AND SUBMIT FLOTATION CALCULATIONS TO SIZE THE BASE OF THE WET WELL AND ANY MANHOLE NECESSARY BY THE CITY.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS (CONTD) (PAGE 3 OF 4) S-3

SANITARY SEWER CONSTRUCTION & DESIGN STANDARDS TESTING REQUIREMENTS:

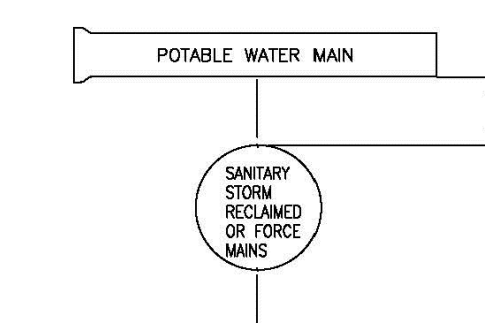
- 1. THE CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING LABORATORY AT HIS OWN EXPENSE TO INSURE THAT COMPACTION OF ALL FILL MATERIAL IS COMPLETED PROPERLY. TESTS SHALL BE DONE ONE FOOT ABOVE THE PIPE AND THEN AT ONE FOOT VERTICAL INTERVALS UNTIL FINAL GRADE IS REACHED. TESTING SHALL BE COMPLETED AND TEST DOCUMENTS SUBMITTED TO THE CITY AT A MINIMUM FREQUENCY OF ONE SET OF TESTS PER EACH 300 FOOT OF PIPING AND ONE ADDITIONAL SET OF TESTS AT EVERY MANHOLE. IDENTIFICATION OF TEST LOCATIONS SHALL BE CLEARLY INDICATED ON TEST REPORTS. TEST RESULTS SHALL BE FORWARDED PROMPTLY TO THE CITY'S DESIGNATED SITE INSPECTOR.
2. ALL TESTING REQUIRED BY THE CITY SHALL BE PAID FOR BY THE CONTRACTOR / DEVELOPER.
3. THE CITY OF DAYTONA BEACH RESERVES THE RIGHT TO REQUIRE THE DEVELOPER TO PERFORM VACUUM TESTING OF ALL SANITARY MANHOLES AND TO AIR TEST SEWER MAINS.
4. ALL PROPOSED SEWER FORCE MAINS SHALL BE FLUSHED, PRESSURE TESTED AND CLEARED FOR SERVICE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED SITE INSPECTOR WHO SHALL COORDINATE WITH CITY PERSONNEL AT THE WASTEWATER TREATMENT PLANT AT LEAST (3) THREE BUSINESS DAYS PRIOR TO BEGINNING A FULL-DIAMETER FLUSH OF THE MAINS PRIOR TO THE COMMENCEMENT OF PRESSURE TESTING. (SUBJECT TO AVAILABILITY).
5. SANITARY SEWER FORCE MAINS SHALL BE PRESSURE TESTED TO 160 PSI FOR 2 HOURS. WITH ALLOWABLE LEAKAGE TO BE X GAL/HR PER X" DIA. OF PIPE PER X' OF MAIN TO BE TESTED.

Table with columns: AVERAGE TEST PRESSURE (PSI), NOMINAL PIPE DIAMETER - INCHES, AVERAGE TEST PRESSURE (PSI). Rows include pipe diameters from 3 to 64 inches.

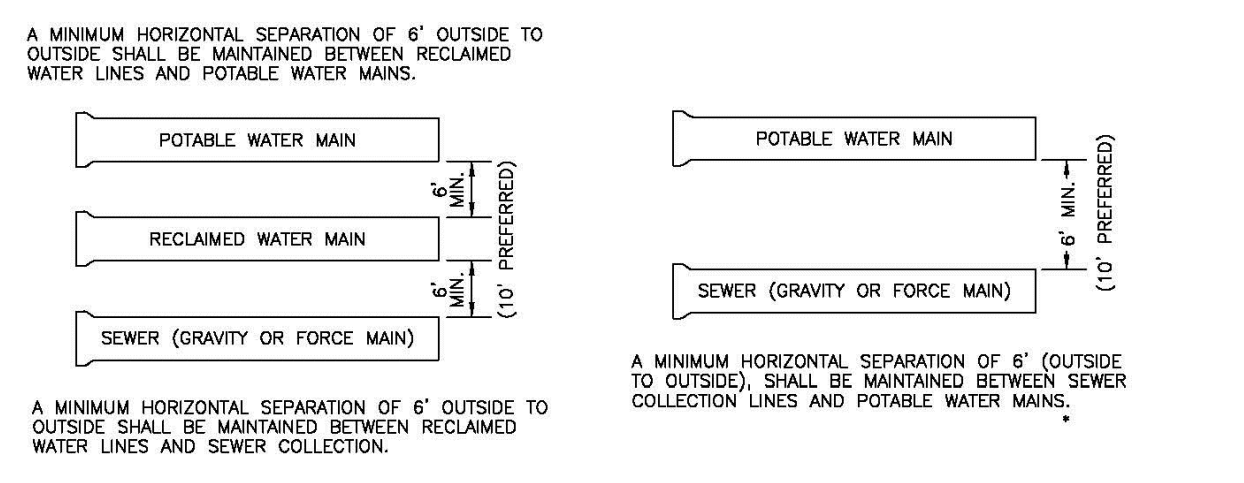
IF THE PIPE UNDER TEST CONTAINS SECTIONS OF VARIOUS DIAMETERS, THE ALLOWABLE LEAKAGE WILL BE THE SUM OF THE COMPUTED LEAKAGE FOR EACH SIZE.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT SANITARY SEWER TESTING REQUIREMENTS NOTES (PAGE 4 OF 4) S-4

POTABLE WATER MAIN TO BE CENTERED ABOVE THE CROSSING MAIN FOR MAXIMUM JOINT SEPARATION.

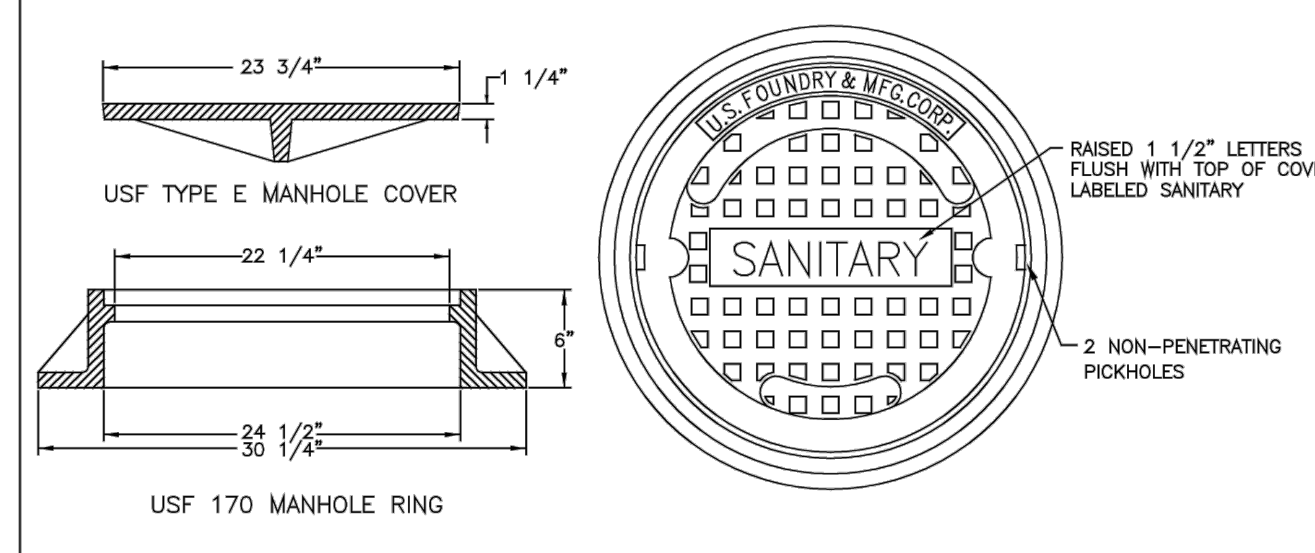


SECTIONAL VIEW



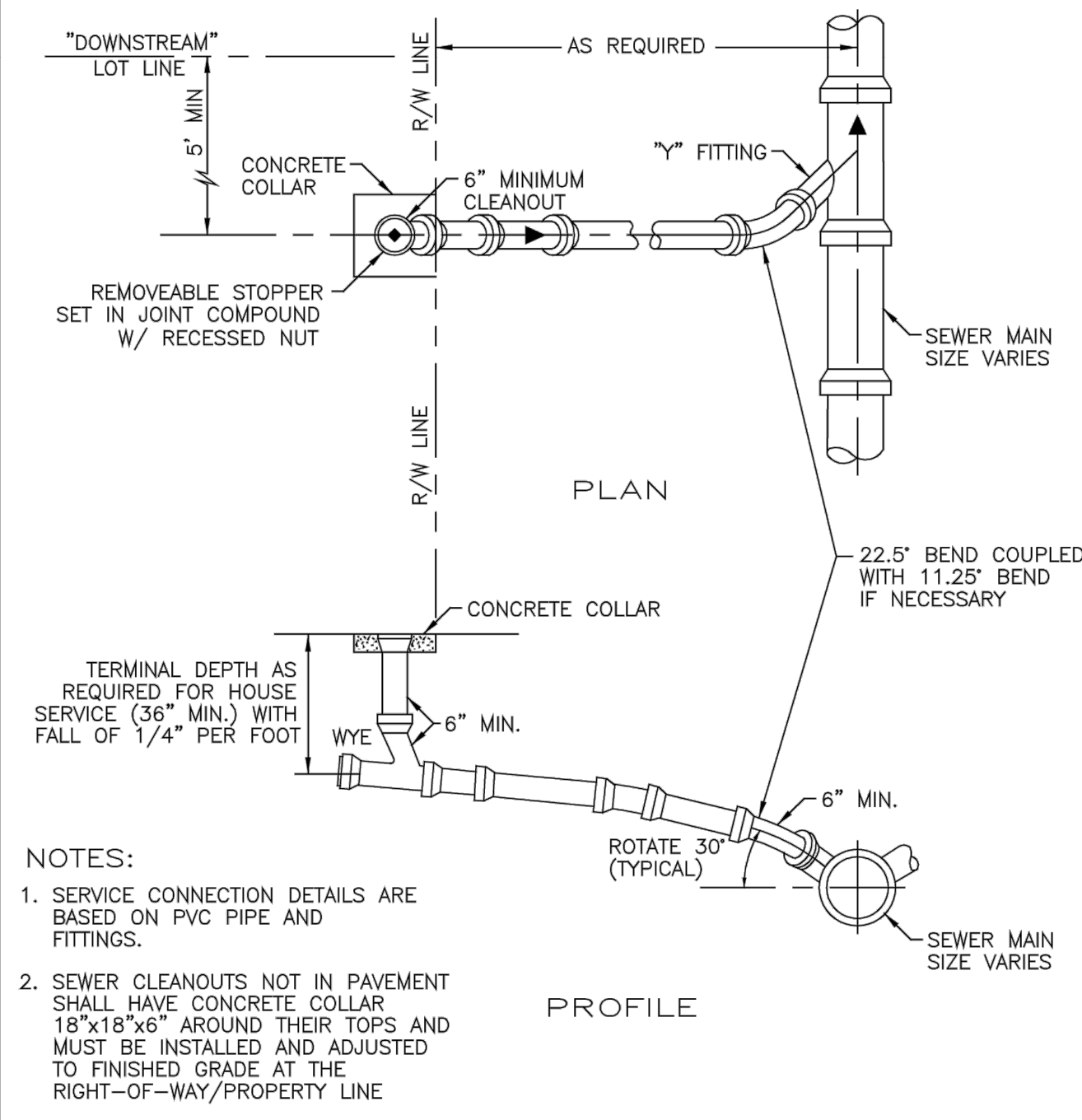
NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART II OF CHAPTER 62-610, F.A.C.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT PIPE SEPARATION DETAIL S-8



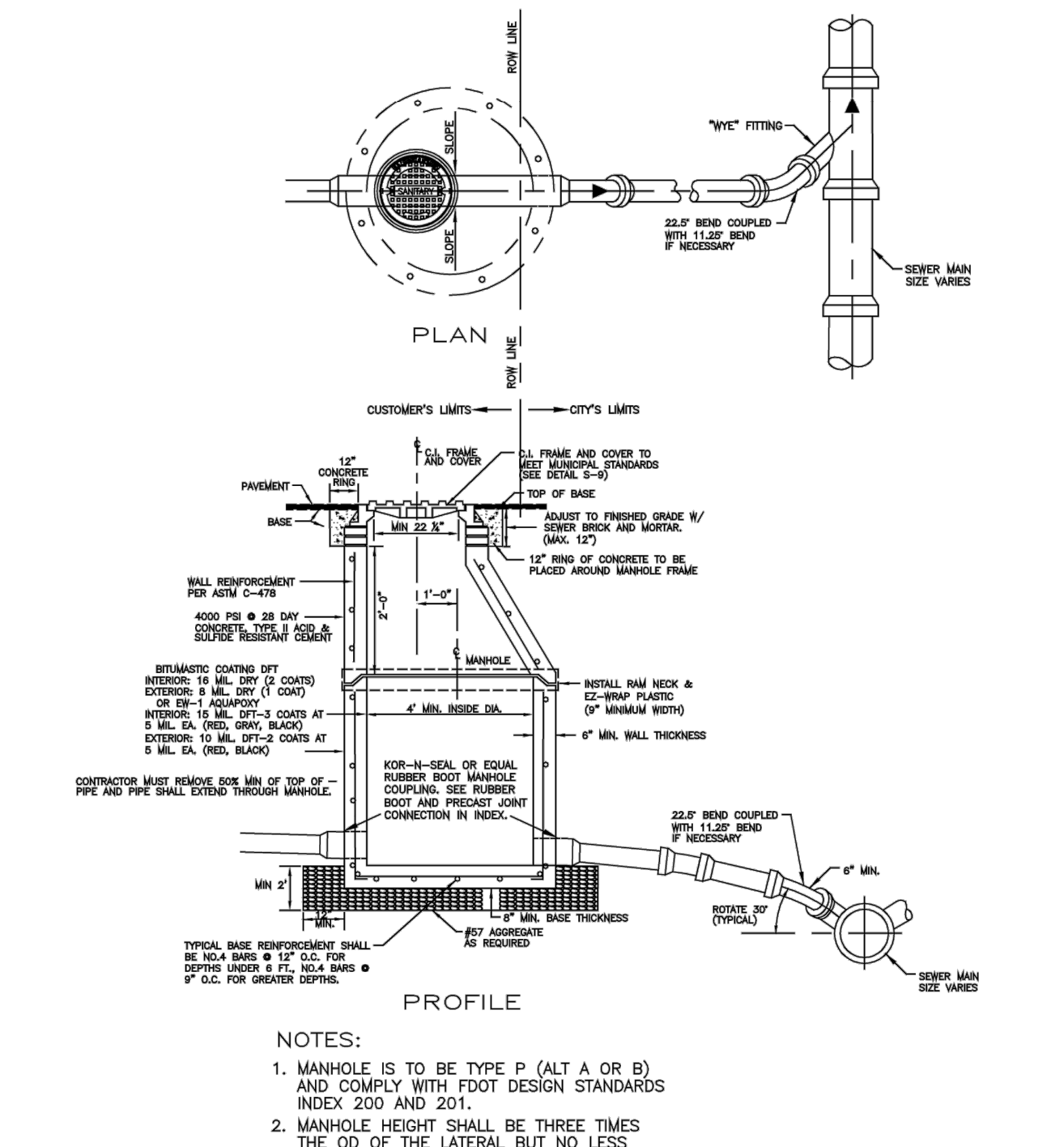
- 1. UNLESS DETAILED PLANS SHOW OTHERWISE, ALL MANHOLE RING AND COVER CASTINGS IN PAVED AREAS ARE TO BE ADJUSTED TO FINAL GRADE, SEALED AND SECURED IN PLACE WITH A CONCRETE COLLAR AFTER THE ROAD BASE IS PLACED AND JUST PRIOR TO PLACEMENT OF ASPHALT WEARING SURFACE.
2. CONCRETE COLLAR AROUND MANHOLE FRAME IS REQUIRED IN PAVED AREAS ONLY.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT SANITARY SEWER COVER DETAIL S-18



- 1. SERVICE CONNECTION DETAILS ARE BASED ON PVC PIPE AND FITTINGS.
2. SEWER CLEANOUTS NOT IN PAVEMENT SHALL HAVE CONCRETE COLLAR 18"x18" AROUND THEIR TOPS AND MUST BE INSTALLED AND ADJUSTED TO FINISHED GRADE AT THE RIGHT-OF-WAY/PROPERTY LINE.

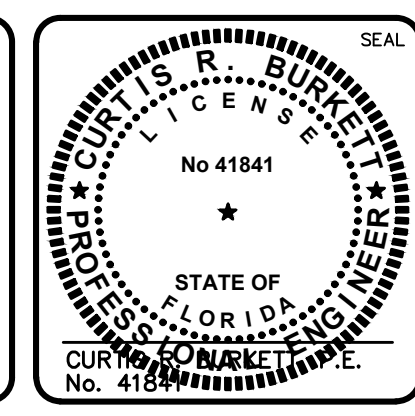
THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT RESIDENTIAL SANITARY LATERAL DETAIL S-10



- 1. MANHOLE IS TO BE TYPE P (ALT A OR B) AND COMPLY WITH FOOT DESIGN STANDARDS INDEX 200 AND 201.
2. MANHOLE HEIGHT SHALL BE THREE TIMES THE OD OF THE LATERAL BUT NO LESS THAN 16".
3. WHEN VCP (CLAY) MAIN IS ENCOUNTERED UTILIZE PVC WYE WITH TWO PVC TO VCP COUPLINGS FOR SERVICE CONNECTION.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT COMMERCIAL SANITARY LATERAL DETAIL S-11 A

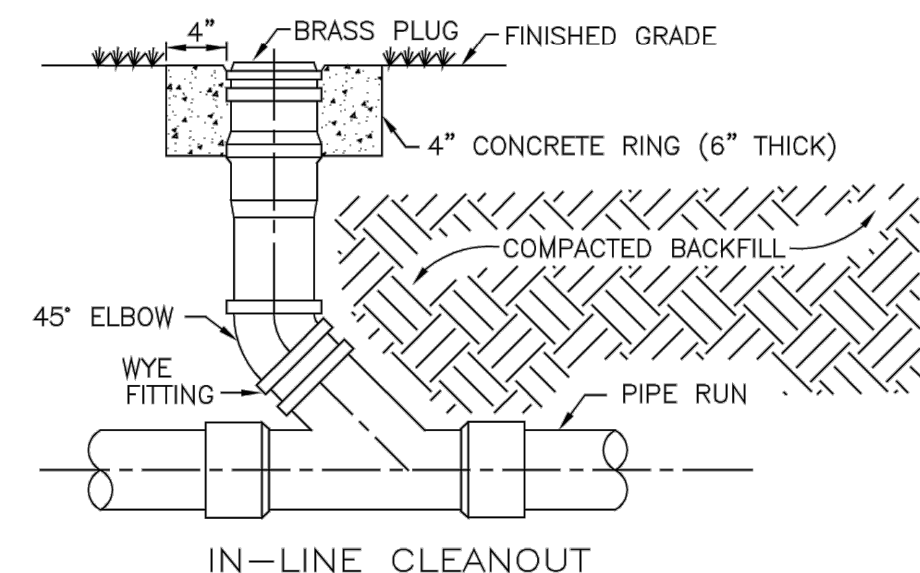
Table with columns: REV. NO., DESCRIPTION, REVISIONS, DATE. Includes 'ISSUE FOR BIDDING' and 'AUGUST 2018'.



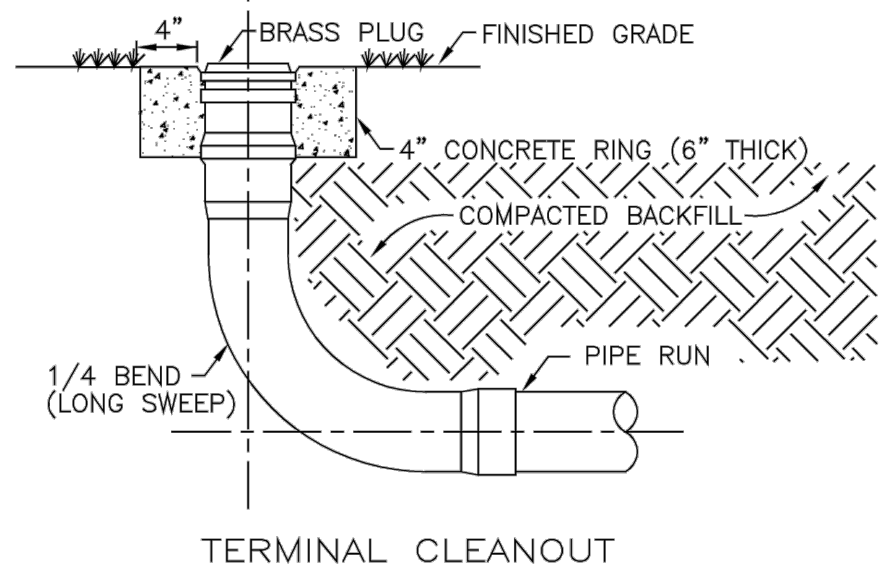
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THE CITY OF DAYTONA BEACH logo and address: DAYTONA BEACH, FLORIDA

DR. MARTIN LUTHER KING, JR. BOULEVARD-ROADWAY AND PEDESTRIAN IMPROVEMENTS PROJECT. SANITARY SEWER DETAILS 1. Includes DATE (APRIL 2017), SCALE (1"=20' HORIZONTAL, 1"=4' VERTICAL), PROJECT MGR. (DJP, CRB), and ISSUE FOR BIDDING.



IN-LINE CLEANOUT



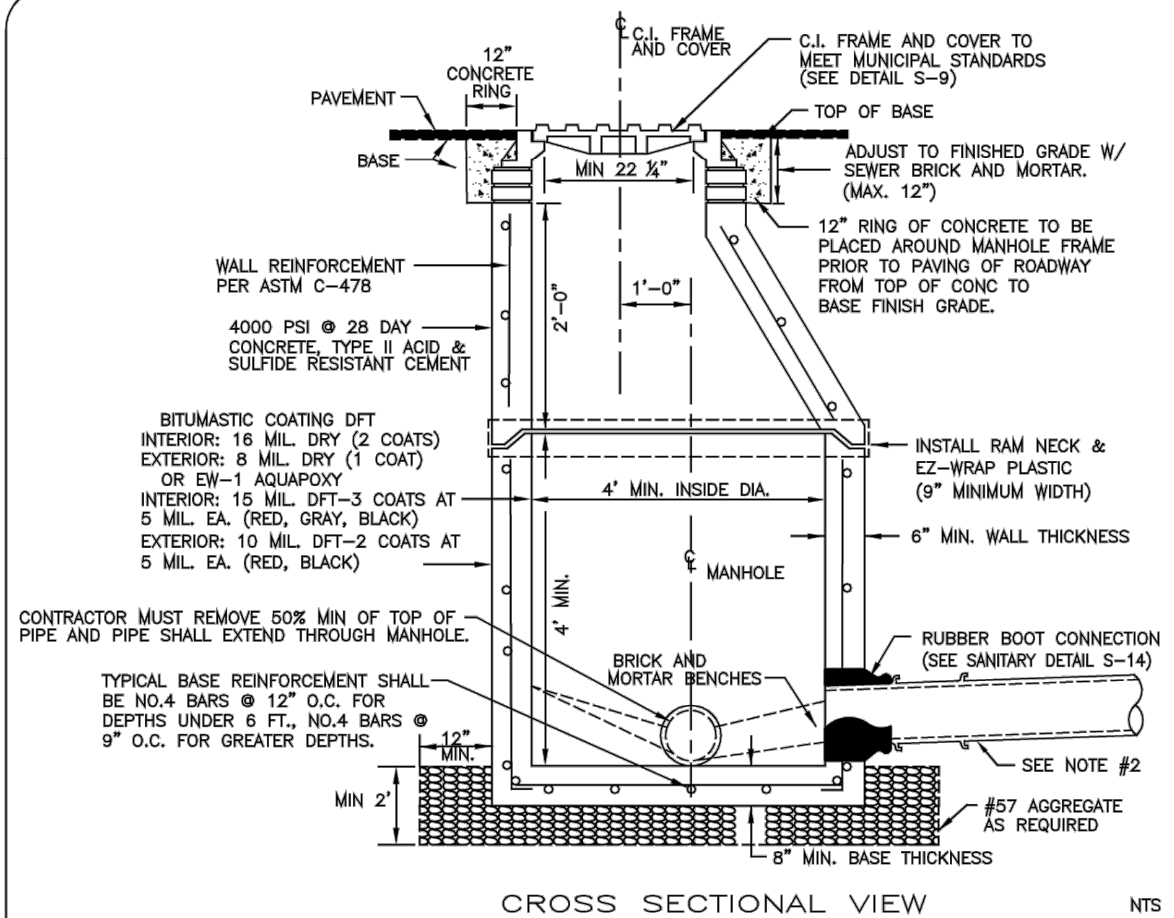
TERMINAL CLEANOUT

NOTE:  
CONCRETE COLLAR REQUIRED IN UNPAVED AREAS

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

SANITARY LATERAL CLEANOUT DETAIL S-12

FY-15/16  
Drawing Date: 01/08  
Drawn By: JKH  
Checked By: JAP  
Scale: NTS  
Revision Date: 08/10  
File Name: Sanitary Lateral S-12  
Page: 01



CROSS SECTIONAL VIEW NTS

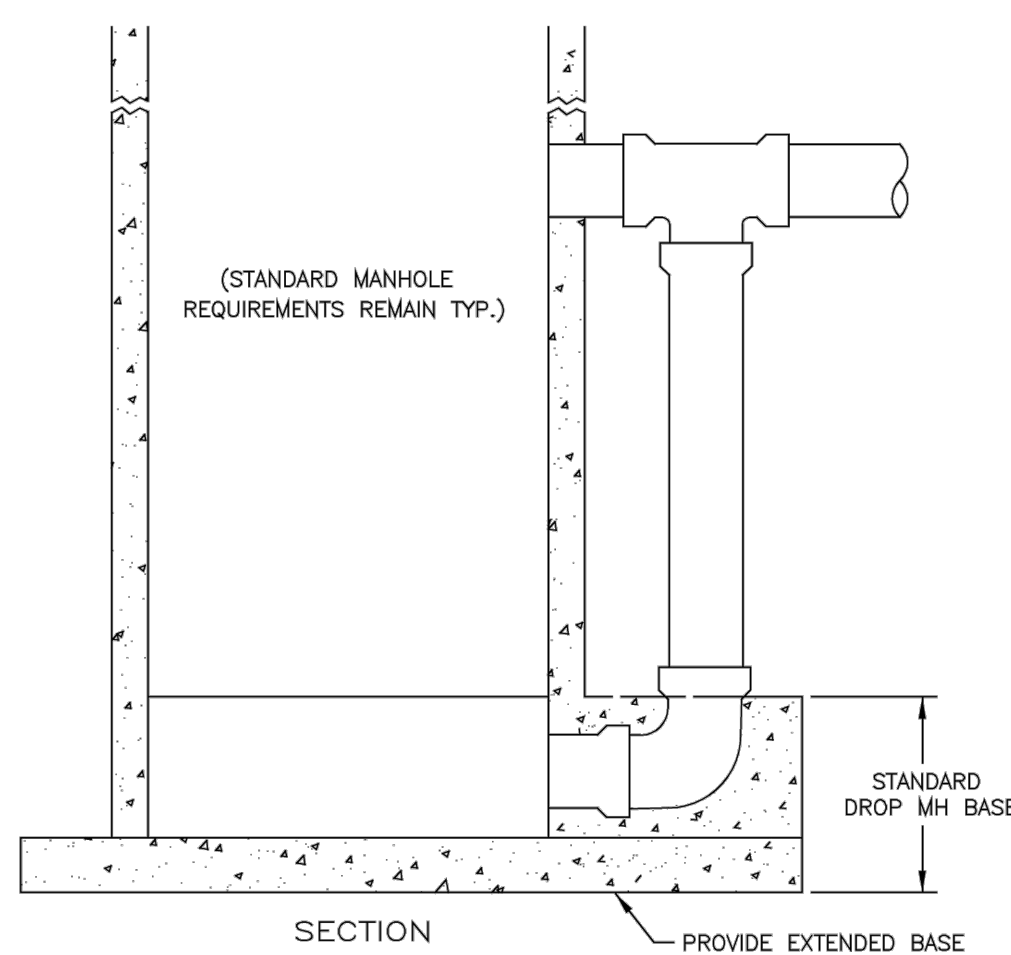
- NOTES:
- ON TRANSITIONS BETWEEN LARGER DIAMETER AND SMALLER SEWER COLLECTORS, INVERTS OF SEWERS SHALL BE MATCHED.
  - LAST 60' OF F.M. 12" PIPING ENTERING SEWER MANHOLE SHALL BE P.V.C. C-900 PLACED AT A NEGATIVE GRADE, 15" AND ABOVE SHALL BE P.V.C. C-900.
  - NON-PENETRATING PICK-HOLES IN ALL CONCRETE SECTIONS.
  - DFT = DRY FILM THICKNESS
  - 0.1" = DROP ACROSS MANHOLE TYP. (MEASURED DIA. OF CONCRETE RING)
  - MANHOLES 8' DEEP OR GREATER SHALL HAVE A MIN. 4" HIGH WALL BASE.
  - ANY PIPE ENTERING MANHOLE MUST HAVE A RUBBER BOOT CONNECTION.
  - MORTAR TO CONTAIN "HYDRATITE", OR APPROVED EQUAL, TO PREVENT SHRINKAGE.
  - SUB-GRADE BENEATH MANHOLES SHALL BE UNDISTURBED GRANULAR UNSATURATED SOIL. NO. 57 AGGREGATE STONE SHALL BE USED IN WET CONDITIONS AND/OR WHERE UNSUITABLE MATERIAL IS ENCOUNTERED.
  - CONTRACTOR SHALL PROVIDE THICKER MANHOLE WALLS AND BASES AS REQUIRED TO PREVENT FLOTATION BASED ON HISTORIC HIGH GROUND WATER TABLE ELEVATIONS AS DETERMINED USING ACCEPTED ENGINEERING PRACTICES AND/OR APPROVED BY UTILITIES DEPARTMENT.
  - SHOP DRAWINGS FOR ALL STRUCTURES SHALL BE SUBMITTED TO AND APPROVED BY THE DESIGN ENGINEER PRIOR TO INSTALLATION.
  - NO BAD HOLES OR HONEYCOMB WILL BE ACCEPTED.
  - ENDS OF THE TOP AND BOTTOM SECTIONS OF THE MANHOLE SHALL FIT FLUSH TOGETHER.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

SANITARY SEWER MANHOLE AND GENERAL NOTES S-13

FY-15/16  
Drawing Date: 01/08  
Drawn By: JKH  
Checked By: JAP  
Scale: NTS  
Revision Date: 08/10  
File Name: Sanitary Sewer S-13  
Page: 01

NOTE:  
GENERAL NOTES ON DETAIL S-10 APPLY.

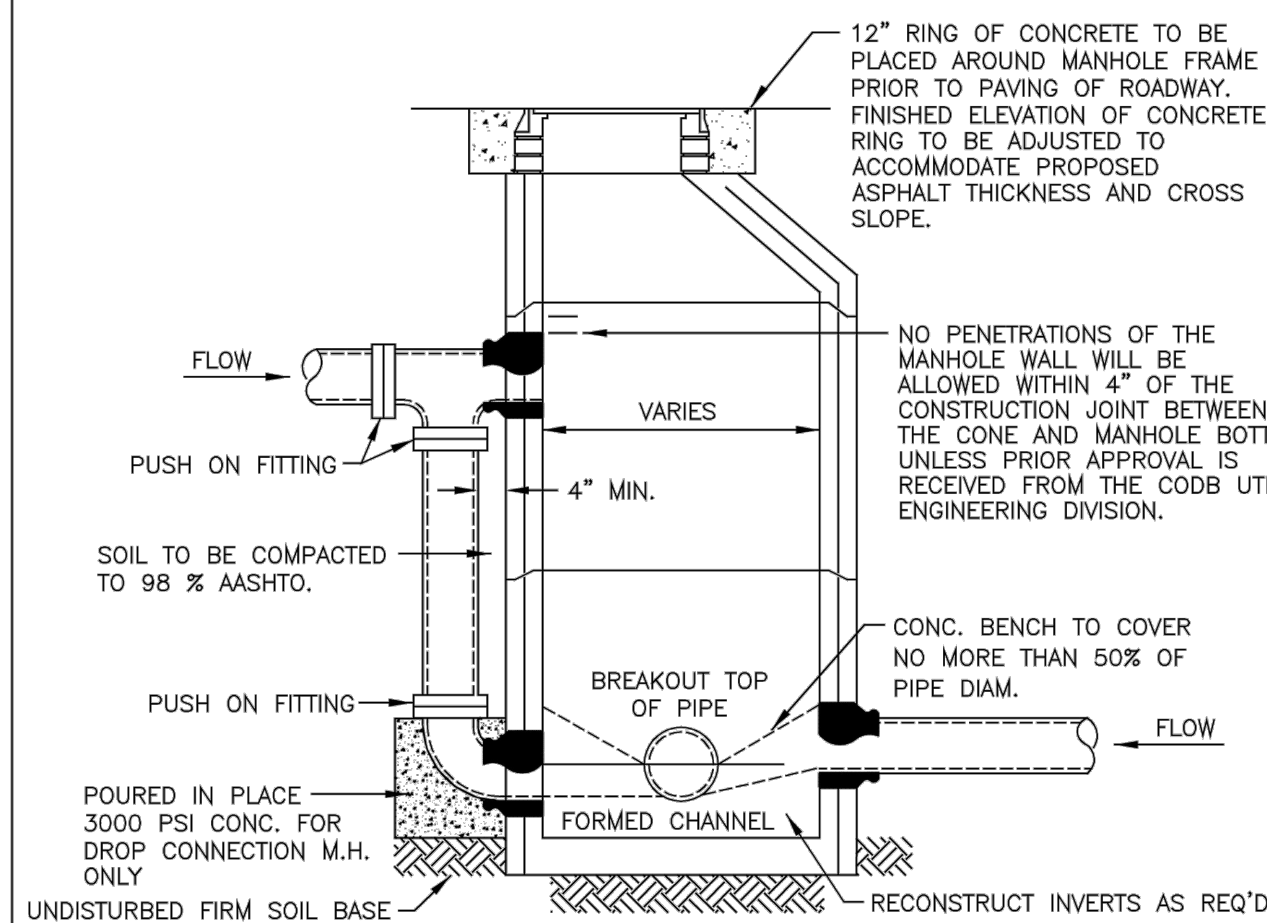


SECTION

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

OUTSIDE DROP SANITARY MANHOLE DETAIL (NEW-STANDARD) S-14

FY-15/16  
Drawing Date: 01/08  
Drawn By: JKH  
Checked By: JAP  
Scale: NTS  
Revision Date: 08/10  
File Name: Sanitary Drop New S-14  
Page: 01

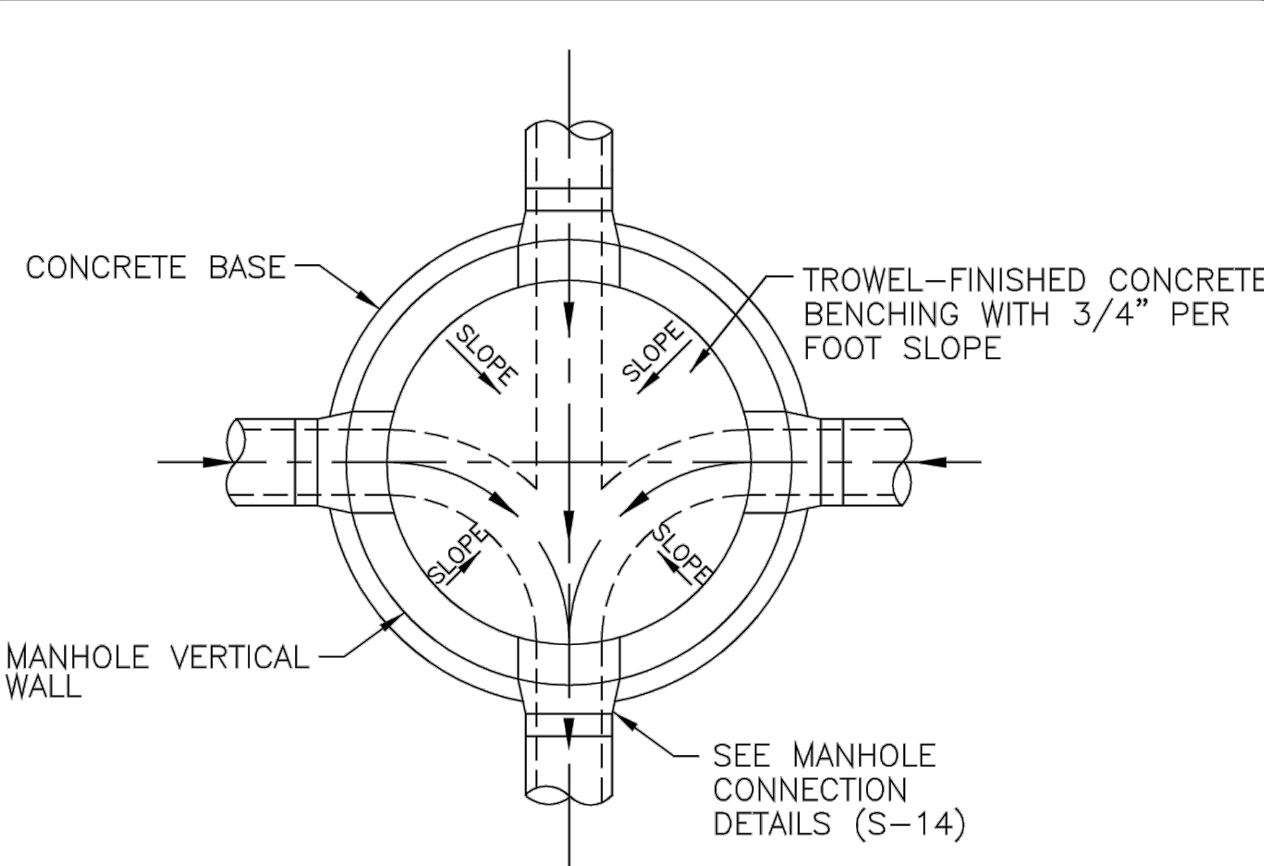


NOTE:  
GENERAL NOTES ON DETAIL S-10 APPLY.  
1. DROPS OF MORE THAN THREE FEET SHALL REQUIRE AN OUTSIDE DROP

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

OUTSIDE DROP SANITARY MANHOLE DETAIL (EXISTING-RETROFIT) S-15

FY-15/16  
Drawing Date: 01/08  
Drawn By: JKH  
Checked By: JAP  
Scale: NTS  
Revision Date: 08/10  
File Name: Sanitary Drop Existing S-15  
Page: 01



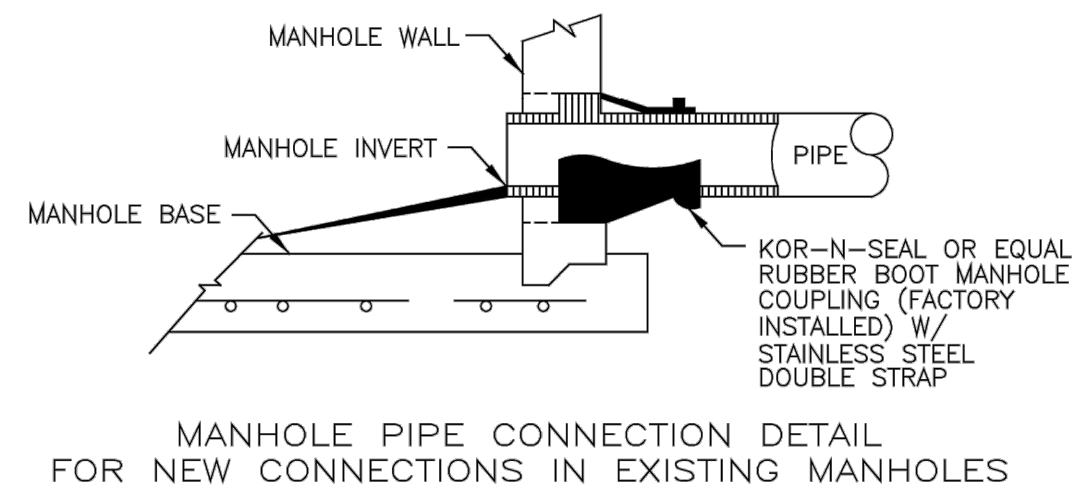
NOTES:

- FLOW CHANNELS SHALL HAVE THE SAME SLOPES AS THE SEWERS THEY ARE CONNECTED TO. (EXCEPT THAT AT CHANGES OF DIRECTION EXCEEDING 45°, THE DROP SHALL BE 0.1' MINIMUM)
- NO STANDING WATER WILL BE ALLOWED.
- FORM BENCH IN MANHOLE FROM MID-LINE OF 8" PIPE TO WALL OF MANHOLE, 3/4" PER FT. OF SLOPE. FOR LARGER PIPE, CONSTRUCT FROM INSIDE CROWN OF PIPE WITH 3/4" PER FT. OF SLOPE TO WALL.

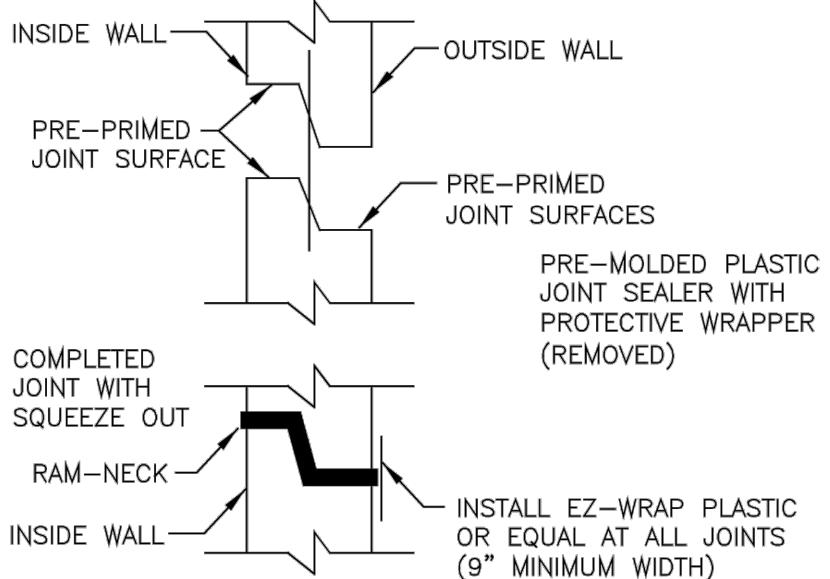
THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

SANITARY MANHOLE INVERT DETAIL S-16

FY-15/16  
Drawing Date: 01/08  
Drawn By: JKH  
Checked By: JAP  
Scale: NTS  
Revision Date: 07/10  
File Name: Invert Detail S-16  
Page: 01



MANHOLE PIPE CONNECTION DETAIL FOR NEW CONNECTIONS IN EXISTING MANHOLES



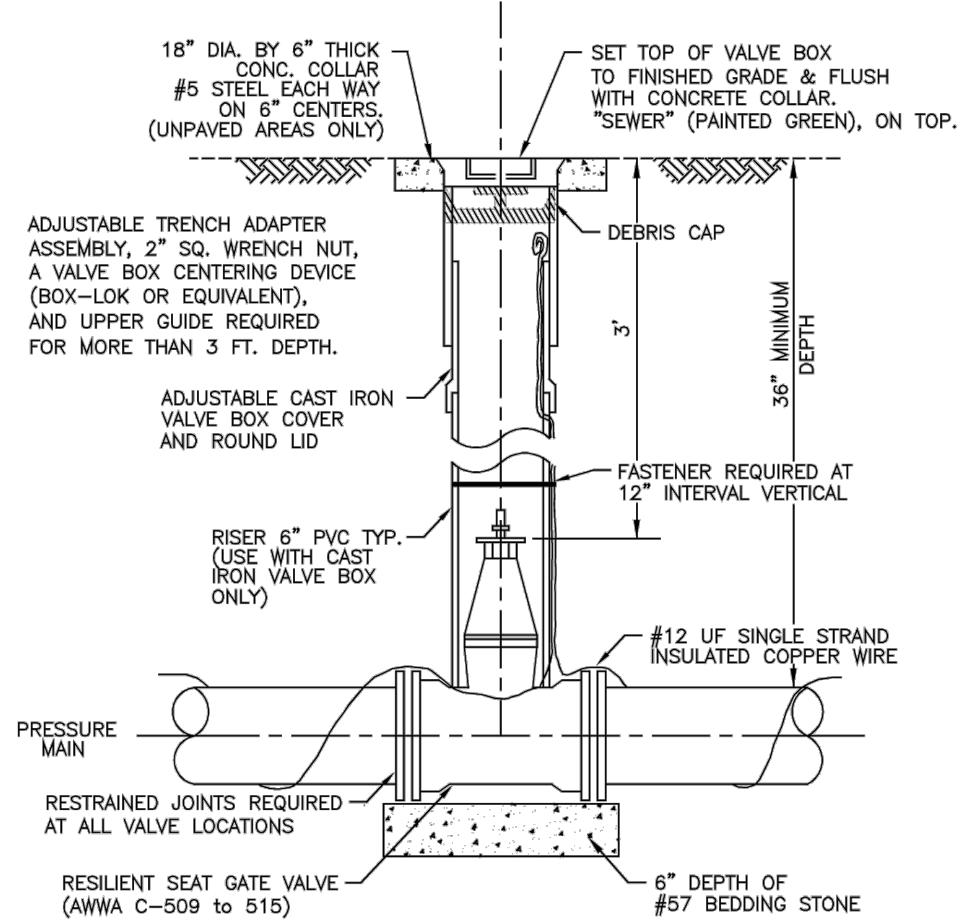
PRECAST JOINT CONNECTION

- NOTES:
- ALL NEW CONNECTIONS TO EXISTING SANITARY SEWER MANHOLES SHALL UTILIZE A CORING METHOD AND THE IN-FIELD INSTALLATION OF A RUBBER BOOT INTO THE MANHOLE.
  - BOOTS SHALL BE SNAPPED IN PLACE AND WATER TIGHT.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

RUBBER BOOT AND PRECAST JOINT CONNECTION DETAIL S-17

FY-15/16  
Drawing Date: 01/08  
Drawn By: JKH  
Checked By: JAP  
Scale: NTS  
Revision Date: 08/10  
File Name: Rubber Boot and Precast Joint Connections S-17  
Page: 01



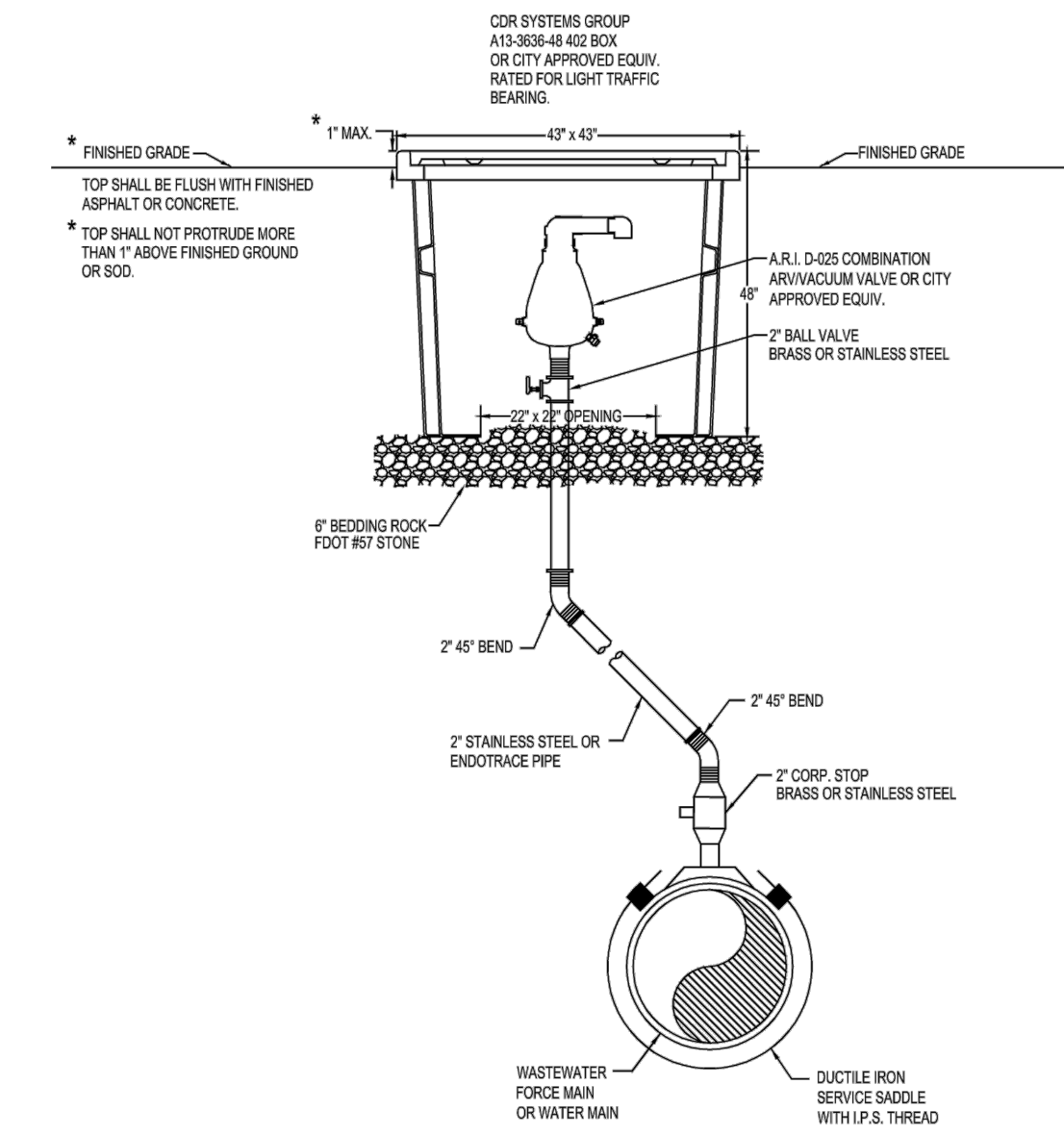
NOTES:

- ROD OR BOLT TEE WHERE APPLICABLE.
- FOR CONSTRUCTION PURPOSES, THE PLANS SHALL DIMENSION THE LOCATION OF ALL VALVES AND VALVE BOXES BY STATE PLANE COORDINATES WITH STATION & OFFSETS FROM CL OF R/W.
- #12 INSULATED SOLID COPPER UF TRACER WIRE SHALL BE LAID THE ENTIRE LENGTH OF THE REUSE PIPE. ALL CONNECTION ENDS SHALL USE LIQUID TAPE AND A DIRECT BURIED SPlice KIT (LAWSON 06151) OR EQUIVALENT.
- ANY VALVE DEEPER THAN 36" SHALL HAVE AN EXTENSION BOLTED ON THE VALVE. THE OPERATING NUT SHALL BE 12" BELOW FINISHED GRADE.
- WHERE PLUG VALVES ARE SPECIFIED THE CONCRETE COLLAR SURROUNDING THE TOP OF THE VALVE BOX SHALL HAVE AN ENGRAVED 2" x 6" BRASS NAME PLATE CLEARLY MARKED "PLUG VALVE" IN 1" HIGH BLOCK PRINT LETTERS.

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

SANITARY VALVE AND VALVE BOX DETAIL S-19

FY-15/16  
Drawing Date: 01/08  
Drawn By: JKH  
Checked By: JAP  
Scale: NTS  
Revision Date: 08/10  
File Name: Sanitary Valve S-19  
Page: 01



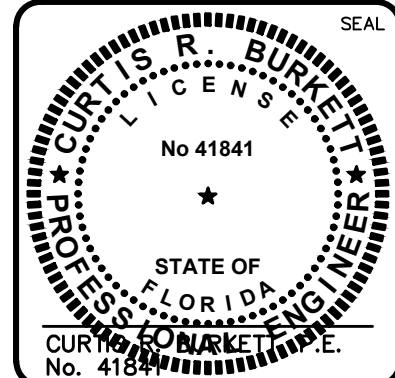
NOTES:

- VALVES SHALL BE CENTERED IN THE BOX
- ROCK SHALL BE COMPACTED TO A FIRM AND UNYIELDING CONDITION
- PIPING BETWEEN THE VALVE AND MAIN SHALL BE CONFIGURED TO BEST FIT FOR THE SITE CONDITION AS APPROVED BY THE CITY
- TOP OF BOX ON SANITARY FORCE MAIN SHALL BE CLEARLY PERMANENTLY LABELED AS SANITARY FM.
- TOP OF ALL BOXES SHALL BE CLEARLY AND PERMANENTLY LABELED AS TO VALVE TYPE (AIR RELEASE, VACUUM, OR AIR/VAC COMBINATION)

THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT

AUTOMATIC ARV/VACUUM VALVE DETAIL (PAGE 1 OF 2) S-20

FY-15/16  
Drawing Date: 01/08  
Drawn By: JKH  
Checked By: JAP  
Scale: NTS  
Revision Date: 08/10  
File Name: Automatic ARV Vacuum Valve S-20  
Page: 01



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THE CITY OF DAYTONA BEACH  
DAYTONA BEACH, FLORIDA

DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT

SANITARY SEWER DETAILS 2

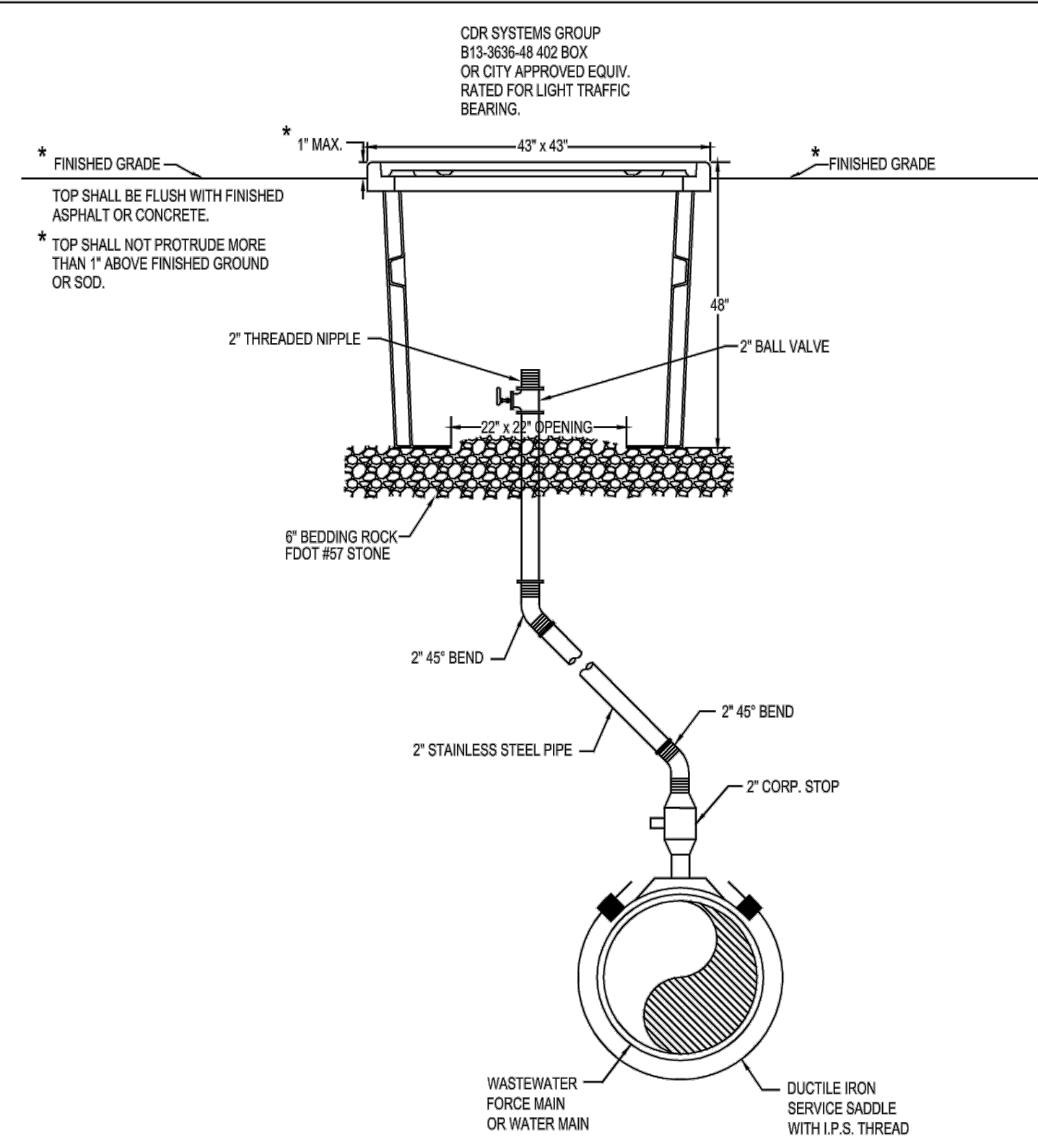
PROJECT NO. 2015-085

DATE: APRIL 2017  
MCE PROJ. # 0996-0161  
DRAWN: DMP  
DESIGNED: P.J.L.  
CHECKED: CRB  
PROJ. MGR. CRB

SCALE: HORIZONTAL: 1"=20'  
VERTICAL: 1"=4'

MAC FILE NUMBER: 0001-09960161  
DRAWING NUMBER: CD-6


ISSUE FOR BIDDING



- NOTES:**
1. VALVES SHALL BE CENTERED IN THE BOX.
  2. ROCK SHALL BE COMPACTED TO A FIRM AND UNYIELDING CONDITION.
  3. PIPING BETWEEN THE VALVE AND MAIN SHALL BE CONFIGURED TO BEST FIT FOR THE SITE CONDITION AS APPROVED BY THE CITY.
  4. TOP OF BOX ON SANITARY FORCE MAIN SHALL BE CLEARLY PERMANENTLY LABELED AS SANITARY FM.
  5. TOP OF ALL BOXES SHALL BE CLEARLY AND PERMANENTLY LABELED AS TO VALVE TYPE (AIR RELEASE, VACUUM, OR AIR/VAC COMBINATION).
  6. IF BOX IS TO BE PLACED IN ROAD OR ADJACENT TO THE ROAD USE A HEAVY TRAFFIC BOX CUR SYSTEM GROUP BOX # B14-3036-48 OR CITY APPROVED EQUIV. RATED FOR HEAVY TRAFFIC BEARING.

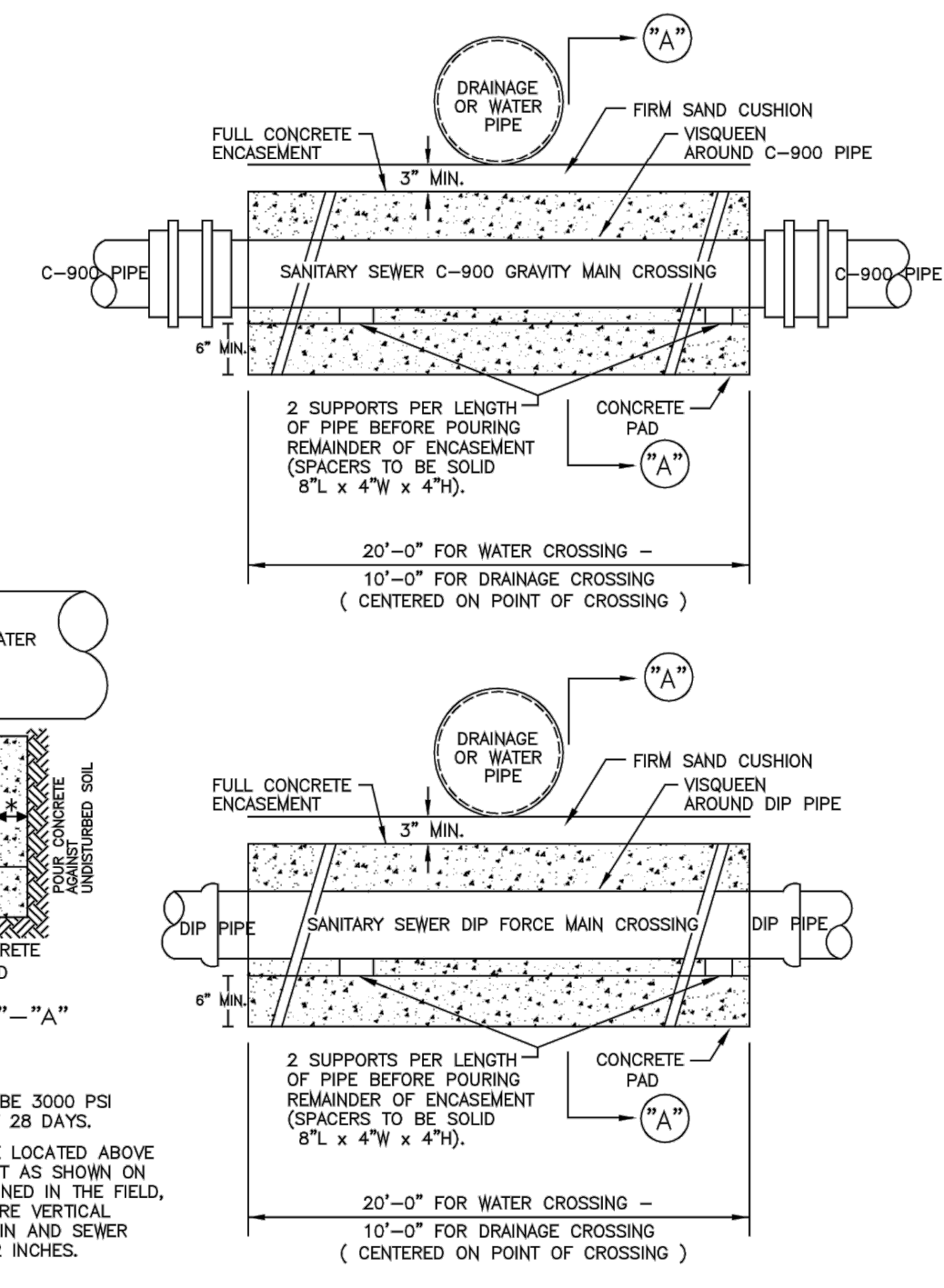
**OFFSET AIR/VAC RELEASE VALVE  
NTS**

THE CITY OF DAYTONA BEACH  
UTILITIES DEPARTMENT



MANUAL AIR RELEASE  
VALVE DETAIL  
S-21

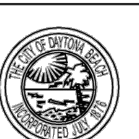
Drawn By: JLP
Checked By: JLP
Scale: NTS
Revision: 1/1/16
File Name: Manual Air Valve S-21
Page: 8/1



- NOTES:**
1. ALL CONCRETE SHALL BE 3000 PSI MINIMUM STRENGTH AT 28 DAYS.
  2. WATER MAIN SHALL BE LOCATED ABOVE OR BELOW ENCASEMENT AS SHOWN ON PLANS OR AS DETERMINED IN THE FIELD. USE ENCASEMENT WHERE VERTICAL CLEARANCE WATER MAIN AND SEWER MAIN IS LESS THAN 12 INCHES.

**ELEVATION**

THE CITY OF DAYTONA BEACH  
UTILITIES DEPARTMENT

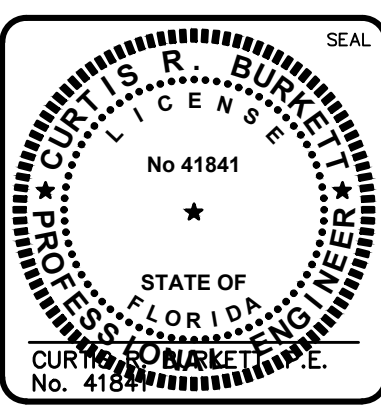
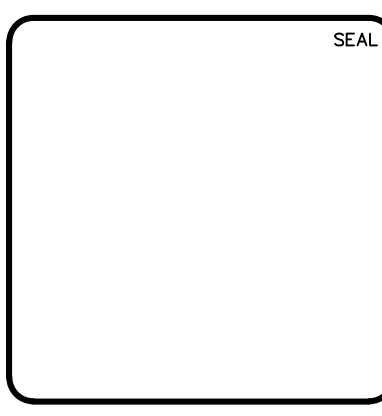


SANITARY SEWER  
CONCRETE ENCASEMENT  
DETAIL  
S-7

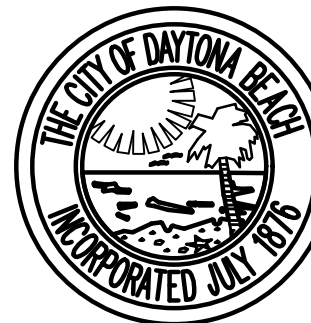
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Drawn By: JLP
Checked By: JLP
Scale: NTS
Revision: 1/1/16
File Name: Sanitary Encasement S-7
Page: 14

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REV. NO.	DESCRIPTIONS REVISIONS	DATE
A	ISSUE FOR BIDDING	AUGUST 2016




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THE CITY OF  
DAYTONA BEACH, FLORIDA

DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT

**SANITARY SEWER DETAILS 3**

PROJECT NO. 2015-085

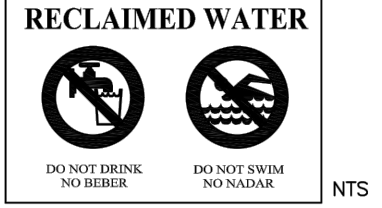
DATE: APRIL 2017	SCALE: 1"=20'	MAC FILE NUMBER: 0001-09960161
MCE PROJ. # 0996-0161	HORIZONTAL: 1"=20'	DRAWING NUMBER: CD-7
DRAWN: DMP	VERTICAL: 1"=4'	REVISION:
DESIGNED: P.J.L.		
CHECKED: CRB		
PROJ. MGR.: CRB		

STATUS: **ISSUE FOR BIDDING**



**RECLAIMED WATER CONSTRUCTION NOTES**

- THE CITY'S UTILITIES DEPARTMENT (671-8815) SHALL BE GIVEN A MINIMUM OF (2) TWO BUSINESS DAYS (NOT INCLUDING HOLIDAYS) PRIOR TO BEGINNING ANY RECLAIMED WATER SYSTEM CONSTRUCTION.
- ALL DEWATERING ACTIVITIES EITHER DIRECTLY DISCHARGED OR THAT SUBSEQUENTLY USE THE CITY'S STORMWATER SYSTEM TO CONVEY GROUND OR SURFACE WATER FROM A SITE SHALL REQUIRE A STANDARD OR GENERAL USE PERMIT AS PER ARTICLE 7 SECTION 7 OF THE LAND DEVELOPMENT CODE. A PERMIT SHALL BE REQUIRED PRIOR TO ENGAGING IN ANY DEWATERING ACTIVITIES, OR IN ANY CONSTRUCTION ACTIVITIES. DEWATERING ACTIVITIES INCLUDE THE REMOVAL OF GROUND WATER FROM A CONSTRUCTION SITE, ENCLOSED VAULT, COFFERDAM, OR TRENCHES ALLOWING CONSTRUCTION OR MAINTENANCE TO BE DONE IN THE DRY, OR ANY ACTIVITY WHICH CHANGES THE IMPERVIOUS AREA OF LAND. SITE SPECIFIC PERMITS SHALL REQUIRE THE PAYMENT OF A PER ACRE FEE BASED ON THE SIZE OF THE DEVELOPMENT. GENERAL PURPOSE PERMITS SHALL REQUIRE THE PAYMENT OF AN ANNUAL FEE BASED ON ROUTINE SCHEDULE OF MAINTENANCE ACTIVITIES DISCHARGING DIRECTLY OR SUBSEQUENTLY INTO THE CITY'S MSA. DEWATERING PERMIT APPLICATIONS MAY BE FOUND AT <http://codeb.us/index.aspx?nid=282>. FEES ARE SUBJECT TO ARTICLE 20 SECTION 3.1 OF THE LAND DEVELOPMENT CODE AND MUST BE SUBMITTED TO THE CITY OF DAYTONA BEACH UTILITY DEPARTMENT AT 125 BASIN STREET SUITE 130, DAYTONA BEACH FL 32114 BEFORE ANY USE OF THE MSA WILL BE ALLOWED. FAILURE TO COMPLY WILL RESULT IN THE TERMINATION OF ACCESS TO THE CITY'S MSA SYSTEM.
- RECLAIMED WATER SERVICE ENDINGS SHALL BE SECURED BY WIRE TO 2" X 4" PRESSURE TREATED STAKES, APPROXIMATELY 2' ABOVE GRADE, OR MAY BE PLACED IN RECLAIMED WATER METER BOXES, PROVIDED BY THE CONTRACTOR, AT THE TIME OF FINAL SUBDIVISION INSPECTION.
- ALL PROPOSED RECLAIMED WATER MAINS SHALL BE FLUSHED, TESTED AND CLEARED FOR SERVICE, WHEN APPROPRIATE, IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED SITE INSPECTOR WHO SHALL COORDINATE WITH CITY PERSONNEL AT THE WASTEWATER PLANT AT LEAST (2) TWO BUSINESS DAYS PRIOR TO THE BEGINNING OF A FULL-DIAMETER FLUSH OF THE MAINS PRIOR TO THE COMMENCEMENT OF PRESSURE TESTING.
- UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM BY THE CITY OF DAYTONA BEACH UTILITIES DEPARTMENT, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SUPPLY "AS-BUILT DRAWINGS" TO THE CITY PRIOR TO ANY USE OF THIS SYSTEM. \*\*SEE CITY OF DAYTONA BEACH AS-BUILT REQUIREMENTS.\*\*
- ALL RECLAIMED WATER SERVICES SHALL BE MARKED ALONG THE OUTSIDE EDGE OF CURB WITH A "Q" OR BY METAL TAPS SET INTO PAVEMENT. VALVES AND BLOW-OFFS FOR RECLAIMED WATER MAINS SHALL BE MARKED BY AN "A" SET INTO THE PAVEMENT AND PAINTED WITH PURPLE ENAMEL.
- RECLAIMED WATER SERVICES SHALL BE LOCATED AT THE SIDE LOT LINES, ALTERNATING WITH POTABLE WATER SERVICE LOCATIONS. IN INSTANCES WHERE RECLAIMED WATER SERVICES NEED TO BE OFFSET, THESE SERVICES MAY BE OFFSET FROM THE LOT LINE A MAXIMUM DISTANCE OF 2 FEET.
- ALL RECLAIMED WATER, HAND-OPERATED CONNECTIONS AND OUTLETS SHALL BE CONTAINED IN UNDERGROUND SERVICE VAULTS AND SHALL BE APPROPRIATELY TAGGED OR LABELED TO WARN THE PUBLIC AND EMPLOYEES THAT THE WATER IS NOT INTENDED FOR DRINKING OR SWIMMING.
- VAULTS FOR OUTLETS SHALL BE LOCKED OR REQUIRE A SPECIAL TOOL FOR OPERATION OF OUTLETS.
- A 75 FOOT SETBACK DISTANCE SHALL BE PROVIDED FROM PUBLIC ACCESS RECLAIMED WETTED AREAS TO ANY PUBLIC AND ANY PRIVATE POTABLE WATER SUPPLY WELLS.
- LOW TRAJECTORY NOZZLES ARE REQUIRED WITHIN 100 FEET OF PUBLIC EATING, DRINKING OR BATHING FACILITIES.



THE CITY OF DAYTONA BEACH  
UTILITIES DEPARTMENT

DESIGN AND CONSTRUCTION  
NOTES  
PAGE 1 OF 3  
RW-1

FY-15/16  
Drawing Date: 01/08  
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Checked By: JAP  
Scale: NTS  
Revision Date: 02/12  
File Name: Reclaimed Water RW-1  
Page: 45

**RECLAIMED WATER CONSTRUCTION NOTES (CONT'D)**

- ANY SIGNIFICANT IRRIGATION SITE UTILIZING RECLAIMED WATER, SUCH AS AN ATHLETIC FIELD, GOLF COURSE, PARK OR POND, IS REQUIRED TO POST A 12" X 12" RECLAIMED WATER SIGN WARNING THE PUBLIC AND EMPLOYEES THAT RECLAIMED WATER IS NOT INTENDED FOR DRINKING OR SWIMMING. THIS SIGN SHALL BE PLACED AT THE ENTRANCE TO THE SITE AND THE LOCATION OF THE PRIVATE REUSE SYSTEM. SEE SHEET RW-16
- DEWATERING SHALL BE PROVIDED TO KEEP GROUND WATER ELEVATION A MINIMUM OF 6 INCHES BELOW RECLAIMED WATER MAIN BEING LAID.
- ALL RECLAIMED WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
- TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 95% IN UNPAVED AREAS AND 98% TO 100%.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS BE PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET.
- MAXIMUM OBTAINABLE SEPARATION OF PUBLIC RECLAIMED WATER MAINS, STORM WATER SYSTEMS, POTABLE WATER AND SANITARY SEWER MAINS SHALL BE MAINTAINED. A MINIMUM HORIZONTAL SEPARATION OF SIX (6) FEET (SIDE TO SIDE), WHERE RECLAIMED WATER AND SANITARY SEWAGE MAINS CROSS WITH LESS THAN TWELVE (12) INCHES VERTICAL CLEARANCE, THE SANITARY SEWAGE MAIN SHALL BE TWENTY (20) FEET OF EITHER CONCRETE ENCASED PVC PIPE OR ENCASED IN A WATERTIGHT CARRIER PIPE, CENTERED ON THE POINT OF CROSSING (SEE PIPE SEPARATION CHART).
- 3" METALIZED PIPE LOCATION TAPE SHALL BE LOCATED BETWEEN 15" AND 24" BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES, AND UF#12 SINGLE STRAND INSULATED COPPER WIRE SHALL BE ATTACHED TO ALL PVC PIPE.
- UF#14 SINGLE STRAND INSULATED COPPER WIRE SHALL BE ATTACHED TO ALL PVC PIPE. WIRE RUNS SHALL BE CONNECTED WITH SILICONE FILLED WIRE CONNECTORS. EACH RUN SHALL TERMINATED AT EVERY VALVE. SEE RW-13 FOR INSTALLATION OF WIRE ON RISER PIPE. SERVICES SHALL BE CONNECTED TO THE MAIN CONNECTED TO THE MAIN WIRE WITH WIRE FILLED CONNECTORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE CONTINUITY AND TEST FOR CONTINUITY.
- ALL SINGLE RESIDENTIAL WATER SERVICES SHALL BE 1". SERVICES SHALL BE CTS 3408 HIGH DENSITY POLYETHYLENE TUBING RATED FOR A MINIMUM OF 200 PSI WITH SDOOR 9 (CTS). THE TUBING SHALL HAVE A VIRGIN HIGH DENSITY POLYETHYLENE CENTER FOR WHICH THE MANUFACTURER SHALL FURNISH A CERTIFICATE OF PURITY. THE TUBING SHALL BE LAVENDER IN COLOR AND SHALL HAVE THE WORDS "RECLAIMED WATER" PERMANENTLY PRINTED ON THE OUTSIDE. THE TUBING SHALL HAVE LIV. PROTECTION AND SHALL NOT BE AFFECTED BY DIRECT SUNLIGHT. THE TUBING SHALL COMPLY WITH OR EXCEED THE APPLICABLE STANDARDS OF A.S.T.M. D1248, D3350, D2239, D2737, N.S.F.-14 AND A.W.W.A. C901 AND SHALL COME WITH A LIFETIME WARRANTY. APPROVED SIZES: 1" AND 2" DIAMETERS. SEE APPROVED PRODUCT LIST FOR ACCEPTABLE MANUFACTURERS.
- AS STANDARD PRACTICE AND IF POSSIBLE RECLAIMED WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF THE CURB ON THE OPPOSITE SIDE OF THE ROAD OF THE POTABLE WATER LINES, (NOT UNDER PROPOSED SIDEWALK LOCATION) OR AS APPROVED BY THE CITY.
- ALL RECLAIMED WATER MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES. IN SPECIAL CASES WHERE IT IS IMPOSSIBLE OR INAPPROPRIATE TO PROVIDE ADEQUATE COVER, DUCTILE IRON PRESSURE CLASS 350 OR CONCRETE ENCASEMENT/PROTECTIVE SLAB MAY BE USED AT THE DISCRETION OF THE UTILITIES DEPARTMENT.
- RECLAIMED WATER MAINS SHALL BE PURPLE PVC, DR-18 AWWA CLASS C-900 OR C-905, CL 150, OR DIP PRESSURE CLASS 350, STANDARD CEMENT LINED (PAINTED PURPLE) UNLESS APPROVED OTHERWISE BY THE CITY. ALL HORIZONTAL DIRECTIONAL DRILLS USING HDPE SHALL BE DR-11 WORKING PRESSURE RATING 160 OR GREATER. THE CITY MAY REQUIRE A HIGHER PRESSURE RATING DEPENDENT UPON SITE CONDITIONS.

THE CITY OF DAYTONA BEACH  
UTILITIES DEPARTMENT

DESIGN AND CONSTRUCTION  
NOTES  
PAGE 2 OF 3  
RW-2

FY-15/16  
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Checked By: JAP  
Scale: NTS  
Revision Date: 02/12  
File Name: Reclaimed Water RW-2  
Page: 46

SCHEDULE OF LENGTHS OF RESTRAINED PVC PIPE (FT.)

FITTING	90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE OR DEAD END
4"	20	18	18	18	45
6"	28	18	18	18	63
8"	36	18	18	18	82
10"	44	28	18	18	98
12"	51	21	18	18	116
14"	57	24	18	18	132
16"	63	26	18	18	148
18"	69	29	18	18	163
20"	75	31	18	18	179
24"	87	36	18	18	208
30"	102	42	20	18	248

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (16' MIN.) OF PIPE TO BE RESTRAINED.  
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.  
TABLE APPLIES TO PVC PIPE FOR THE FOLLOWING CONDITIONS:  
TEST PRESSURE: 150 PSIG  
SOIL TYPES: SF  
COVER DEPTH: 3 FEET (MIN.)  
SAFETY FACTOR: 1.5  
TRENCH TYPE 2

SCHEDULE OF LENGTHS OF RESTRAINED DIP (FT.)

FITTING	90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE OR DEAD END
4"	21 (26)	18 (19)	18 (19)	18 (19)	37 (50)
6"	32 (35)	18 (19)	18 (19)	18 (19)	52 (70)
8"	38 (40)	18 (19)	18 (19)	18 (19)	67 (100)
10"	45 (54)	18 (22)	18 (19)	18 (19)	81 (122)
12"	52 (63)	22 (26)	18 (19)	18 (19)	94 (141)
14"	60 (72)	25 (30)	18 (19)	18 (19)	107 (160)
16"	66 (80)	27 (33)	18 (19)	18 (19)	120 (160)
18"	74 (87)	31 (36)	18 (19)	18 (19)	132 (198)
20"	80 (94)	33 (39)	18 (19)	18 (19)	144 (216)
24"	92 (108)	38 (45)	18 (22)	18 (19)	187 (250)
30"	108 (128)	44 (53)	21 (25)	18 (19)	199 (289)
36"	126 (152)	49 (58)	24 (29)	18 (19)	222 (306)
42"	144 (171)	54 (64)	27 (33)	18 (19)	246 (336)
48"	162 (192)	59 (70)	30 (37)	18 (19)	270 (360)

LENGTHS BETWEEN HEAVY LINES INDICATE ONE FULL LENGTH (16' MIN.) OF PIPE TO BE RESTRAINED.  
TABLE SHOWS MINIMUM LENGTH OF PIPE EACH WAY FROM FITTING FOR WHICH RESTRAINT IS REQUIRED.  
TABLE APPLIES TO DUCTILE IRON PIPE FOR THE FOLLOWING CONDITIONS:  
TEST PRESSURE: 150 PSIG  
SOIL TYPES: SF  
COVER DEPTH: 3 FEET (MIN.)  
SAFETY FACTOR: 1.5  
TRENCH TYPE 2  
VALUES IN PARENTHESES ( ) ARE FOR PIPE ENCASED IN POLYETHYLENE.  
\* VALUES APPLY TO DUCTILE IRON PIPE AT 50 PSI TEST PRESSURE.

THE CITY OF DAYTONA BEACH  
UTILITIES DEPARTMENT

PVC AND DIP  
RESTRAINED JOINT  
TABLE  
RW-6

FY-15/16  
Drawing Date: 01/08  
Drawn By: JAP  
Checked By: JAP  
Scale: NTS  
Revision Date: 02/12  
File Name: Restrainted Joint Table RW-6  
Page: 50

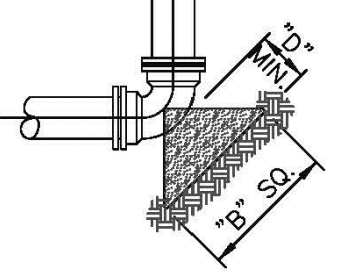
THRUST BLOCK DIMENSION (feet)

PIPE SIZE (IN.)	90° BEND		45° BEND		22.5° BEND		11.25° BEND		DEAD END		TEE/WYE	
	B	D	B	D	B	D	B	D	B	D	B	D
4	1.5	0.5	1.0	0.5	1.0	0.5	0.5	0.5	1.0	0.5	1.0	0.5
6	2.0	0.5	1.5	0.5	1.0	0.5	1.0	0.5	2.0	0.5	2.0	0.5
8	2.5	0.5	2.0	0.5	1.5	0.5	1.0	0.5	2.0	1.0	2.0	0.5
10	3.0	0.5	2.5	1.0	2.0	0.5	1.0	0.5	3.0	1.0	3.0	0.5
12	4.0	1.0	3.0	1.0	2.0	0.5	1.5	0.5	3.0	1.0	3.0	0.5
14	4.5	1.0	3.0	1.0	2.5	0.5	2.0	0.5	4.0	1.5	4.0	1.0
16	5.0	1.5	4.0	1.0	3.0	1.0	2.0	0.5	4.5	1.5	4.5	1.0
18	5.7	1.7	4.2	1.4	3.1	1.4					6.9	1.7
20	7.7	1.7	5.6	1.4	4.1	1.4					9.1	2.1
24	9.5	2.1	7.0	1.7	5.1	1.4					11.3	2.4
36	11.5	2.4	8.4	1.8	6.0	1.7					13.6	2.5

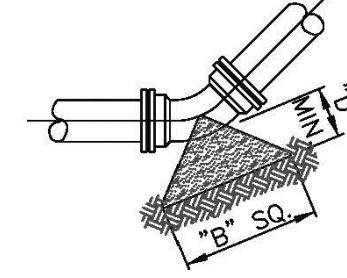
REINFORCEMENT STEEL  
SEE CHART  
FOR 10"  
1.0' & UNDER  
1.0' TO 1.5'  
1.5' TO 2.0'  
2.0' TO 2.5'

REINFORCEMENT  
#3 BAR @ 6" EACH WAY  
#3 BAR @ 6" EACH WAY  
#3 BAR @ 6" EACH WAY

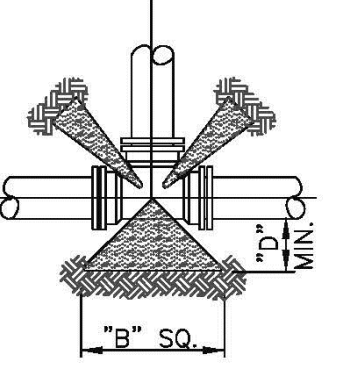
NOTES: 1. THRUST BLOCKS TO BE SET AGAINST FIRM UNDISTURBED SOIL.  
2. FITTINGS TO BE WRAPPED IN VISQUEEN OR POLYETHYLENE ENCASEMENT PRIOR TO POURING CONCRETE.  
3. CONCRETE STRENGTH f = 3000 P.S.I.



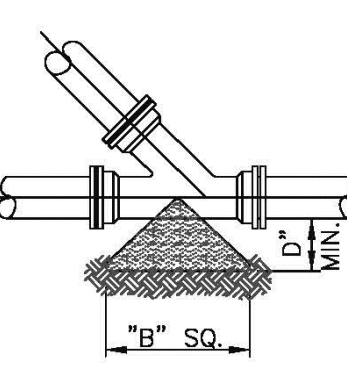
90° BEND



45° OR 22.5° BEND



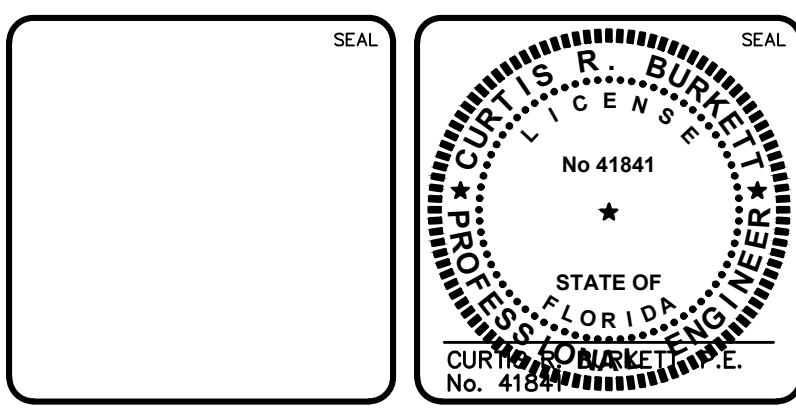
TEE OR PLUGGED TEE



WYE

**THRUST BLOCK DETAIL**

REV. NO.	ISSUE FOR BIDDING	DESCRIPTIONS/REVISIONS	DATE
A	ISSUE FOR BIDDING		AUGUST 2016



**MCKIM & CREED**  
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Daytona Beach, Florida 32114  
Phone: (386)274-2828, Fax: (386)274-1393  
CA License No. 29588  
www.mckimcreed.com

THE CITY OF DAYTONA BEACH  
UTILITIES DEPARTMENT

DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT

REUSE WATER DETAILS

PROJECT NO. 2015-085

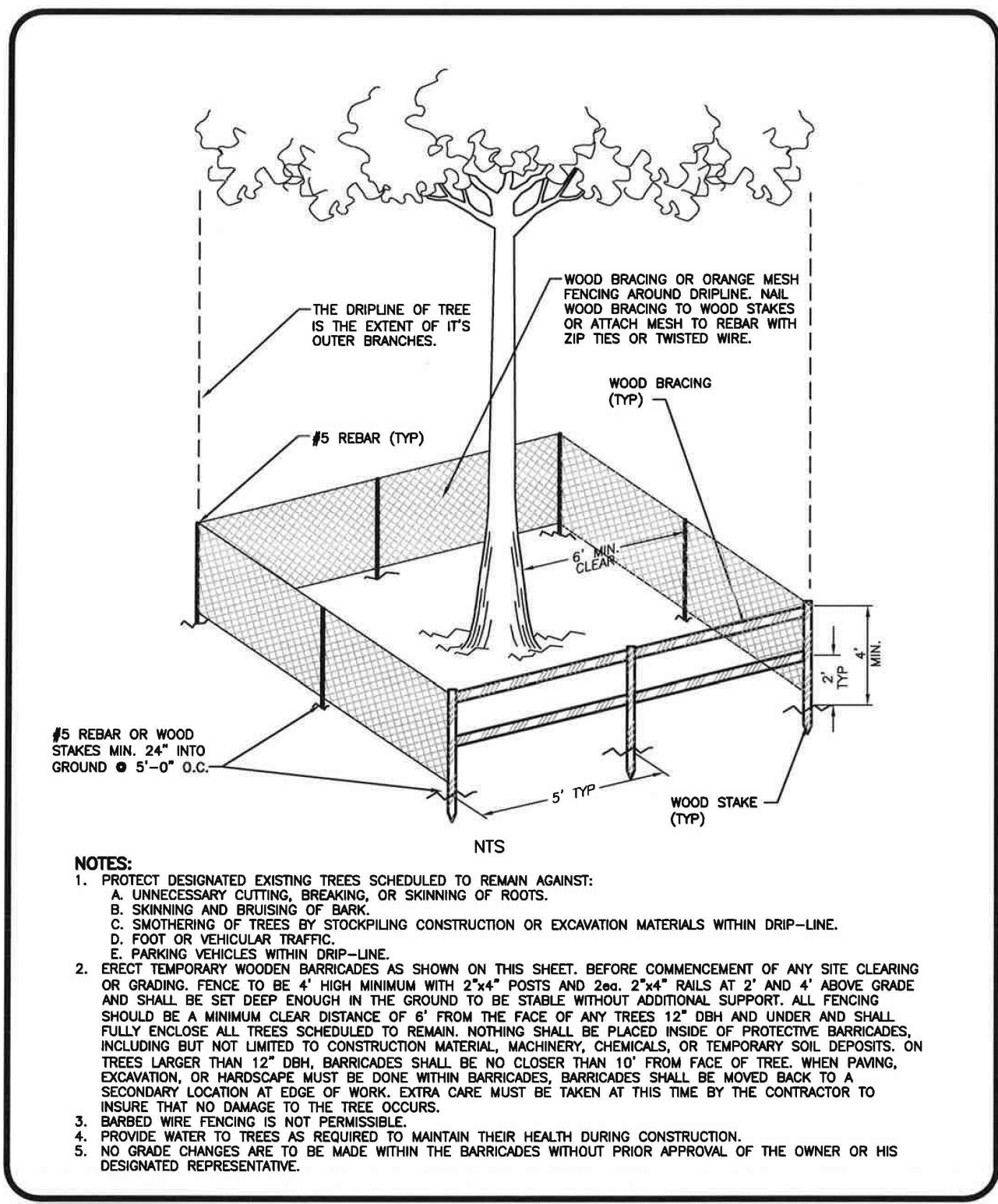
DATE: APRIL 2017  
MCE PROJ. #: 0996-0161  
DRAWN: DMP  
DESIGNED: P.J.L.  
CHECKED: CRB  
PROJ. MGR.: CRB

SCALE: HORIZONTAL: 1"=20'  
VERTICAL: 1"=4'

M&C FILE NUMBER: 0001-09960161  
DRAWING NUMBER: CD-9

STATUS: ISSUE FOR BIDDING

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**NOTES:**

- PROTECT DESIGNATED EXISTING TREES SCHEDULED TO REMAIN AGAINST:
  - UNNECESSARY CUTTING, BREAKING OR SHAKING OF ROOTS.
  - SKINNING AND BRUISING OF BARK.
  - SMOTHERING OF TREES BY STOCKPILING CONSTRUCTION OR EXCAVATION MATERIALS WITHIN DRIP-LINE.
  - FOOT OR VEHICULAR TRAFFIC.
- ERECT TEMPORARY WOODEN BARRICADES AS SHOWN ON THIS SHEET, BEFORE COMMENCEMENT OF ANY SITE CLEARING OR GRADING. FENCE TO BE 4' HIGH MINIMUM WITH 2"x4" POSTS AND 2"x4" RAILS AT 2' AND 4' ABOVE GRADE AND SHALL BE SET DEEP ENOUGH IN THE GROUND TO BE STABLE WITHOUT ADDITIONAL SUPPORT. ALL FENCING SHOULD BE A MINIMUM CLEAR DISTANCE OF 6' FROM THE FACE OF ANY TREES 12" DBH AND UNDER AND SHALL FULLY ENCLOSE ALL TREES SCHEDULED TO REMAIN. NOTHING SHALL BE PLACED INSIDE OF PROTECTIVE BARRICADES, INCLUDING BUT NOT LIMITED TO CONSTRUCTION MATERIAL, MACHINERY, CHEMICALS, OR TEMPORARY SOIL DEPOSITS. ON TREES LARGER THAN 12" DBH, BARRICADES SHALL BE NO CLOSER THAN 10' FROM FACE OF TREE WHEN FENCING, EXCAVATION, OR HARDSCAPE MUST BE DONE WITHIN BARRICADES. BARRICADES SHALL BE MOVED BACK TO A SECONDARY LOCATION AT TIME OF WORK. EXTRA CARE MUST BE TAKEN AT THIS TIME BY THE CONTRACTOR TO INSURE THAT NO DAMAGE TO THE TREE OCCURS.
- BARRIED WIRE FENCING IS NOT PERMISSIBLE.
- PROVIDE WATER TO TREES AS REQUIRED TO MAINTAIN THEIR HEALTH DURING CONSTRUCTION.
- NO GRADE CHANGES ARE TO BE MADE WITHIN THE BARRICADES WITHOUT PRIOR APPROVAL OF THE OWNER OR HIS DESIGNATED REPRESENTATIVE.

**THE CITY OF DAYTONA BEACH**  
ENGINEERING DIVISION

**TREE PROTECTION BARRICADE DETAIL**  
I-6

Drawing Date: 11/2000  
Drawn By: JTT  
Checked By: JTT  
Scale: 1/8"=1'-0"  
Revision Date: 10/2011  
File Name: ed-6

**SODDING, SEEDING, & MULCHING NOTES**

**SCOPE OF WORK:**  
THE WORK IN THIS SECTION CONSISTS OF FURNISHING AND COMPLETELY INSTALLING SOD, OR SEED AND MULCH OVER THE LIMITS CALLED FOR ON THE CONSTRUCTION DRAWINGS. AT A MINIMUM, ALL WORK SHALL MEET THE MINIMUM SPECIFICATIONS OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, AS OUTLINED IN SECTIONS 570 (GRASSING BY SEEDING) AND 575 (SODDING). IN ADDITION, ALL WORK SHALL MEET THE MINIMUM REQUIREMENTS OF THE CITY OF DAYTONA BEACH.

**MATERIALS:**  
GRASS SEED SHALL BE A MIXTURE OF:  
PENSACOLA BAHIA (USE 50% SCARIFIED SEED) 50%  
HULLED BERMUDA 25%  
BROWN TOP MILLET 25%

IN THE FALL AND WINTER MONTHS, AND WITH THE APPROVAL OF THE CITY, ANNUAL RYE GRASS SHALL BE SUBSTITUTED IN EQUAL AMOUNTS FOR THE BROWN TOP MILLET. SEED SHALL BE PRE-MIXED BY A SEED COMPANY TO THE PERCENTAGES DESCRIBED ABOVE, WITH CERTIFICATION FROM THE SUPPLIER PROVIDED TO THE CITY'S DESIGNATED PROJECT LANDSCAPE INSPECTOR PRIOR TO USE.

MULCH SHALL BE STRAW OR HAY CONSISTING OF OATS, RYE, OR WHEAT STRAW, OR OF PANGOLA, PEANUT, COASTAL BERMUDA, OR BAHIA GRASS HAY. MULCH SHALL BE FREE FROM WEEDS AND OTHER UNDESIRABLE GRASS.

**METHODS:**  
GRASSING SHALL BE DONE IMMEDIATELY UPON COMPLETION OF THE FINE GRADING OPERATION. HOWEVER, NO SEEDING SHALL BE DONE WHEN THE GROUND IS UNDULY WET. THE RATE OF SPREAD FOR THE SEED MATERIAL SHALL BE ONE HUNDRED AND THIRTY (130) POUNDS PER ACRE.

APPROXIMATELY ONE INCH (1"), LOOSE THICKNESS, OF MULCH MATERIAL SHALL BE 1/2 BALES PER 1000 SQUARE FEET. THE MULCH MATERIAL SHALL BE CUT INTO THE SOIL WITH A DISC HARROW OR OTHERWISE ANCHORED DOWN UNDER PROPER CIRCUMSTANCES, CONTRACTOR MAY REQUEST AN OPTION TO INSTALL HYDRO-SEEDING, SUBJECT TO THE APPROVAL OF THE PROJECT LANDSCAPE ARCHITECT AND THE CITY OF DAYTONA BEACH.

WATER THE GROUND PRIOR TO LAYING OF SOD SUCH THAT THE TOP 1/2" OF SOIL IS MOIST. UNDER NO CIRCUMSTANCES SHALL SOD BE PLACED ON DRY SOIL. WATER AND MAINTAIN GRASS, INCLUDING MOWING FOR 90 DAYS OR UNTIL THE SOD IS FULLY ESTABLISHED. CONTRACTOR IS REQUIRED TO REPLACE ANY DEAD OR NON-RESPONSIVE SOD AT NO ADDITIONAL COST TO THE CITY OR OWNER.

**THE CITY OF DAYTONA BEACH**  
ENGINEERING DIVISION

**SODDING, SEEDING AND MULCHING NOTES**  
I-9

Drawing Date: 11/2000  
Drawn By: JTT  
Checked By: JTT  
Scale: 1/8"=1'-0"  
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File Name: ed-9

**AS-BUILT DRAWING REQUIREMENTS**

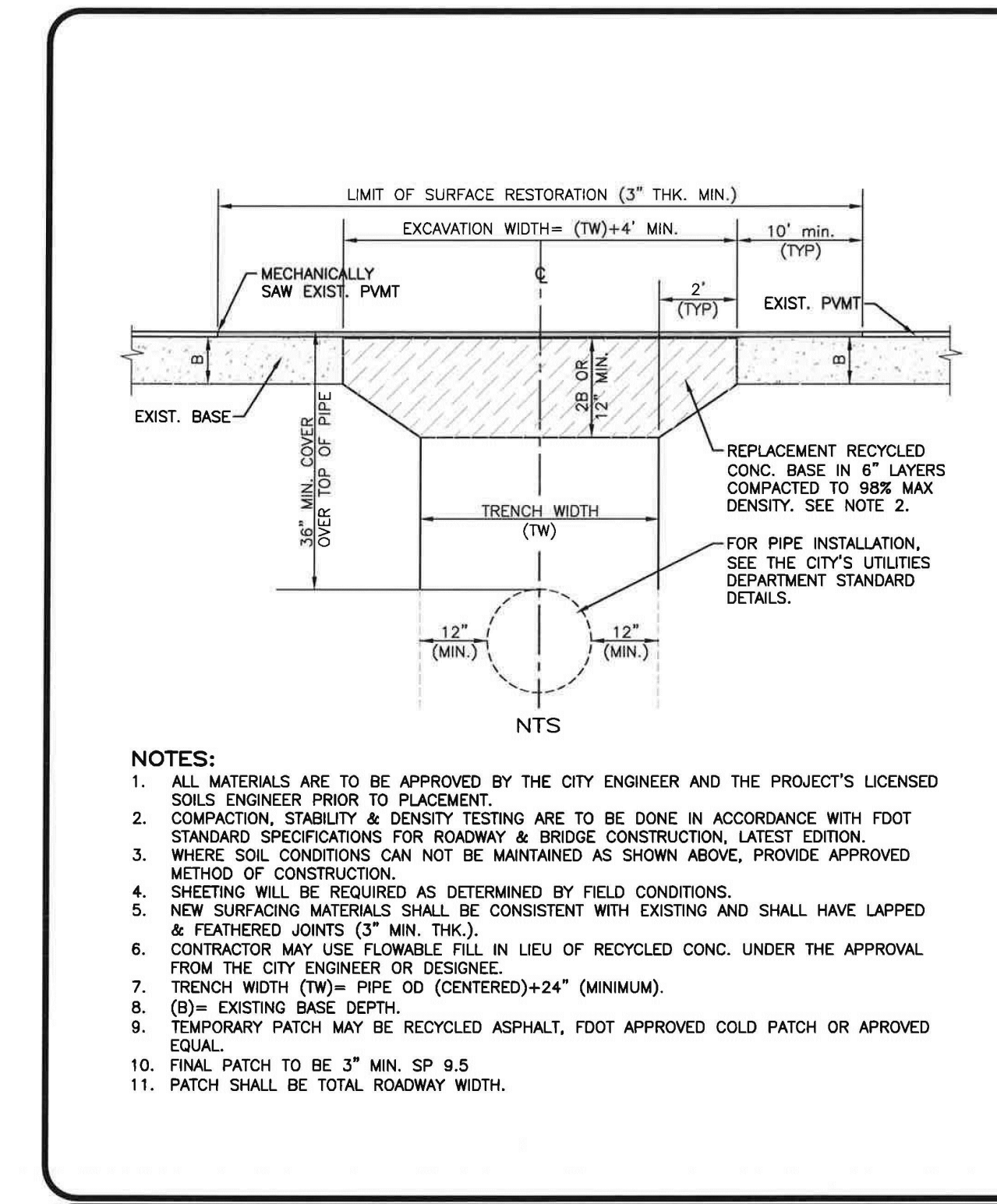
IN ORDER TO ENSURE THAT NEW SUBDIVISIONS AND SITE PLANS ARE CONSTRUCTED SUBSTANTIALLY IN ACCORDANCE WITH CITY REGULATIONS AND THE APPROVED DRAWINGS, THE FOLLOWING INFORMATION IS REQUIRED ON ALL AS-BUILT DRAWINGS.

- PAVEMENT AND CURB WIDTHS SHALL BE VERIFIED AND DIMENSIONED FOR EACH STREET AT EACH BLOCK (FOR SUBDIVISIONS) AND AS APPROPRIATE TO CONFIRM PAVING LIMITS (ON SITE PLANS).
- ALL RADI AT INTERSECTIONS SHALL BE VERIFIED AND DIMENSIONED. THIS INFORMATION IS TO BE CLEARLY INDICATED ON THE AS-BUILT.
- ROADWAY ELEVATIONS SHALL BE RECORDED AT ALL GRADE CHANGES, 100' INTERVALS ALONG ROADWAY, AND OTHER INTERVALS AS NEEDED ALONG ALL STREETS. STREET CENTERLINE AND CURB INVERT ELEVATIONS SHALL BE RECORDED AS NOTED. THE AS-BUILT CENTERLINE PROFILE OF ALL STREETS SHALL ALSO BE SHOWN ON THE PLAN AND PROFILE SO IT MAY BE COMPARED TO THE DESIGN PROFILE GRADE LINES. IN THE EVENT THAT THE AS-BUILT CENTERLINE LONGITUDINAL GRADE DOES NOT MEET THE CITY MINIMUM STANDARDS, ADDITIONAL LONGITUDINAL GRADES OF THE ADJACENT CURBING AND SIMILAR ROADWAY CROSS-SECTION SURVEYS TO VERIFY THE CORRECT CROSS SLOPE, SHALL BE REQUIRED TO VERIFY THAT THE SYSTEM WILL FUNCTION AS ORIGINALLY DESIGNED.
- ALL APPLICABLE TOPOGRAPHIC INFORMATION PERTINENT TO THE ON-SITE DRAINAGE SYSTEM, SUCH AS DITCHES, SWALES, LAKES, CANALS, ETC. THAT ARE CREED NECESSARY BY THE CITY TO VERIFY THE FUNCTIONAL PERFORMANCE OF THE STORM WATER SYSTEM, SHALL BE NOTED. NORMALLY, RECORDING ELEVATIONS EVERY 100 FEET AT THE TOP OF BANK AND TOP OF SLOPE WILL BE REQUIRED. MEASUREMENTS SHALL BE TAKEN AND RECORDED IN ORDER TO ACCURATELY DOWNS THESE FEATURES TO THE ROADWAY CENTERLINES AND TO PLAT LINES, WHENEVER POSSIBLE, CONTOUR LINES SHALL BE UTILIZED TO GRAPHICALLY DESCRIBE THESE TOPOGRAPHIC FEATURES.
- RETENTION AREAS SHALL HAVE THEIR TOP-OF-BANK AND BOTTOM ELEVATIONS RECORDED. ACTUAL MEASUREMENTS SHALL BE TAKEN AND DIMENSIONS RECORDED OF THE SIZE OF ALL RETENTION AREAS. SEPARATE CALCULATIONS SHALL BE SUBMITTED TO INDICATE REQUIRED AND PROVIDED RETENTION VOLUMES.
- ACTUAL MATERIALS USED AND DIMENSIONS OF OVERFLOW WEIR STRUCTURES AND SUMMERS SHALL BE NOTED ON THE AS-BUILT.
- STORM DRAINAGE SWALE CENTERLINES SHALL BE LOCATED AND ELEVATIONS OF FLOW LINE AND TOP OF BANK SHALL BE RECORDED EVERY 100 FEET OR CHANGE IN GRADE. SIDE SLOPES SHALL ALSO BE INDICATED.
- FOR SUBDIVISIONS, PROPOSED DESIGN FINISHED FLOOR ELEVATIONS SHALL APPEAR ON ALL SUBDIVISION LOTS ON THE APPROPRIATE PLAN AND PROFILE SHEET AS WELL AS ON THE MASTER DRAINAGE PLAN.
- ANY SPECIAL FEATURES SUCH AS CONCRETE FLUMES, LAKE BANKS, WALLS, FENCING, ETC. WHICH WERE A PART OF THE APPROVED CONSTRUCTION DRAWINGS SHOULD ALSO BE LOCATED AND DIMENSIONED.
- IF AN APPROVED SUBDIVISION PLAN OR SITE PLAN SHOWS A CONSERVATION EASEMENT, THE PROJECT SURVEYOR SHOULD PROVIDE THE EXACT LOCATION OF THE SPECIMEN TREE(S) FROM THE RIGHT-OF-WAY OR PROPERTY LINES AND PROPOSED EASEMENT BOUNDARIES ON THE AS-BUILT DRAWING. THE LOCATION OF THESE TREES WILL HELP VERIFY THE SUFFICIENCY OF THE CONSERVATION EASEMENT PRIOR TO PLAT RECORDING OR CERTIFICATE OF OCCUPANCY.
- AS BUILT DRAWINGS ARE TO BE PREPARED BY A FLORIDA LICENSED SURVEYOR AND SHALL INCLUDE A SIGNED CERTIFICATION STATEMENT BY THE FLORIDA LICENSED ENGINEER OF RECORD, TWO (2) SIGNED & SEALED PAPER SETS OF AS-BUILT RECORD DRAWINGS SHALL BE PROVIDED ALONG WITH A DIGITAL COPY IN BOTH, A COMPATIBLE AutoCAD FORMAT & PDF FORMAT.

**THE CITY OF DAYTONA BEACH**  
ENGINEERING DIVISION

**AS-BUILT DRAWING REQUIREMENTS NOTES**  
M-8

Drawing Date: 01/2003  
Drawn By: JTT  
Checked By: JTT  
Scale: 1/8"=1'-0"  
Revision Date: 10/2011  
File Name: ed-8



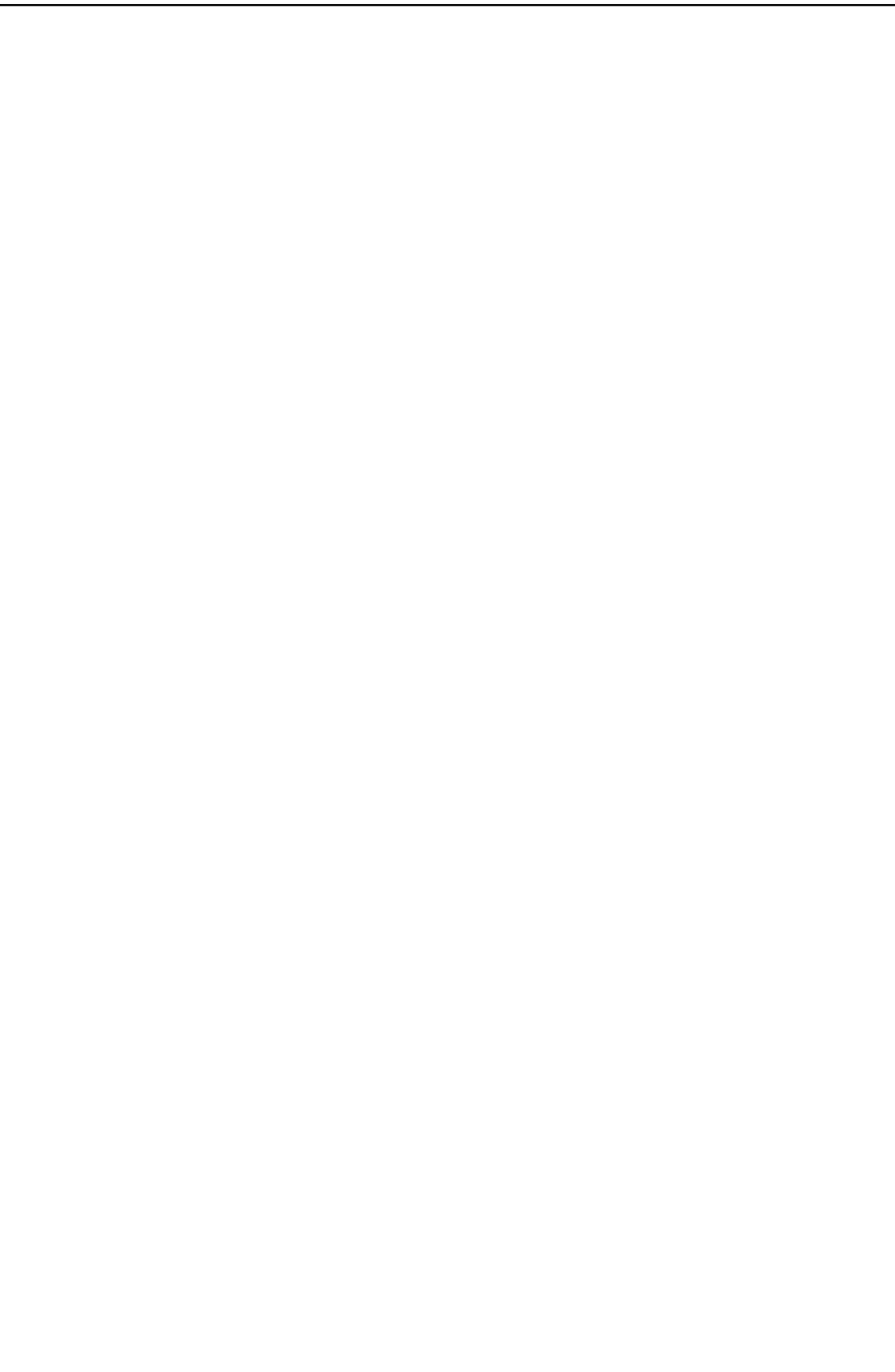
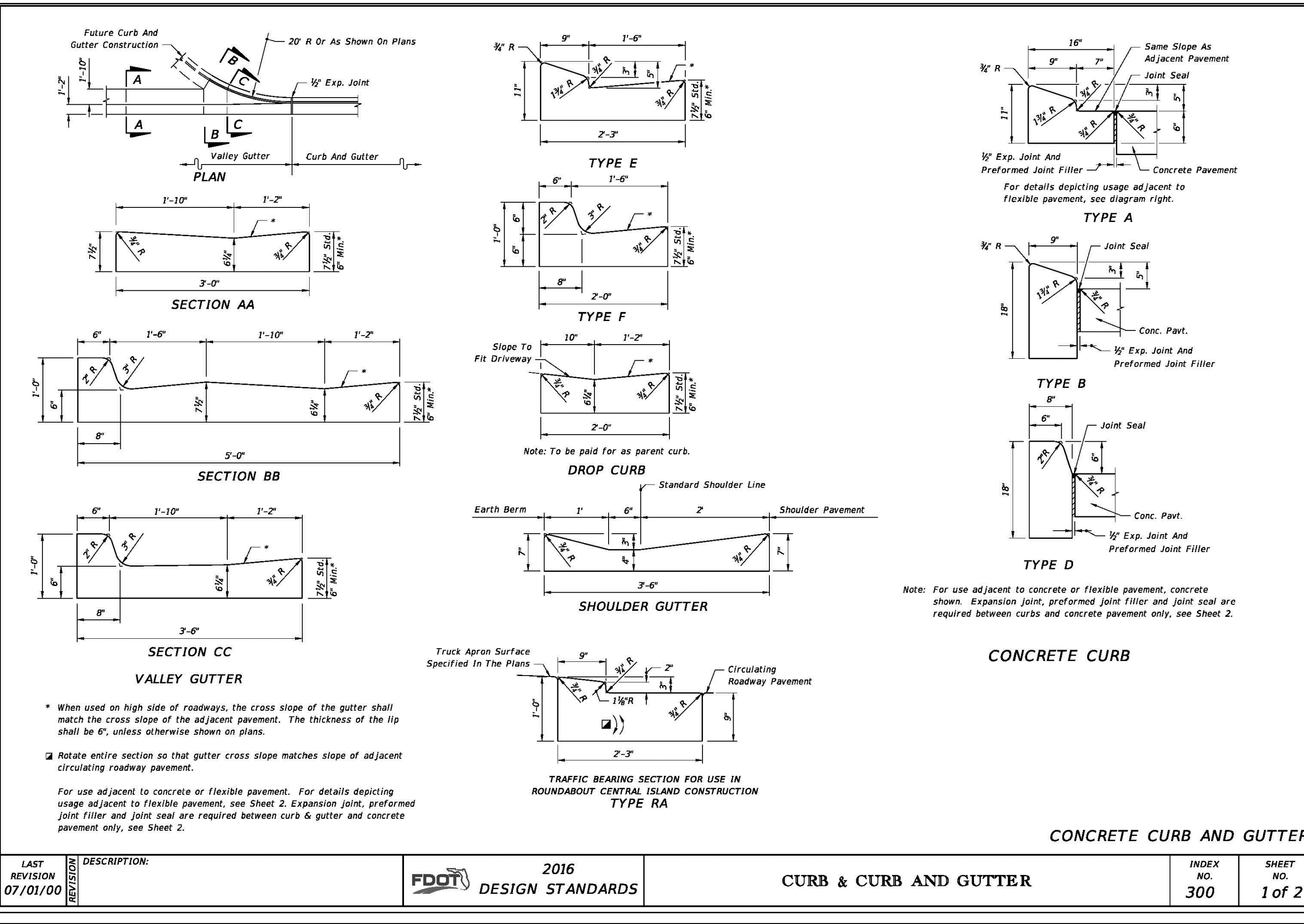
**NOTES:**

- ALL MATERIALS ARE TO BE APPROVED BY THE CITY ENGINEER AND THE PROJECT'S LICENSED SOILS ENGINEER PRIOR TO PLACEMENT.
- COMPACTION, STABILITY & DENSITY TESTING ARE TO BE DONE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROADWAY & BRIDGE CONSTRUCTION, LATEST EDITION.
- WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
- SHEETING WILL BE REQUIRED AS DETERMINED BY FIELD CONDITIONS.
- NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING AND SHALL HAVE LAPPED & FEATHERED JOINTS (3" MIN. THK.).
- CONTRACTOR MAY USE FLOWABLE FILL IN LIEU OF RECYCLED CONC. UNDER THE APPROVAL FROM THE CITY ENGINEER OR DESIGNER.
- TRENCH WIDTH (TW)= PIPE OD (CENTERED)+24" (MINIMUM).
- (D)= EXISTING BASE DEPTH.
- TEMPORARY PATCH MAY BE RECYCLED ASPHALT, FDOT APPROVED COLD PATCH OR APPROVED EQUAL.
- FINAL PATCH TO BE 3" MIN. SP 9.5
- PATCH SHALL BE TOTAL ROADWAY WIDTH.

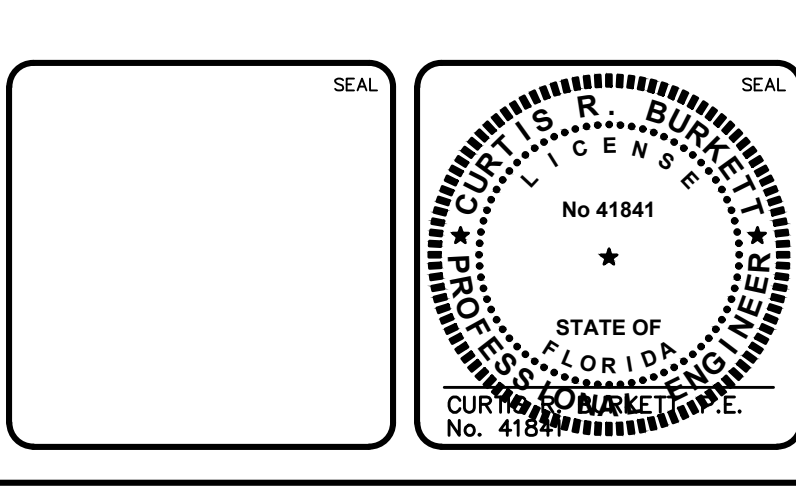
**THE CITY OF DAYTONA BEACH**  
ENGINEERING DIVISION

**PAVEMENT CUT & PATCH OVER PIPE TRENCH DETAIL**  
R-7

Drawing Date: 01/2003  
Drawn By: JTT  
Checked By: JTT  
Scale: 1/8"=1'-0"  
Revision Date: 10/2011  
File Name: ed-7



REV. NO.	DESCRIPTION	DATE
A	ISSUE FOR BIDDING	AUGUST 2018



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**THE CITY OF DAYTONA BEACH**  
DAYTONA BEACH, FLORIDA

**DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT**

**MISCELLANEOUS DETAILS**

**PROJECT NO. 2015-085**

DATE: APRIL 2017  
MCE PROJ. #: 0996-0161  
DRAWN: DMP  
DESIGNED: P.J.L.  
CHECKED: CRB  
PROJ. MGR.: CRB

SCALE: HORIZONTAL: 1"=20'  
VERTICAL: 1"=4'

MAC FILE NUMBER: 0001-09960161  
DRAWING NUMBER: CD-10

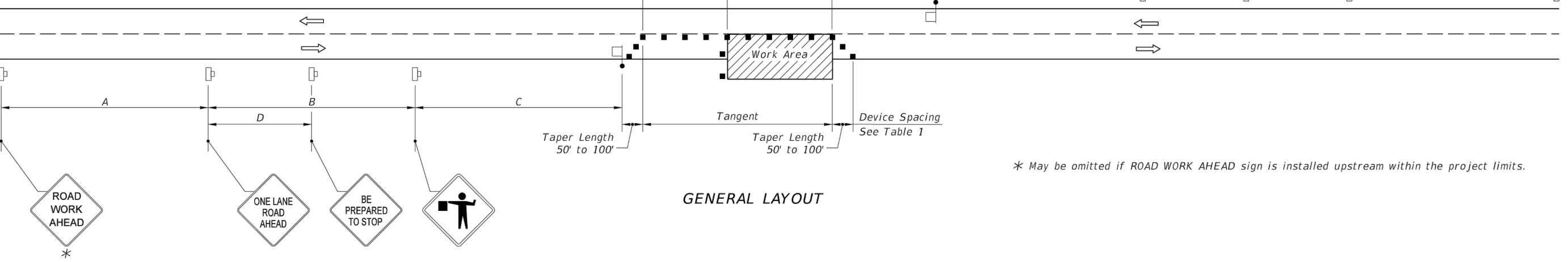
STATUS: ISSUE FOR BIDDING

S:\0996\0161\00-drawings\General\0001-09960161.DWG, 6/23/2018 11:06:11 AM, Doreen Pougnet



**SYMBOLS:**

- Work Area
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Flagger
- Automated Flagger Assistance Device (AFAD) With Side
- Lane Identification + Direction of Traffic



**GENERAL NOTES:**

1. Special Conditions may be required in accordance with these notes and the following sheets.
2. If the Work Area encroaches on the Centerline, use the Layout for Temporary Lane Shift to Shoulder on Sheet 2 only if the Existing Paved Shoulder width is sufficient to provide for an 11' lane between the Work Area and the Edge of Existing Paved Shoulder. Reduce the posted speed when appropriate.
3. Temporary Raised Rumble Strips:
  - a. Use when both of the following conditions are met concurrently:
    - i. Existing Posted Speed is 50 mph or greater;
    - ii. Work duration is greater than 60 minutes.
  - b. Use a consistent Strip color throughout the work zone.
  - c. Place each Rumble Strip Set transversely across the lane at locations shown.
  - d. Use Option 1 or Option 2 as shown on Sheet 2. Use only one option throughout work zone.
4. Additional one-way control may be provided by the following means:
  - a. Flag-carrying vehicle;
  - b. Official vehicle;
  - c. Pilot vehicles;
  - d. Traffic signals.
5. When a side road intersects the highway within the TTC zone, place additional TTC devices in accordance with other applicable TCZ Indexes.
6. The two channelizing devices directly in front of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
7. When Buffer Space cannot be attained due to geometric constraints, use the greatest attainable length, not less than 200 ft.
8. Railroad Crossings:
  - a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
  - b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.
9. ROAD WORK AHEAD and the BE PREPARED TO STOP signs may be omitted if all of the following conditions are met:
  - a. Work operations are 60 minutes or less;
  - b. Speed limit is 45 mph or less;
  - c. There are no sight obstructions to vehicles approaching the work area for a distance equal to the Buffer Space shown in Table 1.
  - d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
  - e. Volume and complexity of the roadway has been considered.
  - f. If a railroad crossing is present, vehicles will not queue across rail tracks.
  - g. AFADs are not in use.
10. See Index 600 for general TCZ requirements and additional information.
11. Automated Flagger Assistance Devices (AFADs) may be used in accordance with the notes on Sheet 2.

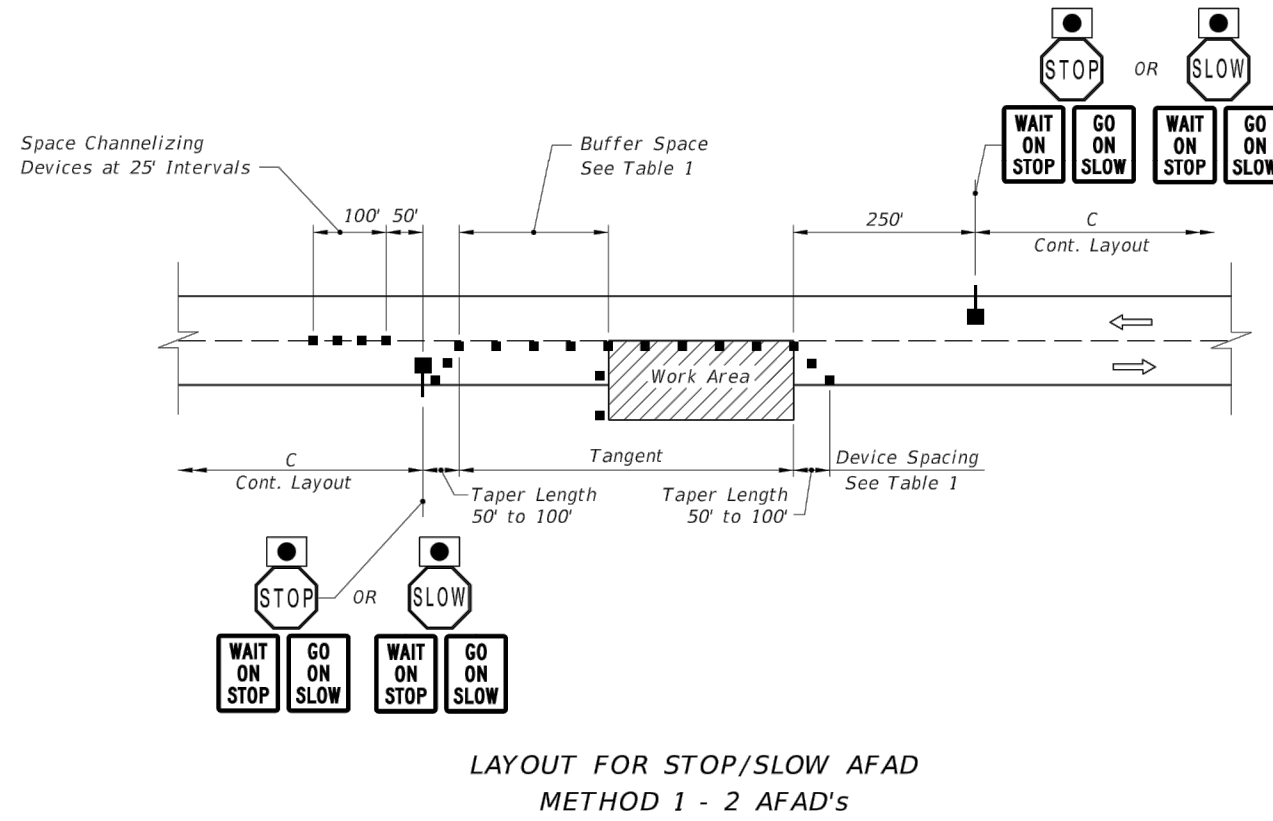
Posted Speed	DEVICE SPACING				Distance Between Signs				Buffer Space
	Maximum Spacing of Cones or Tubular Markers		Maximum Spacing of Type I or Type II Barricades/Panels/Drums		A	B	C	D	
	On a Taper	On a Tangent	On a Taper	On a Tangent					
25	20	50	20	50	200	200	200	100	150
30	20	50	20	50	200	200	200	100	200
35	20	50	20	50	200	200	200	100	250
40	20	50	20	50	200	200	200	100	300
45	20	50	20	50	350	350	350	175	360
50	20	50	20	100	500	500	500	250	425
55	20	50	20	100	2640	1500	1000	500	495
60	20	50	20	100	2640	1500	1000	500	570
65	20	50	20	100	2640	1500	1000	500	645
70	20	50	20	100	2640	1500	1000	500	730

**CONDITIONS**  
WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCRUCH THE AREA BETWEEN THE CENTERLINE AND A LINE 2' OUTSIDE THE EDGE OF TRAVEL WAY.

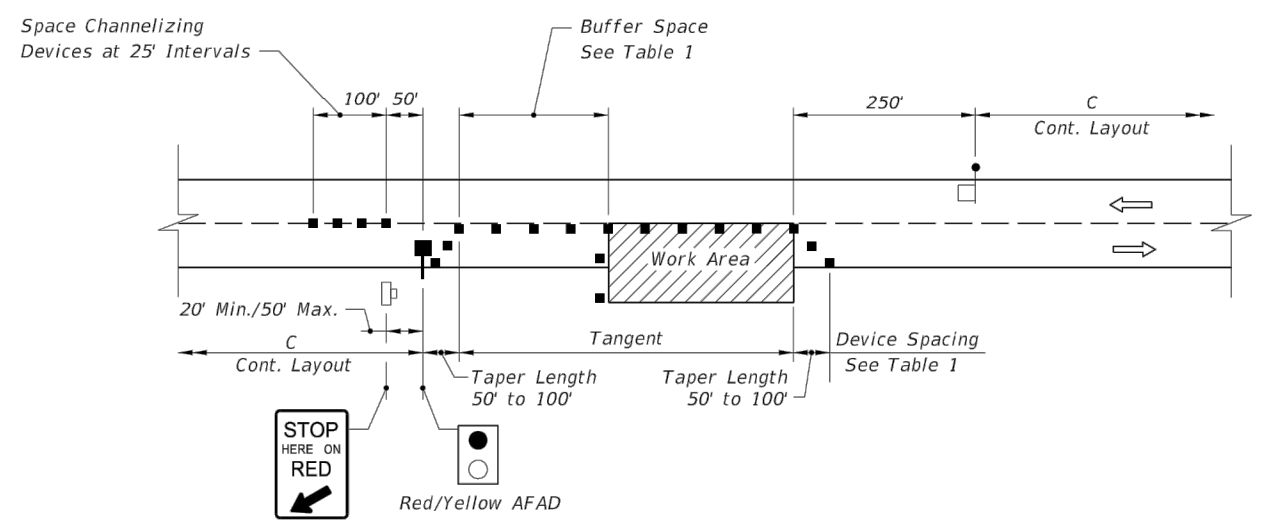
LAST REVISION: 07/01/15	DESCRIPTION: 2016 DESIGN STANDARDS	FDOT	2016 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX NO. 603	SHEET NO. 1 of 3
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**AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs):**

1. Illuminate the flagging station when the AFAD is used at nighttime.
2. When the AFAD is not in use, remove or cover signs and move AFAD device outside the clear zone or shield it with a barrier or crash cushion.
3. Only qualified flaggers who have been trained in the operation of the AFAD may operate the AFAD. When in use, each AFAD must be in view of and attended at all times by the flagger operating the device. Use two flaggers and one of the following methods in the deployment of AFADs:
  - Method 1: Place an AFAD at each end of the temporary traffic control zone.
  - Method 2: Place an AFAD at one end of the temporary traffic control zone and a flagger at the opposite end.
4. A single flagger may simultaneously operate two AFADs (Method 1) or may operate a single AFAD on one end of the temporary traffic control zone while being the flagger at the opposite end of the temporary traffic control zone (Method 2) if all four of the following conditions are present:
  - a. The flagger has an unobstructed view of the AFADs;
  - b. The flagger has an unobstructed view of approaching traffic in both directions;
  - c. For Method 1, the AFADs are less than 800 ft apart. For Method 2, the AFAD and the flagger are less than 800 ft apart.
  - d. Two trained flaggers are available on-site to provide normal flagging operations should an AFAD malfunction.



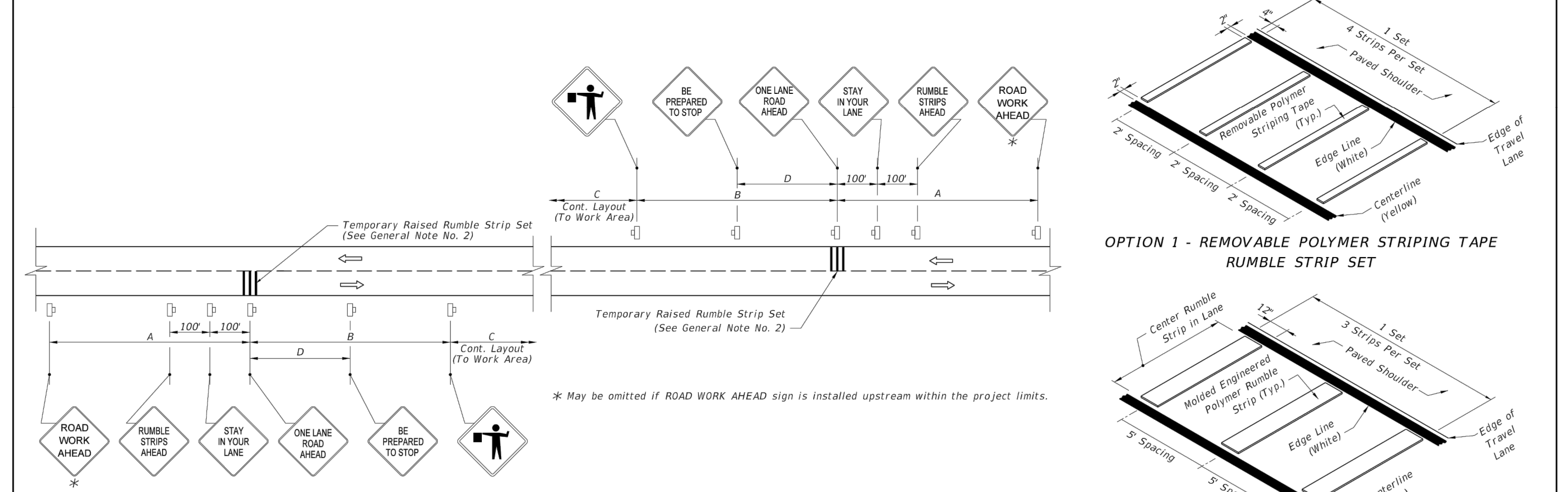
LAYOUT FOR STOP/SLOW AFAD METHOD 1 - 2 AFADs



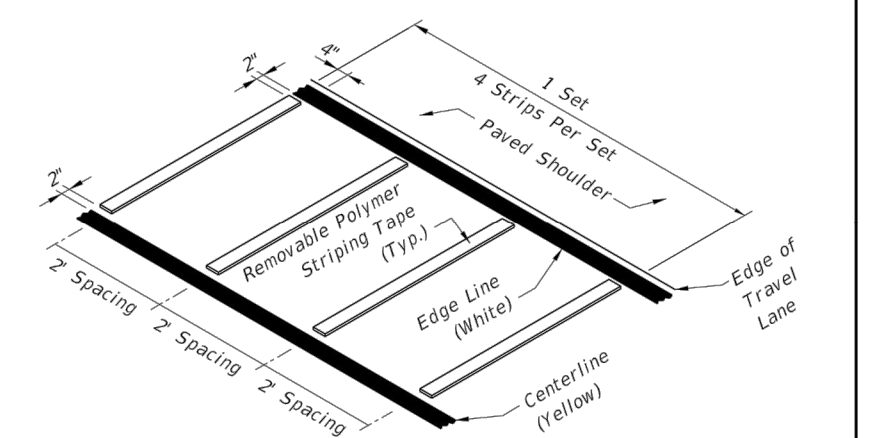
LAYOUT FOR RED/YELLOW AFAD METHOD 2 - 1 AFAD & FLAGGER

**AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs)**

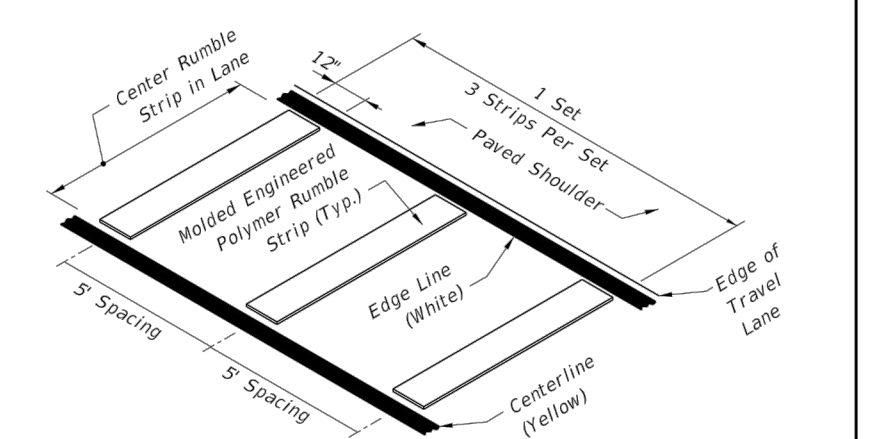
LAST REVISION: 07/01/15	DESCRIPTION: 2016 DESIGN STANDARDS	FDOT	2016 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX NO. 603	SHEET NO. 3 of 3
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LAYOUT FOR TEMPORARY RAISED RUMBLE STRIPS WHEN REQUIRED WITH ADDITIONAL SIGNS

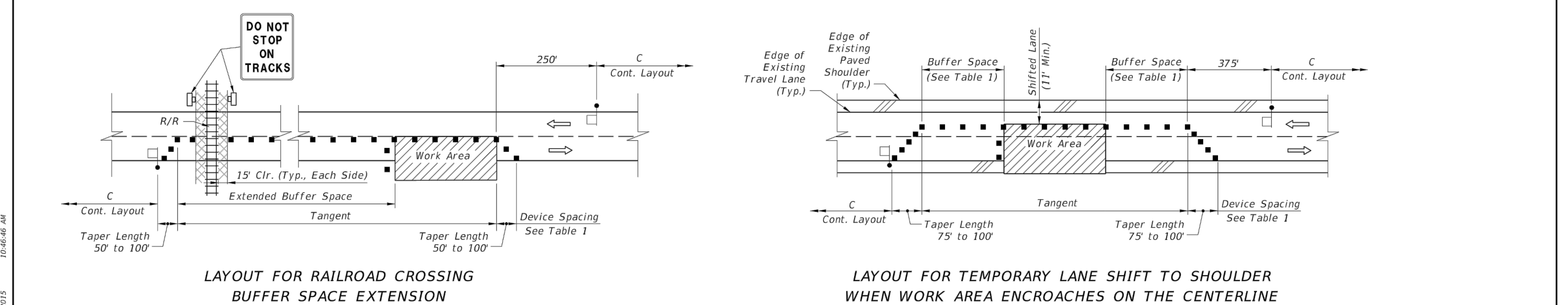


OPTION 1 - REMOVABLE POLYMER STRIPING TAPE RUMBLE STRIP SET



OPTION 2 - MOLDED ENGINEERED POLYMER RUMBLE STRIP SET

**TEMPORARY RAISED RUMBLE STRIPS**

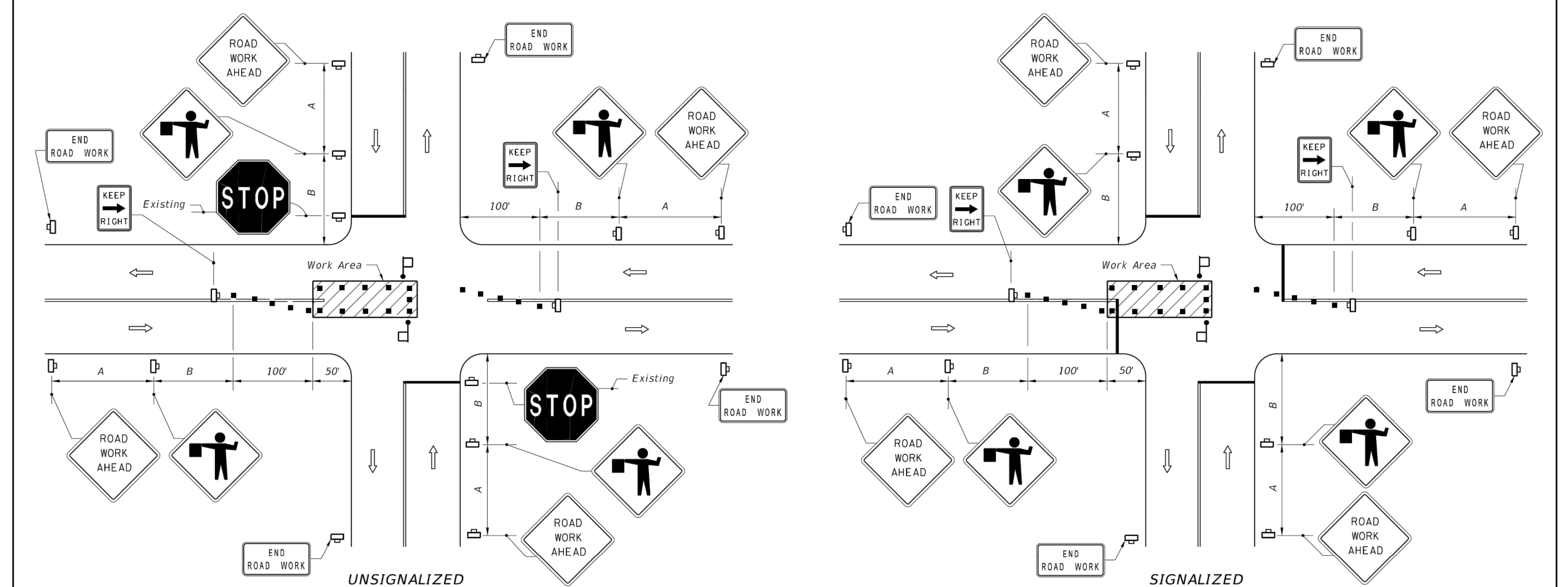


LAYOUT FOR RAILROAD CROSSING BUFFER SPACE EXTENSION

LAYOUT FOR TEMPORARY LANE SHIFT TO SHOULDER WHEN WORK AREA ENCRUCHES ON THE CENTERLINE

**SPECIAL CONDITIONS**

LAST REVISION: 07/01/15	DESCRIPTION: 2016 DESIGN STANDARDS	FDOT	2016 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX NO. 603	SHEET NO. 2 of 3
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**SYMBOLS**

- Work Area
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Flagger
- Stop Bar
- Lane Identification + Direction of Traffic

**GENERAL NOTES**

1. The FLAGGER legend sign may be substituted for the symbol sign.
2. When vehicles in a parking zone block the line of sight to TCZ signs, the signs shall be post mounted and located in accordance with Index No. 17302.
3. If the work space extends across a crosswalk, the crosswalks should be closed using the information in Index No. 660.
4. Flaggers shall be located where they can control more than one direction of traffic. Flaggers shall be in sight of each other or in direct communication at all times.
5. Maximum spacing between channelizing devices shall be not greater than 20'.
6. Temporary signal phasing modifications are to be approved by the District Traffic Operations Engineer prior to the beginning of work.
7. For general TCZ requirements and additional information, refer to Index No. 600.
8. For unsignalized intersections, use Temporary Raised Rumble Strips in accordance with Index 603. Placement of Rumble Strips and additional signs should begin at FLAGGER sign location.

**DURATION NOTES**

1. ROAD WORK AHEAD and END ROAD WORK sign may be omitted if all of the following conditions are met:
  - a. Work operations are 60 minutes or less;
  - b. Speed is 45 mph or less;
  - c. No sight obstructions to vehicles approaching the work area for a distance equal to A plus B;
  - d. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating;
  - e. Volume and complexity of the roadway has been considered.

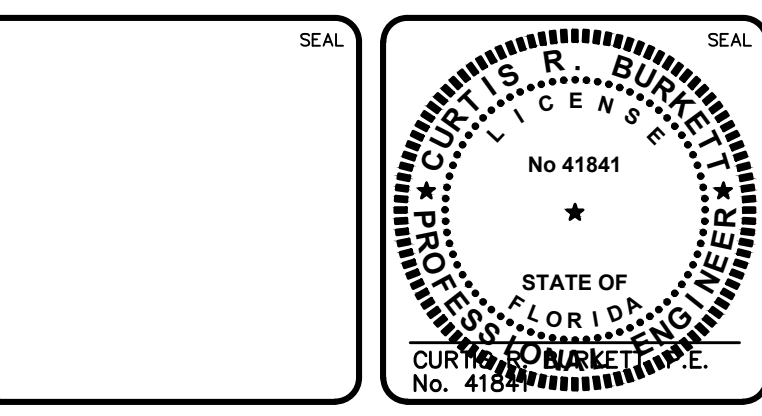
Speed	Spacing (ft.)	
	A	B
40 mph or less	200	200
45 mph	350	350

**CONDITIONS**

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCRUCH ON THE PAVEMENT REQUIRING THE CLOSURE OF A PORTION OF ONE OR MORE TRAFFIC LANES IN AN INTERSECTION.

LAST REVISION: 07/01/15	DESCRIPTION: 2016 DESIGN STANDARDS	FDOT	2016 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK IN INTERSECTION	INDEX NO. 604	SHEET NO. 1 of 1
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ISSUE FOR BIDDING	AUGUST 2018
REVISIONS	DESCRIPTIONS



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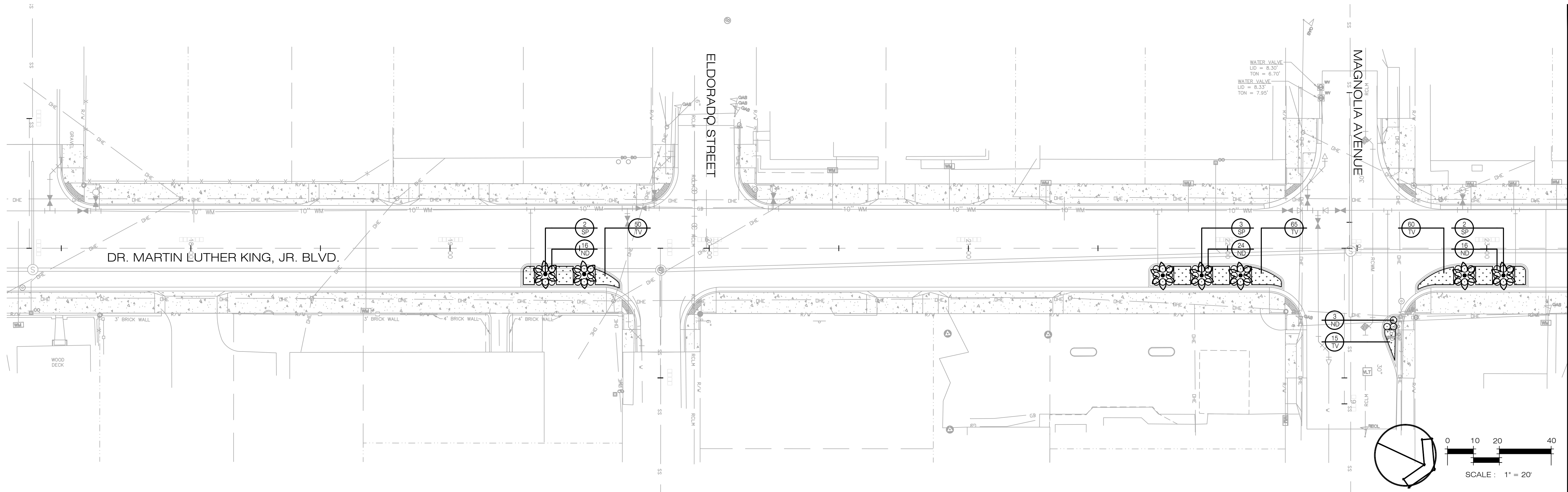
THE CITY OF  
DAYTONA BEACH, FLORIDA

DR. MARTIN LUTHER KING, JR.  
BOULEVARD-ROADWAY AND PEDESTRIAN  
IMPROVEMENTS PROJECT  
MAINTENANCE OF TRAFFIC PLAN

PROJECT NO. 2015-085

DATE: APRIL 2017	SCALE: HORIZONTAL: 1"=20'
MCE PROJ. # 0996-0161	VERTICAL: 1"=4'
DRAWN: DMP	MAC FILE NUMBER: 0001-09960161
DESIGNED: P.J.L.	DRAWING NUMBER: CD-11
CHECKED: CRB	
PROJ. MGR. CRB	

STATUS: ISSUE FOR BIDDING



PLANT LIST				
SYM.	QTY.	SPECIES	COMMON NAME	SPECIFICATIONS
<b>PALMS</b>				
SP	10	SABAL PALMETTO	CABBAGE PALM	14' CLEAR TRUNK, SLICK
<b>SHRUBS &amp; GROUND COVER</b>				
ND	83	NANDINA DOMESTICA 'FIREPOWER'	FIREPOWER NANDINA	3 GAL., 18" HT., 30" O.C.
TV	265	TULBAGHIA VIOLACEA	SOCIETY GARLIC	1 GAL., 12" SPRD., 18" O.C.

**LANDSCAPE GENERAL NOTES**

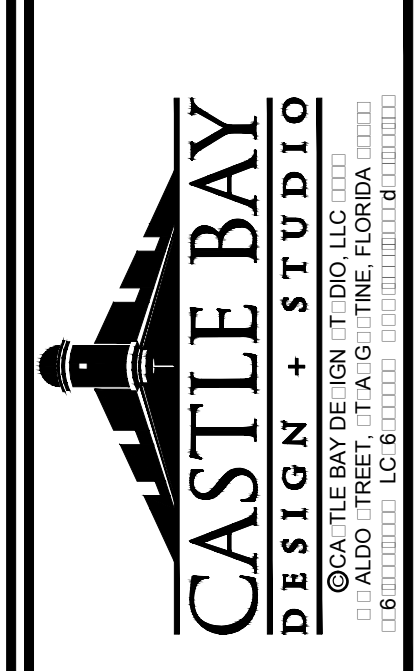
- FLORIDA #1:** ALL PLANT MATERIAL SHALL BE GRADE FLORIDA NO. 1 OR BETTER IN QUALITY AS DESIGNATED IN THE MOST RECENT PUBLICATION OF 'GRADES AND STANDARDS FOR NURSERY PLANTS', PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES.
- MULCH:** ALL PLANTING BEDS SHALL BE TOP DRESSED WITH 3" PINE BARK MULCH. ALL TREES NOT IN BEDS SHALL HAVE A 5' DIAMETER MULCH RING. ALL PALMS NOT IN BEDS SHALL HAVE A 3' DIAMETER MULCH RING.
- QUANTITIES:** IN THE EVENT OF A VARIATION BETWEEN THE QUANTITIES SHOWN ON THE PLANT LIST AND THE ACTUAL QUANTITY OF PLANTS SHOWN ON THE PLAN, THE PLAN SHALL CONTROL. SOD QUANTITY TAKEOFFS ARE THE RESPONSIBILITY OF THE CONTRACTOR. UNFORESEEN CONFLICTS: CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY PORTION OF THE LANDSCAPE PLAN AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNFORESEEN OBSTRUCTIONS, GRADE DIFFERENCES, STANDING WATER, SOIL CONDITIONS OR OTHER CONFLICTS EXIST. SUCH UNFORESEEN CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE AND THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- SUBSTITUTIONS:** NO SUBSTITUTIONS OR VARIATIONS OF ANY PLANT MATERIAL OR ITS INSTALLED LOCATION WILL BE PERMITTED WITHOUT THE PRIOR WRITTEN CONSENT AND APPROVAL FROM THE LANDSCAPE ARCHITECT.
- CONTAINERS:** IF GALLONAGE FOR PLANTS OR TREES IS SHOWN THEY SHALL BE CONTAINER GROWN AND THE SIZE SHOWN SHALL REPRESENT THE MINIMUM ALLOWABLE GALLONAGE ACCEPTED. IN ALL CASES THE PLANT SPECIFIED SIZE SHALL GOVERN OVER THE GALLONAGE INDICATED.
- PLANTING SOIL:** CONTRACTOR SHALL VERIFY THAT SOIL CONDITIONS ARE SUITABLE TO THE PLANT SPECIES SPECIFIED. IF SOIL CONDITIONS ARE DEEMED UNSUITABLE FOR PROPER PLANT HEALTH, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT AND PROPER SUBSTITUTIONS SHALL BE SPECIFIED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. ADDITIONALLY, IF PRESENT, THE CONTRACTOR SHALL REMOVE LIME ROCK, CONCRETE AND OTHER DELETERIOUS DEBRIS FROM PLANTING BEDS. IF DEBRIS IS INTEGRATED IN THE SOIL, THE SOIL MUST BE EXCAVATED AND REPLACED WITH ACCEPTABLE SOIL. LASTLY, ALL FILL TO BE PLACED IN LANDSCAPE AREAS MUST HAVE A pH RANGE BETWEEN 5.8 AND 7.5, BE ORGANIC IN NATURE, AND BE FREE OF ROCKS AND DEBRIS.
- TOPSOIL:** TOPSOIL MATERIAL, IF REQUIRED, SHALL BE FREE FROM ALL HARD CLODS, WEEDS, STONES OVER 1" IN DIAMETER, CLAY, HARD PAN, NOXIOUS PLANTS, SOO, INSECTS, OR OTHER UNDESIRABLE PLANTS, SEEDS, OR MATERIAL WHICH MAY BE HARMFUL FOR GROWTH AND SHALL BE CERTIFIED AS STERILE.
- WEEDS:** IF PRESENT, THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ANY WEEDS FROM PLANTING AREAS PRIOR TO THE INSTALLATION OF PROPOSED PLANT MATERIAL AND MULCH COVER. CONTRACTOR SHALL BE RESPONSIBLE TO KEEP BEDS FREE OF WEEDS FOR THE DURATION OF THE 90 DAY MAINTENANCE PERIOD.
- GRADING:** UNLESS OTHERWISE STATED ON THESE PLANS, THE LANDSCAPE CONTRACTOR SHALL FINE GRADE ALL AREAS TO BE PLANTED AND SODDED IN ORDER TO ELIMINATE BUMPS AND DEPRESSIONS. FINE GRADING SHALL BE DEFINED AS THE FINAL 2" OF GRADE TO BE ACHIEVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND REGRADING WASHOUT AREAS CAUSED BY EROSION UNTIL FINAL ACCEPTANCE OF THE PROJECT.
- STAKING:** ALL TREES, AND PALMS ARE TO BE STAKED ACCORDING TO THE DETAILS IN THESE PLANS. IF THE CONTRACTOR PREFERS TO USE OTHER STAKING METHODS THAN SHOWN IN THE DETAILS, HE OR SHE MUST SUBMIT PROPOSED STAKING DETAILS TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN, REPAIR, AND/OR REPLACE ANY PLANTS DAMAGED BY FAILURE TO PROPERLY STAKE OR GUY ANY TREES ON SITE, AT THEIR OWN EXPENSE.
- CURVILINEAR:** CURVILINEAR LANDSCAPE BEDS ARE TO BE EDGED WITH SMOOTH FLOWING CURVES. STRAIGHT-LINE LANDSCAPE BEDS ARE TO BE EDGED IN A STRAIGHT LINE PARALLEL TO PARKING LOTS AND STRUCTURES UNLESS DESIGNED OTHERWISE.
- FERTILIZER:** OSMOCOTE SLOW RELEASE FERTILIZER OR EQUIVALENT SHALL BE APPLIED TO ALL TREE, SHRUB, AND GROUND COVER PLANTING AREAS AT THE RATE OF THREE (3) TABLESPOONS PER 2 S.F. OF PLANTING AREA.
- DRAINAGE:** THE LANDSCAPE CONTRACTOR SHALL ASSURE THAT THIS WORK DOES NOT INTERRUPT EXISTING OR PROPOSED DRAINAGE PATTERNS AND SHALL NOTIFY THE OWNERS REPRESENTATIVE IMMEDIATELY SHALL A CONFLICT ARISE.
- SPECIFICATIONS:** THE LANDSCAPE ARCHITECT SHALL BE PERMITTED THE RIGHT DURING INSTALLATION, TO REJECT ANY AND ALL PLANT MATERIAL AND WORKMANSHIP WHICH IN HIS OR HER OPINION DOES NOT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS.
- TURNOVER:** CONTRACTOR SHALL CONTACT OWNERS REPRESENTATIVE FOR A TURNOVER DATE TO INCLUDE A WALK-THROUGH AND ACCEPTANCE OF WORK BY THE LANDSCAPE ARCHITECT. ANY WORK DEEMED UNACCEPTABLE SHALL BE CORRECTED IMMEDIATELY AND REINSPECTED AS SCHEDULED.
- MAINTENANCE:** CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE TO BEGIN AFTER EACH PLANT HAS BEEN INSTALLED AND SHALL CONTINUE 90 DAYS AFTER FINAL WRITTEN ACCEPTANCE BY THE OWNER. MAINTENANCE SHALL INCLUDE WATERING, PRUNING, WEEDING, MULCHING, MOWING, REPLACEMENT OF SICK OR DEAD PLANTS, AND ANY OTHER CARE NECESSARY IN ORDER TO MAINTAIN PROPER PLANT HEALTH AND SOIL MOISTURE CONTENT.
- GUARANTEE:** CONTRACTOR SHALL GUARANTEE ALL INSTALLED PLANT MATERIAL FOR ONE (1) CALENDAR YEAR STARTING FROM THE TURNOVER DATE SHOULD WORK BE FOUND ACCEPTABLE. ANY CORRECTED WORK SHALL HAVE A PROPORTIONAL EXTENSION OF WARRANTY ONCE APPROVED. ANY SICK OR DEAD MATERIAL SHALL BE REPLACED IMMEDIATELY. THE LANDSCAPE CONTRACTOR SHALL NOT BE RESPONSIBLE TO HONOR ANY WARRANTY FOR THE LOSS OF ANY PLANT MATERIAL CAUSED BY FLOODING, FIRE, FREEZING TEMPERATURES, WINDS OVER 50 MPH, LIGHTNING, ANY OTHER NATURAL DISASTER, OR ANY LOSS/DAMAGE CAUSED BY VANDALISM OR NEGLIGENCE ON THE PART OF THE OWNER.

**IRRIGATION GENERAL NOTES**

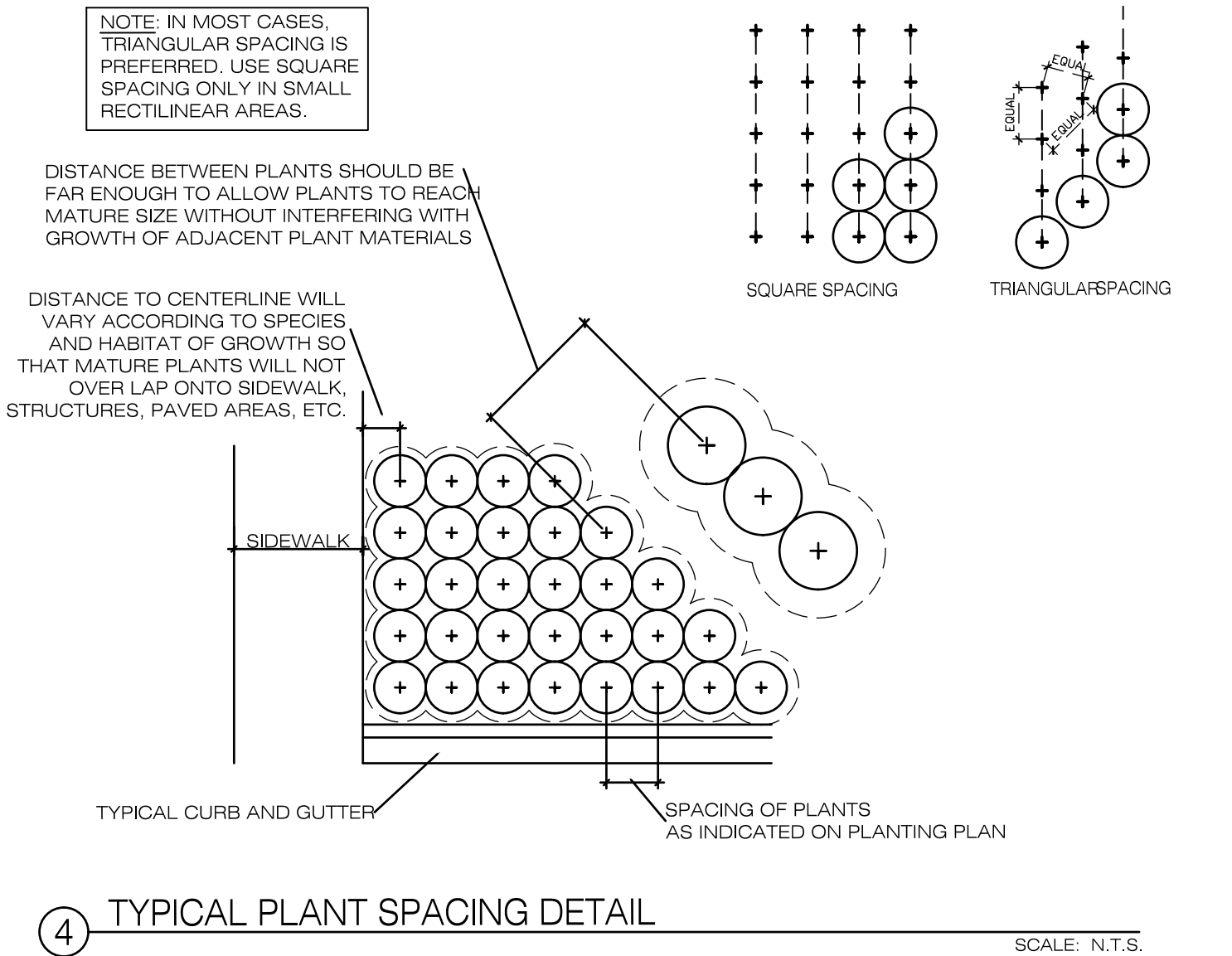
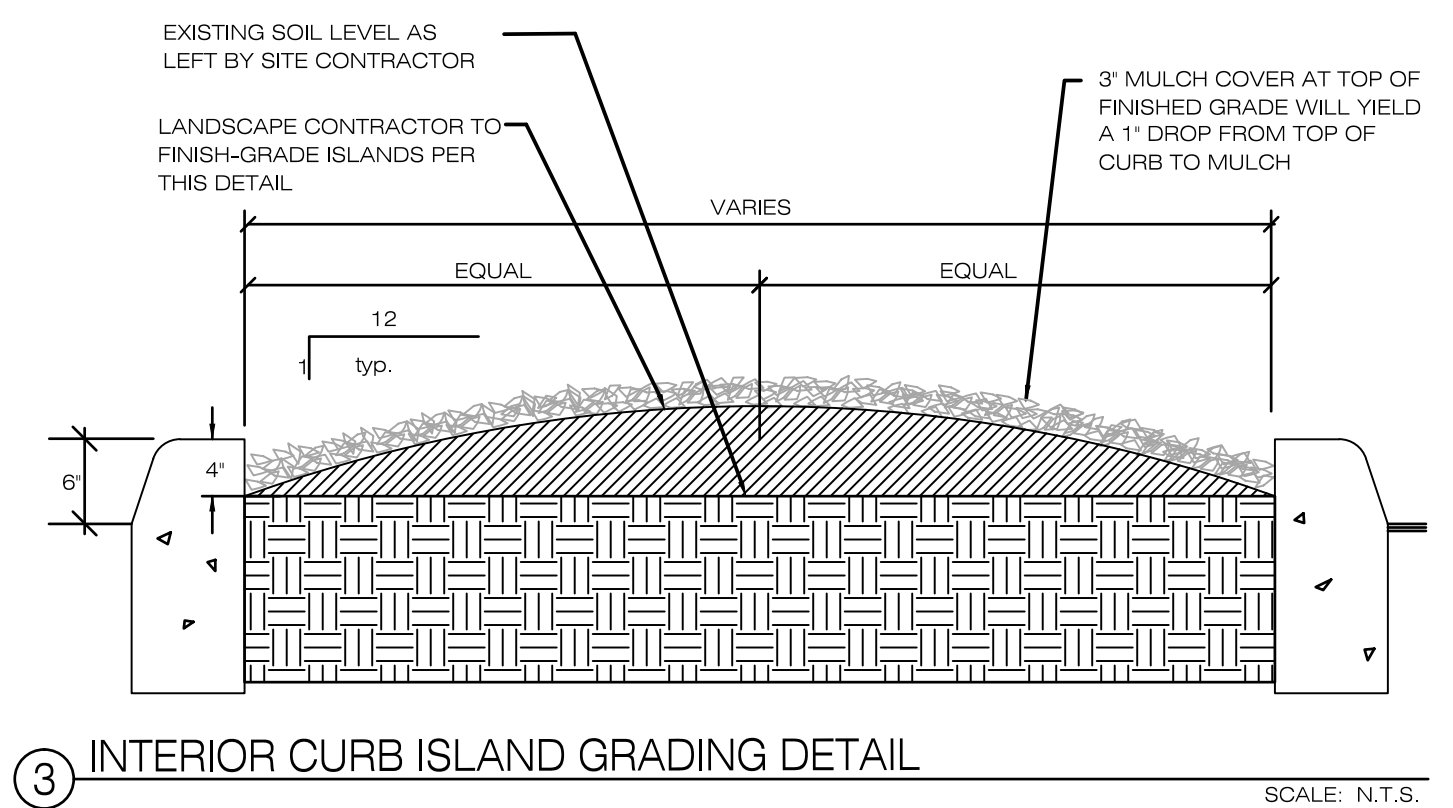
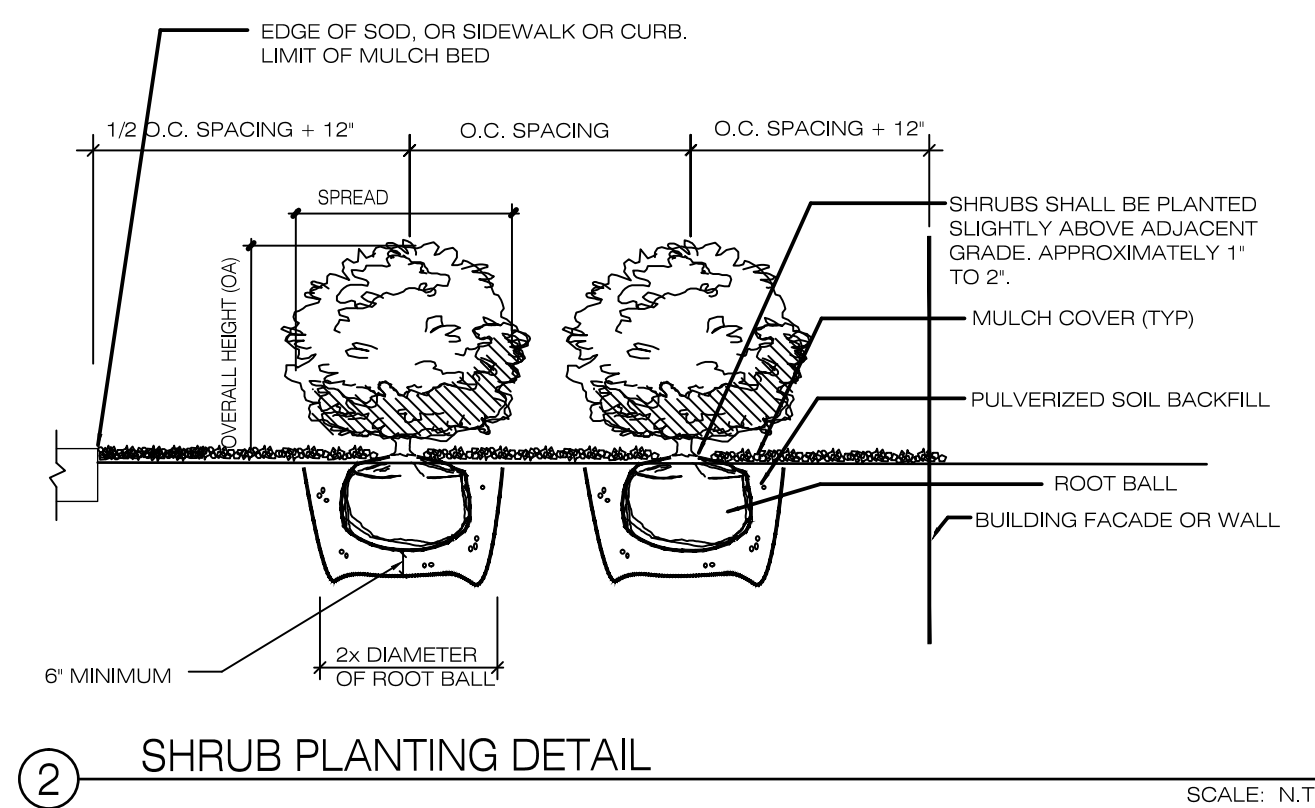
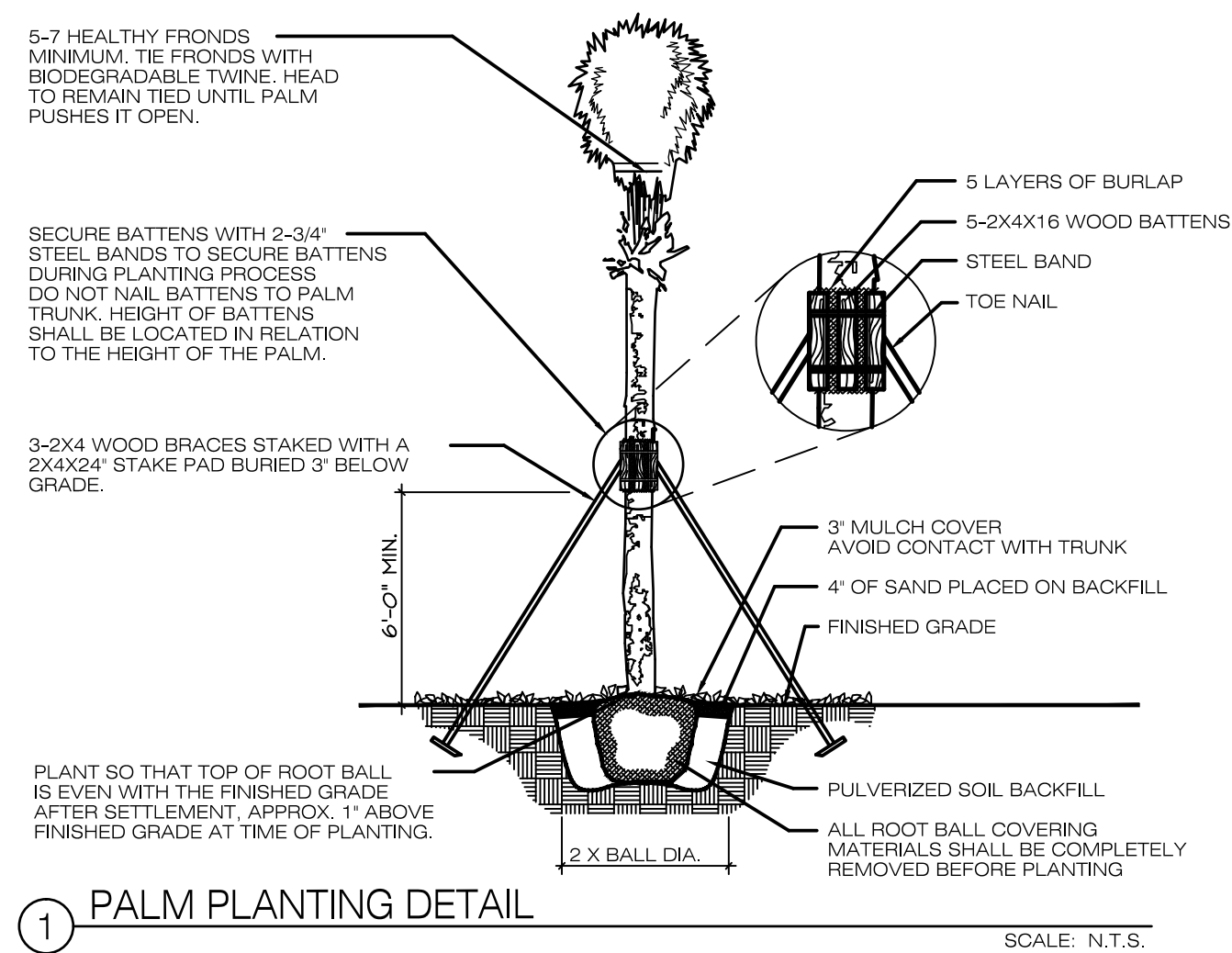
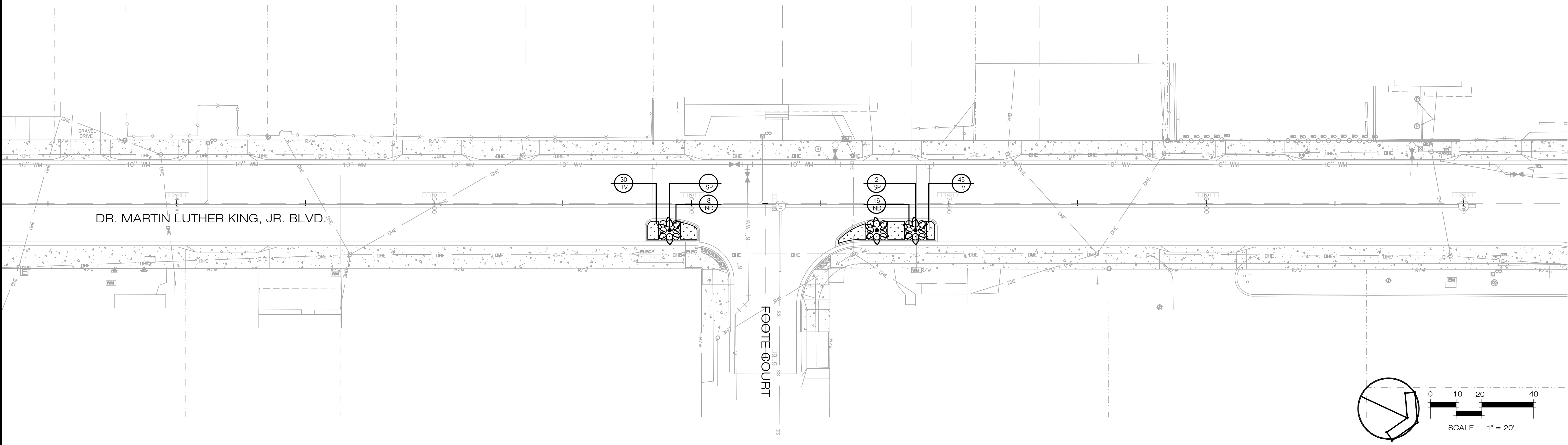
- AN AUTOMATIC TIME CONTROLLED IRRIGATION SYSTEM WITH A RAIN SENSOR SHALL BE INSTALLED TO PROVIDE 100% HEAD TO HEAD COVERAGE OF ALL NEW PLANTINGS. SEE IRRIGATION PLAN L-4.01 - L-4.02.

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DR. MARTIN LUTHER KING, JR. BOULEVARD  
ROAD RECONSTRUCTION  
LANDSCAPE PLAN  
DAYTONA BEACH, FLORIDA

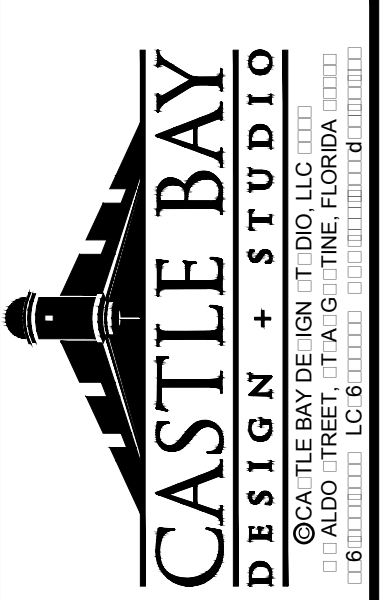


PROJECT NO: MLK BLVD.
ISSUE DATE: 3/30/2017
DRAWING FILE: MLK BLVD.
XREFS:
DRAFTED BY: JD
DESIGNED BY: JDSBK
CHECKED BY: SBK
SCALE: 1" = 20'

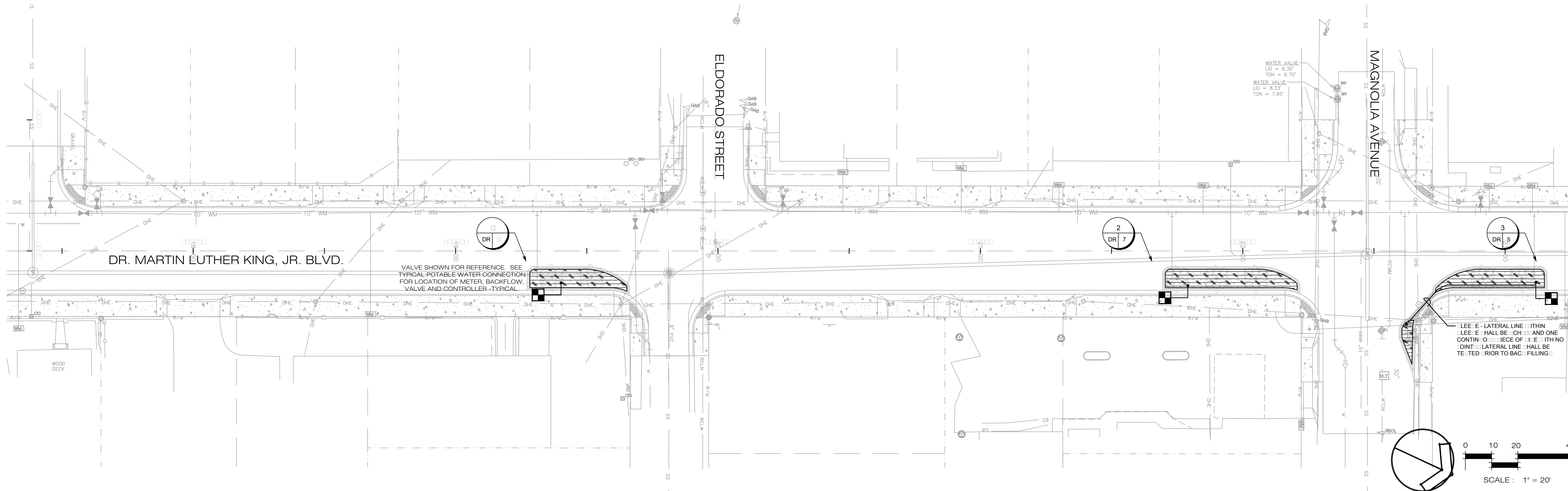


NO.	DATE	BY	REVISIONS

DR. MARTIN LUTHER KING, JR. BOULEVARD  
ROAD RECONSTRUCTION  
LANDSCAPE PLAN  
DAYTONA BEACH, FLORIDA



PROJECT NO: MLK BLVD.  
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DESIGNED BY: JD/SBK  
CHECKED BY: SBK  
SCALE: 1" = 20'



MATCHLINE SEE SHEET L-4-01 FOR CONTINUATION

REVISIONS			
NO.	DATE	BY	DESCRIPTION

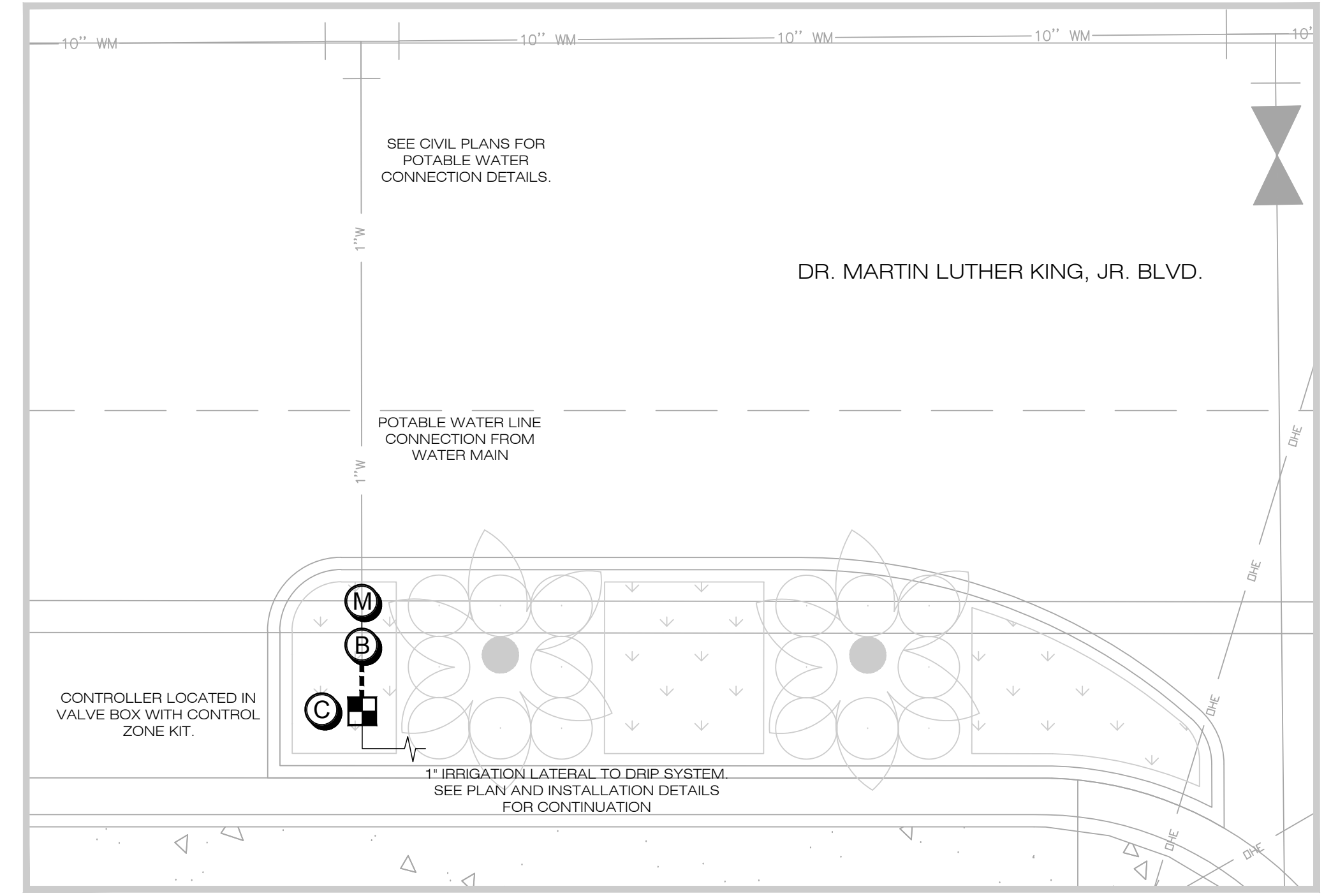
DR. MARTIN LUTHER KING, JR. BOULEVARD  
ROAD RECONSTRUCTION  
IRRIGATION PLAN  
DAYTONA BEACH, FLORIDA

**LEGEND**

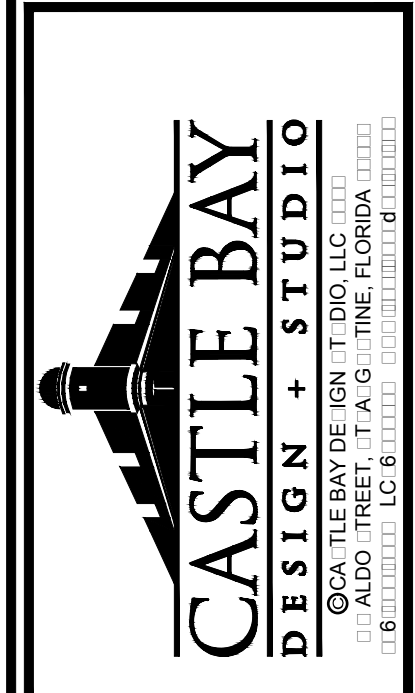
	RAIN BIRD SURFACE DRILL LINE INSTALLED AT 6" OC WITH EMITTER IN A TRIANGULAR PATTERN BELOW GRADE SEE SHEET L-4-01 FOR TYPICAL INSTALLATION DETAIL. RAIN BIRD CONNECTION FITTING AND BARBED TUBING SHALL BE USED. EACH ONE SHALL HAVE A MINIMUM OF ONE FLUSH VALVE, ONE AIR RELIEF VALVE, AND ONE OPERATION INDICATOR. INSTALL ALL DRILL LINE PER RAIN BIRD SPECIFICATION AND DETAIL.
	HUNTER INDUSTRIES IRRIGATION CONTROL ONE WITH REGULATOR CONTRACTOR TO INSTALL NODE AND REMOVE REPLACE CONVENTIONAL SOLENOID WITH DC LATCHING SOLENOID INSTALL VALVE IN A RAIN BIRD B-MB MBO VALVE BOX WITH LOCATING LID VALVE LOCATION SHOWN FOR REFERENCE INSTALL ALL VALVES IN A LANDSCAPE AREA WITH A MINIMUM CLEARANCE FROM IDEAL CURB.
	ZONE NUMBER
	VALVE SIZE DR = DRIP GPM
	SCHEDULE 40 MAINLINE - 12"
	SCHEDULE 40 LATERAL LINE
	SCHEDULE 40 LEE LINE
	HUNTER INDUSTRIES NODE BATTERY OPERATED IRRIGATION CONTROLLER CONTRACTOR TO REMOVE REPLACE EXISTING CONVENTIONAL SOLENOID WITH DC LATCHING SOLENOID PROVIDED WITH NODE SPECIFICATION ABOVE. CONTRACTOR TO PROVIDE TIGHT BATTERY VALVE LINE FOR EACH CONTROLLER. INSTALL CONTROLLER PER DETAIL ON SHEET L-4-01.
	IRRIGATION METER INSTALL IN A LANDSCAPE AREA WITH A MINIMUM CLEARANCE FROM IDEAL CURB.
	REDUCED PRESSURE BACKFLOW PREVENTER INSTALL IN A LANDSCAPE AREA WITH A MINIMUM CLEARANCE FROM IDEAL CURB.

**GENERAL NOTE**

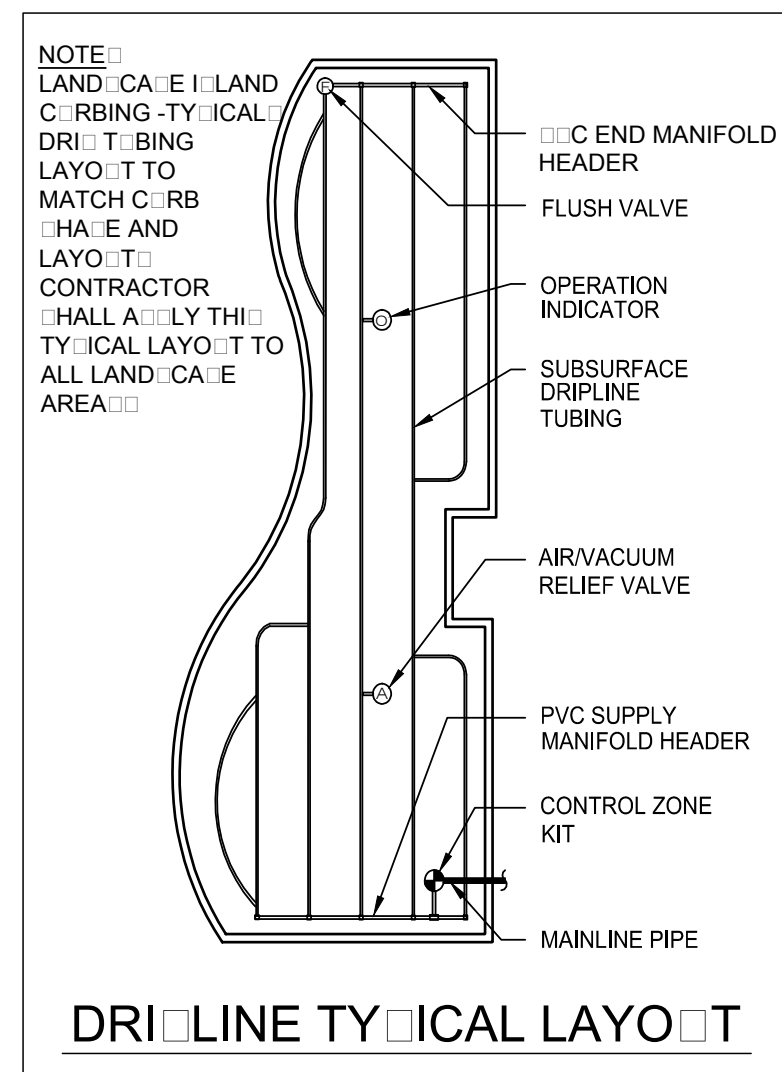
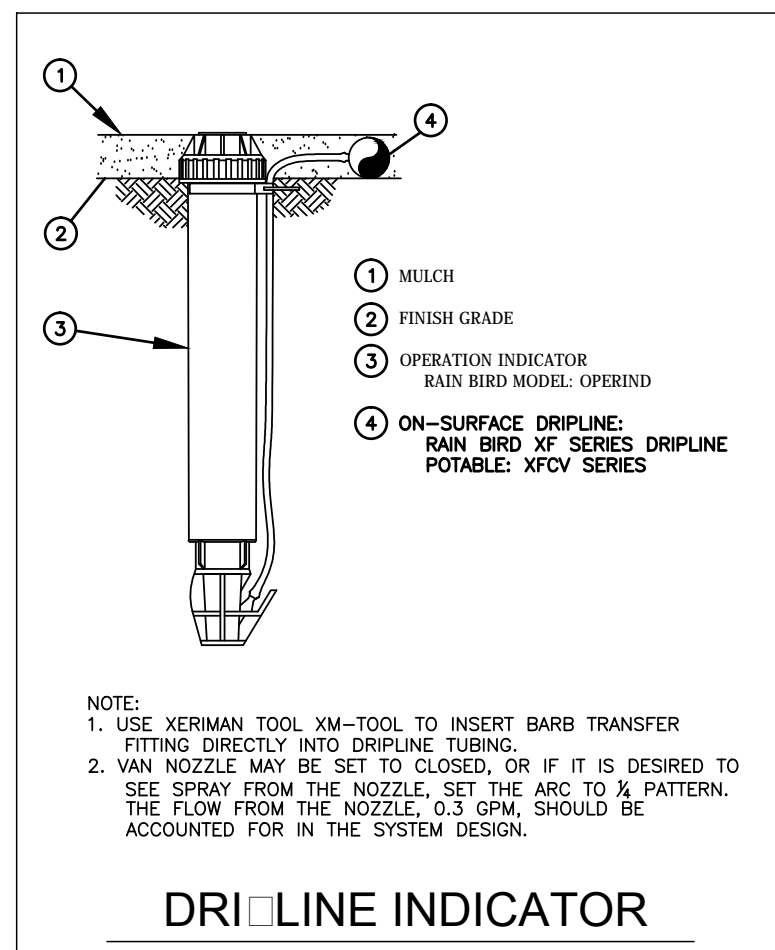
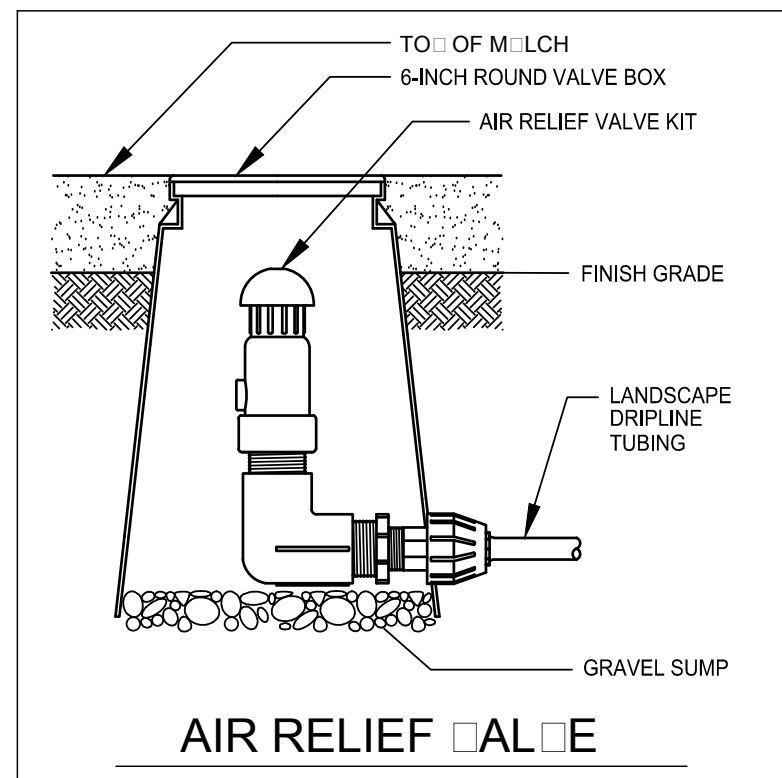
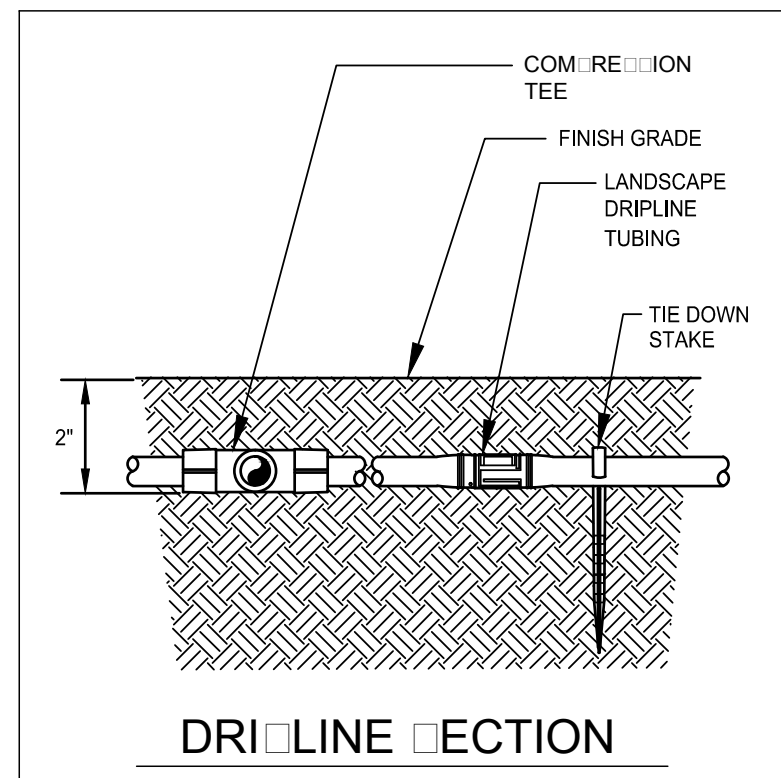
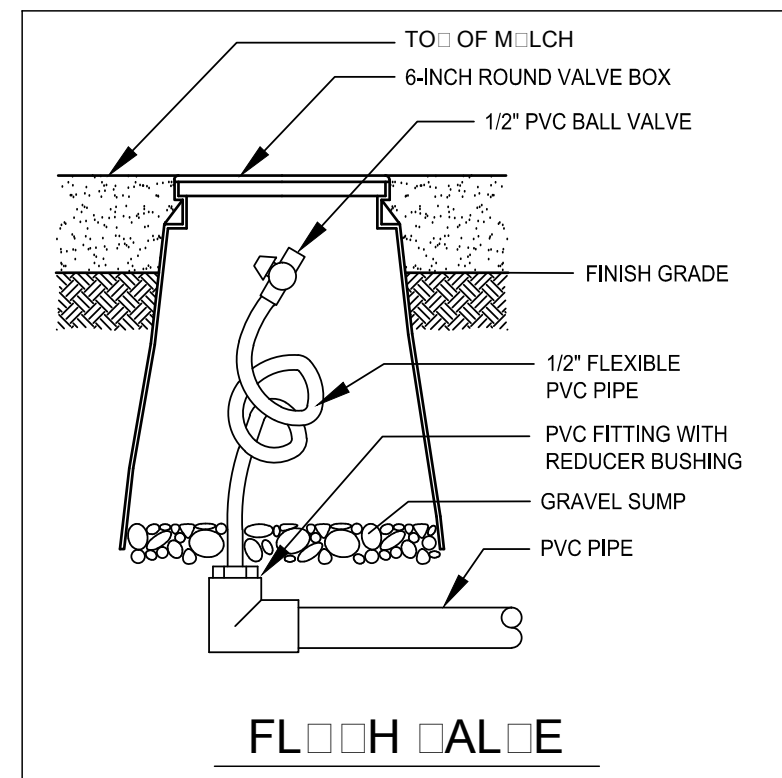
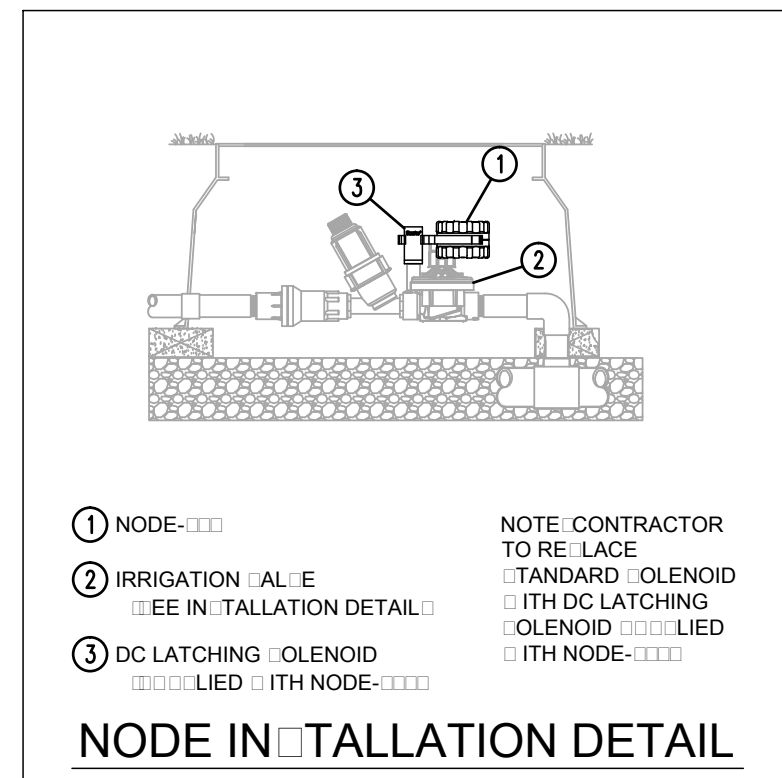
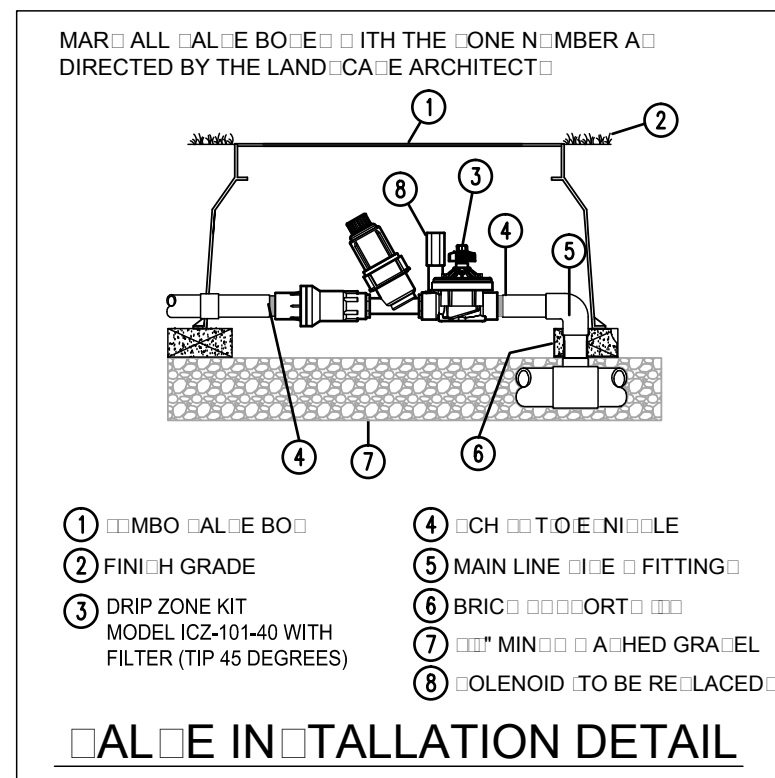
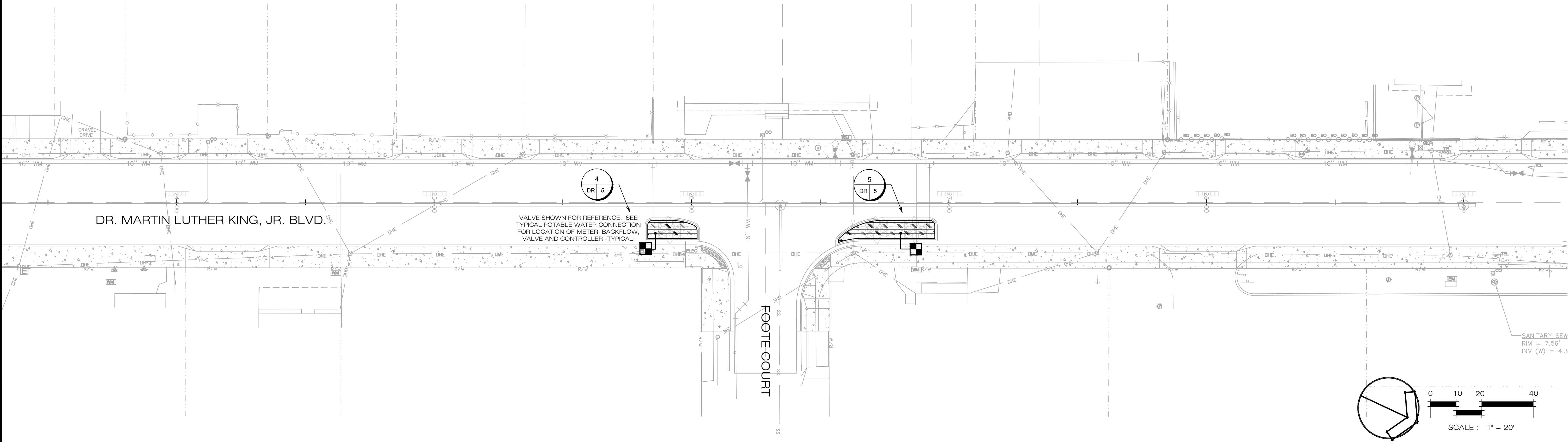
- 1. IRRIGATION CONTRACTOR RESPONSIBLE FOR OBTAINING ALL APPLICABLE PERMITS REQUIRED TO PERFORM.
- 2. REFER TO THE LANDSCAPE PLAN WHEN TRENCHING TO AVOID TREE AND SHRUB LOCATION.
- 3. ALL MAINLINE TRENCHING SHALL BE BURIED TO A MINIMUM DEPTH OF 24" OF COVER AND ALL LATERAL TRENCHING SHALL BE BURIED TO A MINIMUM DEPTH OF 18" OF COVER.
- 4. ALL TRENCHING SHALL CONFORM TO THE SHOWN ON THE DRAWING. THE SMALLER LATERAL LINE TO A SINGLE SPRAY OR ROTOR HEAD SHALL BE 18".
- 5. ALL REMOTE CONTROL VALVES, GATE VALVES AND CHECK COULERS SHALL BE INSTALLED IN VALVE BOXES.
- 6. ANY TRENCHING OR VALVE HOLES OUTSIDE THE PROPERTY LINE OR OUTSIDE OF A LANDSCAPE AREA SHALL BE SHOWN THERE FOR DESIGN CLARITY ONLY. ALL TRENCHING AND VALVES SHALL BE INSTALLED ON THE PROPERTY AND WITHIN LANDSCAPE AREA.
- 7. IT IS THE RESPONSIBILITY OF ALL SITE CONTRACTOR TO FAMILIARIZE THEMSELVES WITH THE SITE AND EXERCISE CARE TO AVOID NOT DAMAGE ANY EXISTING IRRIGATION COMPONENTS TO REMAIN, BERM, DRAINAGE, STRUCTURE, PLANT MATERIAL AND UTILITIES. ANY CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REPAIR OR REPLACEMENT OF ALL ITEMS DAMAGED BY HIS OR HER WORK. HE SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS FOR THE LOCATION AND INSTALLATION OF LINES AND TRENCHING THROUGH ALL UNDER ROADS, DRIVEWAYS AND DRIVEWAYS, ETC.
- 8. DO NOT FULLY INSTALL THE SPRINKLER SYSTEM AS SHOWN ON THE DRAWING WHEN IT IS OBSERVED IN THE FIELD THAT THERE IS AN OBSTRUCTION, GRADE DIFFERENCE OR DIFFERENCE IN AREA DIMENSION. IF THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING OR CONSTRUCTION OR DIFFERENCE SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER. AUTHORIZED REPRESENTATIVE IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISION.
- 9. FINAL LOCATION OF THE AUTOMATIC CONTROLLER SHALL BE APPROVED BY THE OWNER AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION.
- 10. THE IRRIGATION CONTRACTOR SHALL FURNISH AND ADJUST ALL SPRINKLER HEADS AND VALVES TO PROVIDE OPTIMUM COVERAGE WITH MINIMAL OVERSPRAY ONTO ADJACENT STREETS, ALLEYS, ETC. IN ORDER TO ACCOMPLISH THIS, THE CONTRACTOR MAY SUBSTITUTE VARIABLE ARC NOZZLES IN PLACE OF THE SPECIFIED FIXED ARC NOZZLES WHERE NECESSARY. REDUCED PRESSURE BACKFLOW PREVENTER MAY ALSO BE USED TO REDUCE OVERSPRAY DISTANCE.
- 11. THE CONTRACTOR SHALL COMPLETE ALL WORK IN ACCORDANCE WITH ALL RELEVANT LAWS, CODES AND REGULATIONS.
- 12. ALL SPRINKLER EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION AND SPECIFICATION.
- 13. THE CONTRACTOR SHALL PREPARE AN AS-BUILT DRAWING IN A TOCAD FORMAT SHOWING ALL IRRIGATION INSTALLATION. THE AS-BUILT DRAWING SHALL LOCATE ALL MAINLINE AND VALVE HOLES BY SHOWING EXACT MEASUREMENTS FROM HARD SURFACE.
- 14. ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE AGAINST ALL DEFECTS IN EQUIPMENT AND WORKMANSHIP.



1 TYPICAL POTABLE WATER CONNECTION (ONE CONNECTION PER ISLAND)  
L-4-01 SCALE: NOT TO SCALE



PROJECT NO: MLK BLVD.
ISSUE DATE: 3/30/2017
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XREFS:
DRAFTED BY: JD
DESIGNED BY: JD/SBK
CHECKED BY: SBK
SCALE: 1" = 20'



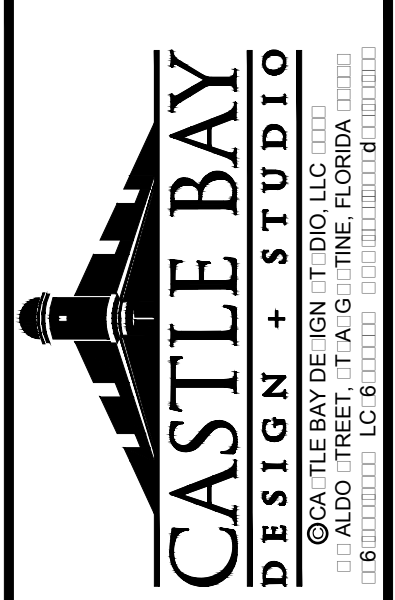
**DRIPLINE IRRIGATION NOTE**

- INSTALL ALL DRIP TUBING 1" BELOW GRADE (TAKE CARE TO HOLD THE TUBING IN PLACE)
- KEEP DRIP TUBING CLEAN AT ALL TIMES BEFORE THE FINAL CONNECTION TAKE ALL TUBING END OR DIRT CAPS
- AVOID SHARP BENDS IN THE TUBING. DO NOT BEND THE TUBING WITH LESS THAN A 17" RADIUS
- ALL DRIP TUBING SHALL HAVE UNIFORM SPACING AND BURIAL DEPTH
- INSTALL DRIP TUBING IN ALL AREAS THAT SHALL RECEIVE PLANT MATERIAL. REFER TO THE PLAN FOR THE EXACT LOCATION
- SPACE TUBING AS NOTED ON THE PLAN AND OR DETAIL. THE PLAN DOES NOT ALWAYS SHOW ALL DRIP TUBING. THE LAYOUT IS CHOSEN FOR CLARITY ONLY
- REFER TO THE MANUFACTURER'S DRIP INSTALLATION MANUAL FOR SPECIFIC INSTALLATION INSTRUCTIONS AND DETAILS
- ALWAYS FLUSH ALL LINES BEFORE FINAL CONNECTION
- REFER TO THE LANDSCAPE PLAN TO AVOID LAYOUTS WHERE TREES SHALL BE INSTALLED WITHIN LANDSCAPE BEDS
- INSTALL ALL AIR RELIEF AND FLUSH VALVES WITHIN EACH ZONE
- CLEARLY AND NEATLY MARK THE TOP OF EACH VALVE BOX WITH THE TYPE OF EQUIPMENT THAT IT CONTAINS (AIR RELIEF VALVE, FLUSH VALVE, ETC)
- ALL VALVE BOXES SHALL HAVE A 6" LAYER OF CLEAN GRAVEL IN THE BASE

REVISIONS

NO.	DATE	BY	DESCRIPTION

DR. MARTIN LUTHER KING, JR. BOULEVARD  
ROAD RECONSTRUCTION  
IRRIGATION PLAN  
DAYTONA BEACH, FLORIDA



PROJECT NO: MLK BLVD.

ISSUE DATE: 3/30/2017

DRAWING FILE: MLK BLVD.XREFS

DRAFTED BY: JD

DESIGNED BY: JDSBK

CHECKED BY: SBK

SCALE: 1" = 20'

# THE CITY OF DAYTONA BEACH DR. MARTIN LUTHER KING, JR. BOULEVARD

## ROADWAY AND PEDESTRIAN IMPROVEMENTS PROJECT

### LIGHTING & ITS PLANS

PROJECT NO. 2015-085



THE CITY OF DAYTONA BEACH  
PUBLIC WORKS

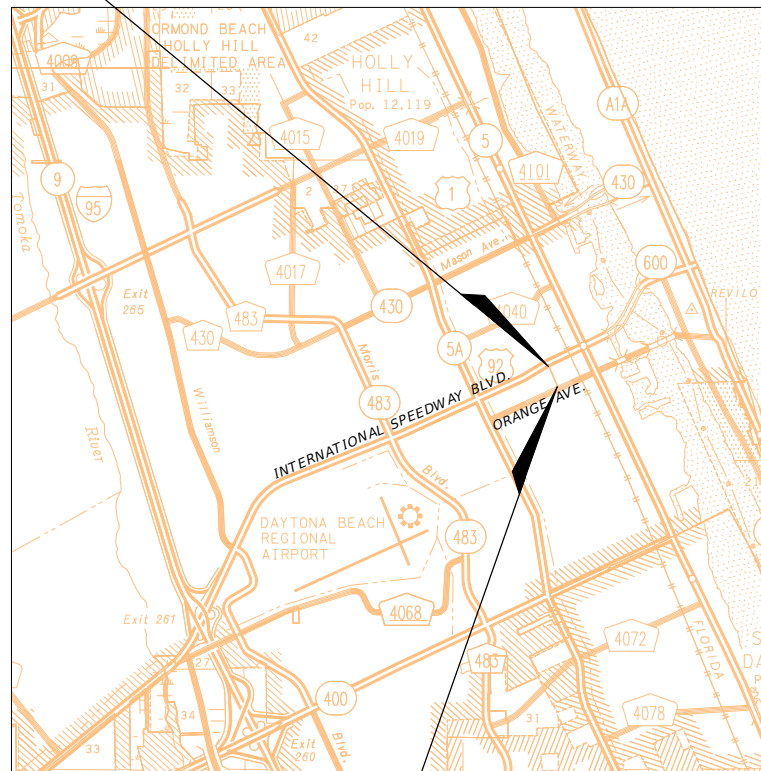
TECHNICAL SERVICES DIVISION

DERRICK L. HENRY-MAYOR  
RUTH TRAGER, COMMISSIONER - ZONE 1  
AARON DELGADO, COMMISSIONER - ZONE 2  
KELLY WHITE, COMMISSIONER - ZONE 3  
ROBERT A. GILLILAND - ZONE 4  
DANNETTE HENRY, COMMISSIONER - ZONE 5  
PAULA R. REED, COMMISSIONER - ZONE 6  
JAMES V. CHISHOLM - CITY MANAGER  
DAVID WALLER, DEPUTY PUBLIC WORKS DIRECTOR  
FRANK VANPELT, TECHNICAL SERVICES DIRECTOR  
JIM NELSON, PE, CITY ENGINEER  
JO ANN J. MACRINA, PE, DEPUTY DIRECTOR OF UTILITIES  
MICHELLE MARTIN, TECHNICAL SERVICES PROJECT MANAGER

INDEX OF ROADWAY LIGHTING & ITS PLANS

<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
RL-1	KEY SHEET
RL-2	SIGNATURE SHEET
RL-3	TABULATION OF QUANTITIES
RL-4	GENERAL NOTES
RL-5	LEGEND & POLE DATA
RL-6 THRU RL-11	DR. MARTIN LUTHER KING JR. BLVD.-LIGHTING & ITS PLANS
RL-12	LOAD CENTER DETAILS
RL-13	POLE & WIRING DETAILS
RL-14 THRU RL-15	SPLICE DIAGRAM

END PROJECT  
STA. 115+60



BEGIN PROJECT  
STA. 101+30

GOVERNING STANDARDS AND SPECIFICATIONS:

FLORIDA DEPARTMENT OF TRANSPORTATION, 2018-2019 DESIGN STANDARDS AND REVISED INDEX DRAWINGS AS APPENDED HEREIN, AND 2018 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AS AMENDED BY CONTRACT DOCUMENTS.

FOR DESIGN STANDARDS CLICK ON THE "DESIGN STANDARDS" LINK AT THE FOLLOWING WEB SITE:  
[HTTP://WWW.DOT.STATE.FL.US/RDDDESIGN](http://www.dot.state.fl.us/rddesign)

FOR THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION CLICK ON THE "SPECIFICATIONS" LINK AT THE FOLLOWING WEB SITE:  
[HTTP://WWW.DOT.STATE.FL.US/SPECIFICATIONSOFFICE/](http://www.dot.state.fl.us/specificationsoffice/)

SHOP DRAWINGS  
TO BE SUBMITTED TO:

GIL RAMIREZ, P.E.  
LTG, INC.  
1970 DAIRY ROAD  
WEST MELBOURNE FLORIDA, 32904  
PH. 321.466.4679 FAX: 321.499.4680

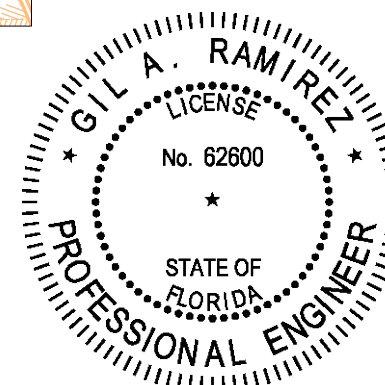
PLANS PREPARED BY:

**LTG** Engineering  
& Planning  
1450 WEST GRANADA BLVD. SUITE 2  
ORMOND BEACH FLORIDA, 32174  
PH. 386.257.2571 FAX: 386.257.6996  
E-MAIL: [ltg@ltg-inc.us](mailto:ltg@ltg-inc.us)  
CERTIFICATE OF AUTHORIZATION 9227

NOTE: THE SCALE OF THESE PLANS MAY  
HAVE CHANGED DUE TO REPRODUCTION.

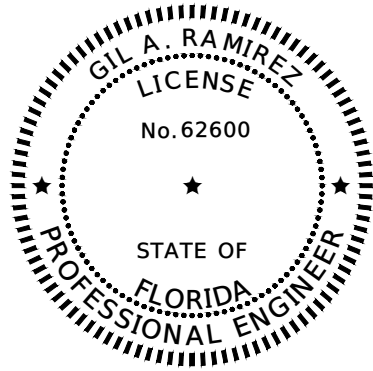
LIGHTING & ITS PLANS  
ENGINEER OF RECORD:

GIL RAMIREZ, P.E.  
P.E. NO.: 62600



CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	2018	RL-1

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23-004, F.A.C.



THIS ITEM HAS BEEN ELECTRONICALLY SIGNED  
AND SEALED BY GIL RAMIREZ, P.E. ON DATE  
SHOWN USING A DIGITAL SIGNATURE

1970 DAIRY ROAD  
WEST MELBOURNE FLORIDA, 32904  
CERTIFICATE OF AUTHORIZATION NO. 9227  
GIL RAMIREZ P.E. NO. 62600


PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED  
AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY  
ELECTRONIC COPIES.

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN  
ACCORDANCE WITH RULE 61G15-23.003, F.A.C.

INDEX OF ROADWAY LIGHTING & ITS PLANS

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REVISIONS				 <small>GIL RAMIREZ P.E. No. 62600 1970 DAIRY ROAD WEST MELBOURNE FLORIDA, 32904 PH: 321.499.4679 FAX: 321.499.4680 CERTIFICATE OF AUTHORIZATION 9227</small>	<small>THE CITY OF DAYTONA BEACH, FLORIDA</small>			<h2>SIGNATURE SHEET</h2>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT ID		RL-2
					MLK BLVD.	VOLUSIA	2015-085		

**TABULATION OF QUANTITIES**

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS												TOTAL THIS SHEET		GRAND TOTAL	
			RL-6		RL-7		RL-8		RL-9		RL-10		RL-11		PLAN	FINAL	PLAN	FINAL
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL				
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF	116		520		564		596		560		104		2460		2460	
633-1-122	FIBER OPTIC CABLE, F&I, UNDERGROUND 13-48 FIBERS	LF	150		260		260		330		280		154		1434		1434	
633-1-610	FIBER OPTIC CABLE, REMOVE, OVERHEAD	LF	100		260		260		280		280		104		1284		1284	
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA	42										38		80		80	
633-3-11	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE ENCLOSURE	EA	1										1		2		2	
633-3-12	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE TRAY	EA	5										5		10		10	
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	2		2		7		3		3		1		18		18	
635-2-12	PULL & SPLICE BOX, F&I, 24" x 36" COVER SIZE	EA	1						1				1		3		3	
639-1-122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND METER PURCHASED BY CONTRACTOR	AS									1				1		1	
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH AND INSTALL	LF					110		32						142		142	
639-3-11	ELECTRICAL SERVICE DISCONNECT, F&I, POLE MOUNT	EA							1						1		1	
641-2-12	PRESTRESSED CONCRETE POLE, F&I, TYPE P-II 12 FT SERVICE POLE	EA					1								1		1	
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO.8 - 6	LF	492		1704		2218		2220		1896		378		8908		8908	
715-7-12	LOAD CENTER, F&I, PRIMARY VOLTAGE	EA							1						1		1	
715-500-1	POLE CABLE DISTRIBUTION SYSTEM, CONVENTIONAL	EA	2		2		3		3		3		1		14		14	
715-512-128	LIGHT POLE COMPLETE-SPECIAL DESIGN, F&I, DOUBLE ARM SHOULDER MOUNT, ALUMINUM 28'	EA	2		2		3		3		3		1		14		14	

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23-004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION



**LTG** Engineering & Planning  
 GIL RAMIREZ  
 P.E. No. 62600  
 1970 DAIRY ROAD  
 WEST MELBOURNE FLORIDA, 32904  
 PH: 321.499.4679 FAX: 321.499.4680  
 CERTIFICATE OF AUTHORIZATION 9227

THE CITY OF DAYTONA BEACH, FLORIDA		
ROAD NO.	COUNTY	PROJECT ID
MLK BLVD.	VOLUSIA	2015-085

**TABULATION OF QUANTITIES**

SHEET NO.  
**RL-3**




GENERAL NOTES

1. SPARE CONDUIT AT MAINLINE AND ARTERIAL ROAD PAVEMENT CROSSINGS SHALL BE CAPPED AT THE PULL BOX.
2. PRIOR TO ANY EQUIPMENT ORDER, SUBMIT FOR APPROVAL EQUIPMENT SPECIFICATION OR DESIGN DATA FOR ALL MATERIAL PROPOSED FOR THE PROJECT. THESE MUST SPECIFICALLY INCLUDE:
  - A) LUMINAIRE PHOTOMETRICS
  - B) POLE STRENGTH CALCULATIONS
  - C) POLE FRANGIBILITY TEST
  - D) BOLT SPECIFICATIONS AND BOLT CIRCLE DIAMETER
  - E) POLE SHOP DRAWINGS
  - F) LOAD CENTER ELECTRICAL EQUIPMENT
3. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY ALL UTILITIES WHICH MAY BE AFFECTED BY THE WORK. THE FOLLOWING IS A PARTIAL LISTING:  
 FPL: MATT SAUEY, W: (407)328-1920  
 FPL FIBERNET: DANNY HASKETT W: (305)552-2939, CELL: (786)246-7827  
 TECO PEOPLE GAS: JERROD CARTER (904)443-7355  
 ATT: KIRBY SPENCER (386)366-4588  
 LEVEL 3 COMMUNICATIONS: PATRICK PROVOST (720)888-4686
4. THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE APPROXIMATE AND BASED ON THE INFORMATION FURNISHED TO THE ENGINEER BY THE UTILITY OWNERS AND ARE SHOWN AS NOTICE TO THE CONTRACTOR THAT UNDERGROUND UTILITIES EXIST. BEFORE EXCAVATING, NOTIFY THE UTILITY COMPANY OWNERS AND REQUEST THEM TO LOCATE AND STAKE THEIR UNDERGROUND FACILITIES. UTILITIES ARE TO BE ADJUSTED BY OTHERS AS DIRECTED BY THE ENGINEER.
5. PROVIDE NOTICE TO THE UTILITY OWNERS PER FLORIDA STATUTE 553.851 AND 556. THESE STATUTES REQUIRE THAT BEFORE EXCAVATION, NOTICE BE GIVEN TO THE UTILITY OWNER A MINIMUM OF TWO (2) DAYS AND A MAXIMUM OF FIVE (5) DAYS, EXCLUDING SATURDAY, SUNDAY AND LEGAL HOLIDAYS. NOT ALL UTILITY COMPANIES ARE MEMBERS OF "SUNSHINE" CALL 811 WWW.CALLSUNSHINE.COM.
6. THE LOCATION OF THE POLES, CONDUCTORS, CONDUITS, JUNCTION BOXES AND SERVICE POLES ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE LOCAL CONDITIONS AND EXISTING UTILITY LOCATIONS.
7. ALUMINUM POLES, LUMINAIRES AND BASES SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO'S "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" AND SHALL HAVE BEEN TESTED BY FHWA-APPROVED METHODS. CERTIFICATION FOR TESTS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS.
8. ALL ELECTRICAL WORK SHALL MEET ALL REQUIREMENTS OF THE LATEST ADOPTED EDITIONS OF THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, AND THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ALL COMPONENTS SHALL BE PROPERLY GROUNDED PER N.E.C. REQUIREMENTS.
9. INSTALL SURGE PROTECTIVE DEVICES PROPERLY GROUNDED IN POWER (SECONDARY) ENTRANCES.
10. IN ACCORDANCE WITH N.E.C., IDENTIFY ALL CIRCUITS AND EQUIPMENT WITH "LAMACOID TAGS". INSTALL SIMILAR TAGS OF STAINLESS STEEL, IDENTIFYING CIRCUIT FOR EACH LUMINAIRE AT ACCESS HANDHOLE FOR EACH POLE.
11. NOTIFY FPL AT LEAST 48 HOURS PRIOR TO ANY INSTALLATION THAT IS WITHIN 10 FEET OF ENERGIZED ELECTRICAL CONDUCTORS. FPL, AT ITS OPTION, SHALL ASSIST THE FDOT CONTRACTOR TO COVER UP ENERGIZED CONDUCTORS AT INSTALLATION SITE OR TAKE OTHER SAFETY PRECAUTIONS AS NECESSARY. EXTREME CAUTION SHALL BE EXERCISED AT ALL TIMES IN PERFORMANCE OF WORK AROUND THE PRIMARY, HIGH VOLTAGE COMPONENTS.
12. PULLING INSTRUCTIONS: CONNECT PULLING DEVICES TO COPPER WIRE AND NOT TO JACKET AND MEET MANUFACTURER'S REQUIREMENTS. USE PULLING COMPOUND PER MANUFACTURER'S REQUIREMENTS. ALL BENDS SHALL NOT BE LESS THAN RECOMMENDED BY N.E.C. OR N.E.S.C. FOR CABLE USED.
13. ALL ROADWAY LIGHTING SHALL HAVE AN IDENTIFICATION TAG. TAGS SHALL HAVE BLACK LETTERS ON YELLOW BACKGROUND ATTACHED WITH APPROVED ADHESIVE (NO RIVETS OR SCREWS). COST OF TAGS SHALL BE INCLUDED IN THE BID ITEMS FOR LIGHT POLE COMPLETE. TAGS SHALL BE PLACED 5 FEET ABOVE GRADE AND FACING THE ROADWAY. BEFORE ORDERING TAGS, COORDINATE WITH THE CITY OF DAYTONA BEACH FOR PROPER NUMBERING SEQUENCE OF LOAD CENTER AND CIRCUITS. SEQUENCE OF LOAD CENTER AND CIRCUITS.
14. JACK AND BORE OPERATIONS IF USED SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION FDOT UTILITY ACCOMMODATION GUIDE.
15. AT LOCATIONS WHERE UNDERGROUND UTILITIES ARE IN CLOSE PROXIMITY TO THE LIGHTING POLE FOUNDATIONS OR CONDUIT RUN, AS DETERMINED BY THE ENGINEER, HAND DIG THE FIRST 4 FEET OF THE HOLE FOR THE POLE FOUNDATION AND CONDUIT RUN.
16. ALL CIRCUIT TRENCHES SHALL BE BACKFILLED COMPLETELY TO PROVIDE SAFE CROSSING BY THE END OF EACH WORKING DAY OR WHENEVER THE WORK ZONE BECOMES INACTIVE. DO NOT OPEN ANY AREA THAT CANNOT BE BACKFILLED IN THE SAME DAY/NIGHT OPERATION.
17. ALL EXCESS DIRT AND DEBRIS EXCAVATED FROM POLE FOUNDATIONS SHALL BE REMOVED.
18. MAINTAIN ACCESS TO ALL SIDE STREETS, PRIVATE AND COMMERCIAL DRIVEWAYS AT ALL TIMES DURING THE CONSTRUCTION OPERATION.
19. THE LIGHTING SYSTEM WILL BE MAINTAINED BY THE CITY OF DAYTONA BEACH ACCEPTANCE.
20. ANY EXISTING SIGNALIZATION LOOPS SYSTEM DAMAGED DURING THE CONDUIT INSTALLATION SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.
21. SOIL EXPOSED DURING INSTALLATION OF LIGHTING FOUNDATIONS SHALL BE STABILIZED AS SOON AS POSSIBLE. IN NO CASE SHALL THE TIME BE GREATER THAN SEVEN (7) CALENDAR DAYS.
22. EXISTING LIGHTING EQUIPMENT SOURCES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING DEMOLITION/REMOVAL WORK.
23. ALL ROADSIDE LIGHTING PULL BOXES SHALL BE MARKED "STREET LIGHTING". ALL PULL BOX COVERS SHALL BE MARKED "STREET LIGHTING" MADE OF POLYMER MATERIAL, FLUSH WITH THE GROUND, AND SHALL BE WITH A MINIMUM ANSI TIER 22 RATING.
24. CONDUIT LOCATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. CONDUIT MUST BE PLACED WITHIN THE RIGHT-OF-WAY BUT CAN BE ADJUSTED TO FIT AROUND THE EXISTING AND PROPOSED UTILITIES. WHERE PLANNED LOCATION OF LIGHTING CONDUIT RUNNING 30" UNDER PAVEMENT IS FOUND TO CONFLICT WITH UNDERGROUND UTILITIES, THE LIGHTING CONDUIT SHALL BE ALTERED VERTICALLY OR HORIZONTALLY TO AVOID THE CONFLICT AS RECOMMENDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. A 24" ABSOLUTE MINIMUM DEPTH SHALL BE MAINTAINED WHERE LIGHTING CONDUITS ARE RELOCATED CLOSER THAN 30" BELOW THE GROUND SURFACE AND SHALL BE PLACED IN AN ADDITIONAL 3" PVC SLEEVE OR BACKFILLED WITH A MIN. OF 4"x4" OF CONCRETE.
25. LIGHTING CONDUIT SHALL BE 2" SCHEDULE 40 PVC WITH THWN-2 CONDUCTORS INSIDE.
26. INSPECT ALIGNMENT OF EACH INDIVIDUAL POLE AND FIXTURE AS FOLLOWS:  
 ALIGNMENT VIEWING FROM ADJACENT SERIES OF POLES IN BOTH DIRECTIONS.  
 FIXTURE ALIGNMENT: WITHIN ONE DEGREE OF HORIZONTAL +/-, USING CALIBRATED LEVEL ALONG BOTH AXES OF CUT-OFF FIXTURE FACE, WITH LENS ONLY.
27. ALL CONDUITS SHALL BE MANDREL TESTED AND CLEANED. CONDUITS PLACED FOR FUTURE USE SHALL HAVE 3/4" POLYESTER CORD PULLED IN PLACE AND CAPPED WITH NOTATION INSIDE CONDUIT AS TO LOCATION OF OPPOSITE END. PLACE DUCT MARKER OR PULL BOXES TO MARK END OF EMPTY CONDUITS.
28. TAKE RESPONSIBILITY FOR LOCATING ANY UNDERGROUND CONDUIT FOR ROADWAY LIGHTING.
29. ALL LIGHT POLES, PULL BOXES AND LOAD CENTERS SHALL NOT BE INSTALLED WITHIN ANY DITCH AREAS THAT MAY CAUSE WATER INTRUSION.
30. AS PART OF THE 7 DAY TEST BURNING PERIOD, EACH CIRCUIT SHALL BE LABELED WITH THE LOAD AMPERAGE READING AT THE LOAD CENTER PANEL.
31. ONE SPARE RUN OF 3" CONDUIT AND SPARE PULL BOX SHALL BE PROVIDED WITH EVERY DIRECTIONAL BORE.
32. ONE CONDUIT RUN SHALL HAVE NO MORE THAN THREE LIGHTING CIRCUITS INSTALLED.
33. CONTRACTOR SHALL PREPARE ACCURATELY DIMENSIONED "AS BUILT" PLANS OF FINAL POLE, CONTROLLER, CABLE AND CONDUIT PULL BOX LOCATIONS. PLANS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER AND SUBMITTED TO THE RESIDENT ENGINEER. COST OF SUCH PREPARATION SHALL BE INCIDENTAL TO PAY ITEMS PROVIDED.
34. ALL SPLICES SHALL BE MADE IN PULL BOXES ONLY WITH COMPRESSION SLEEVES OR SPLIT BOLT CONNECTIONS, PROPERLY TAPED AND WATERPROOF.
35. SPLICES AND CONNECTIONS MADE IN PULL BOXES SHALL BE LIMITED TO THE SERVER POINT AND CONDUIT JUNCTION WITH MULTI-DIRECTIONAL CONDUITS AS INDICATE ON PLANS. THE CONNECTION MADE AT THESE POINTS SHOULD BE PROPERLY TAPED AND HEAT SHRINK TUBES OR CAPS SHALL BE USED TO WATERPROOF THESE CONNECTIONS.
36. SCREW TYPE ANCHOR FOUNDATIONS ARE NOT TO BE USED ON THIS PROJECT.
37. LIGHTING CONTRACTOR SHALL COORDINATE WITH STRUCTURAL CONTRACTOR TO ENSURE PROPER MOUNTING BOLT CIRCLES ARE CONSTRUCTED FOR THE PROPOSED MOUNTING POLE BASES AND TO COORDINATE LOCATIONS OF EMBEDDED CONDUIT AND PULL BOXES WITHIN THE WALLS AND BRIDGES.
38. NECESSARY CARE SHALL BE TAKEN SUCH THAT EXISTING POLES AND LUMINAIRES TO REMAIN OR TO BE RELOCATED ARE NOT DAMAGE DURING CONSTRUCTION. DAMAGED POLES AND LUMINAIRES, AS DETERMINED BY THE RESIDENT ENGINEER, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
39. PULL BOXES AND LOAD CENTERS SHALL NOT BE PLACED IN DITCHES OR LOW LYING AREAS IN ORDER TO AVOID WATER INTRUSION.
40. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT THE POLES PRIOR TO INSTALLATION. IF OUTDOOR STORAGE, THEN THE CONTRACTOR SHALL UNPACKED AND UNCOVERED POLES IN ORDER TO AVOID DAMAGE FROM ANY PACKING MATERIAL.

ITS

1. ITS CONDUIT SHALL BE 4" SCHEDULE 40 PVC AND SHALL INCLUDE A 14 AWG LOCATE WIRE, PULL STRING AND CAP OPEN CONDUIT IN ALL VAULTS.
2. CONDUIT SHALL US LARGE RADIUS SWEEPS WHEN ENTERING PULL BOXES.
3. FIBER PULL BOXES SHALL MEASURE 24X36X24, SHALL BE HS-20 RATED, WITH THE WORDS "FIBER OPTICS" CAST INTO THE COVER.


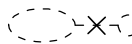
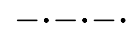
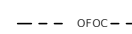





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REVISIONS				 GIL RAMIREZ P.E. No. 62600 1970 DAIRY ROAD WEST MELBOURNE FLORIDA, 32904 PH: 321 499 4679 FAX: 321 499 4680 CERTIFICATE OF AUTHORIZATION 9227	THE CITY OF DAYTONA BEACH, FLORIDA			SHEET NO.  <span style="font-size: 1.2em; font-weight: bold;">GENERAL NOTES</span>  <span style="font-size: 1.2em; font-weight: bold;">RL-4</span>
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT ID	
					MLK BLVD.	VOLUSIA	2015-085	

**LIGHTING DESIGN CRITERIA**

AVERAGE LEVEL OF ILLUMINATION 1.0 FOOT-CANDLES  
 AVERAGE TO MINIMUM RATIO 4:1 OR LESS  
 MAX./MIN. RATION 10:1 OR LESS  
 WIND SPEED 130 MPH  
 VEILING LUMINANCE RATIO 0.4 OR LESS  
 ALLOWABLE VOLTAGE DROP 7 % OR LESS

**LEGEND**


-  NEW K803 SOLITAIRE SR. LUMINAIRE EXTERNAL LED PENDANT, 100 WATTS AND NEW K124 PARAGON LUMINAIRE, 60 WATTS  
NEW LUMINAIRE BY KING OR APPROVED EQUAL. THE LUMINAIRE SHALL BE POLE-MOUNTED ON A VERTICAL TENON, WITH VIBRATION DAMPER AND BREAKAWAY BASE
-  EXISTING LUMINAIRE TO BE REMOVED
-  PROPOSED UNDERGROUND/OPEN TRENCH CONDUIT
-  EXISTING OVERHEAD FIBER OPTIC CABLE
-  PROPOSED PULL BOX
-  PROPOSED LOAD CENTER
-  PROPOSED FPL POWER SOURCE
-  EXISTING FPL POWER SOURCE
-  PROPOSED FIBER PULL BOX

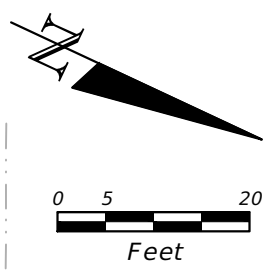
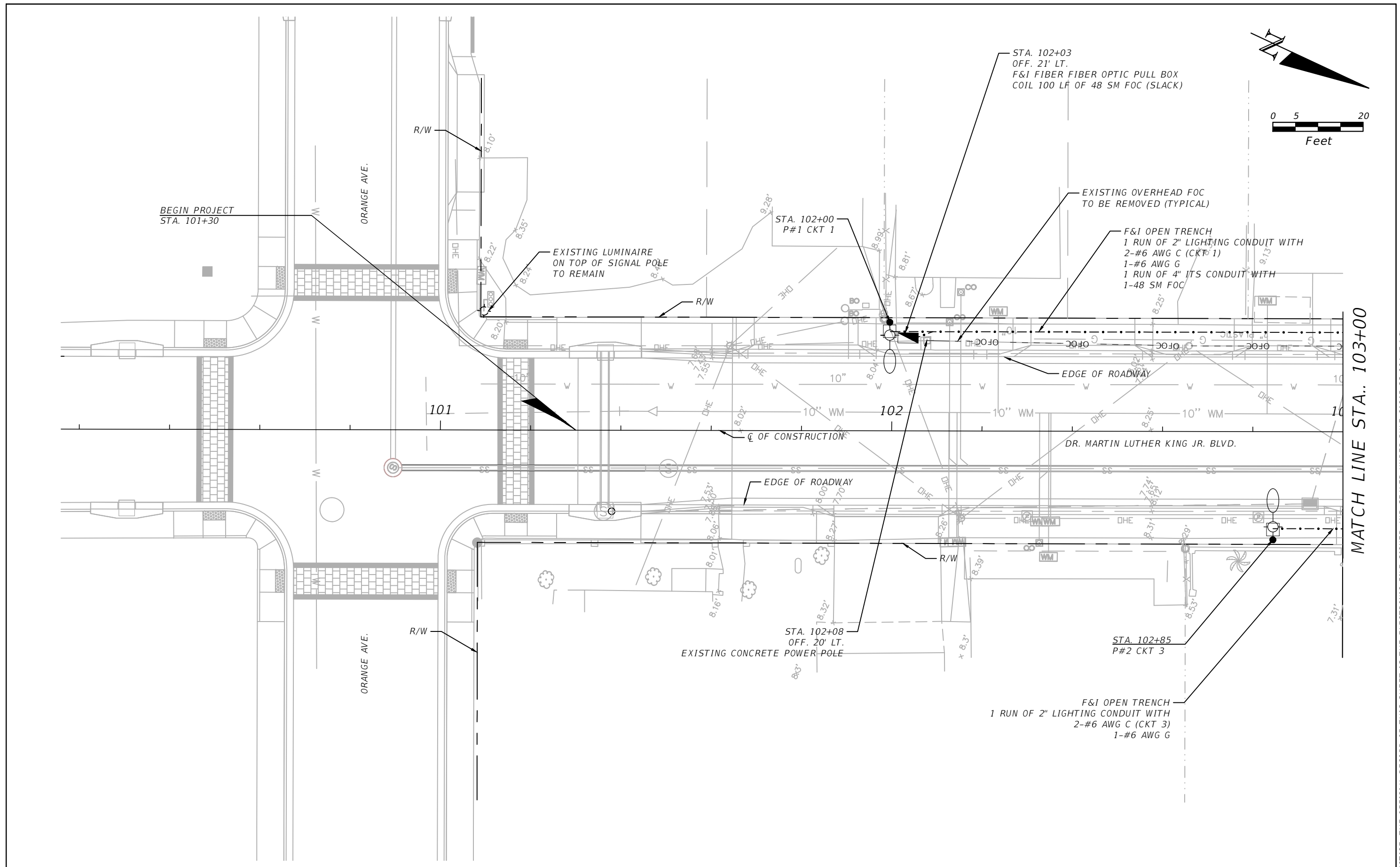
POLE DATA								
POLE NO.	CIRCUIT	STATION & OFFSET	ARM LENGTH (ROAD/SIDEWALK)	LUMINAIRE WATTAGE	MOUNTING HEIGHT (ROAD/SIDEWALK)	POLE SETBACK (FROM EDGE OF CURB)	TILT	REMARKS
1	1	102+00, 24.06' LT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
2	3	102+85, 23.99' RT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
3	3	103+84, 24.01' RT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
4	1	104+77, 23.93' LT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
5	3	106+04, 24.15' RT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
6	1	106+99, 23.77' LT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
7	3	108+00, 24.26' RT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
8	2	108+97, 23.63' LT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
9	4	109+83, 24.38' RT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
10	2	110+77, 24.56' LT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
11	4	111+88, 24.46' RT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
12	2	112+93, 23.41' LT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
13	4	113+77, 24.56' RT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	
14	2	114+82, 23.13' LT	8 FT / 1 FT	160	25 FT / 14 FT	7.4 FT	0	

**POLE DATA TABLE NOTES**

- CUSTOM POLES INCLUDE A ROADWAY LUMINAIRE AND A PEDESTRIAN LUMINAIRE. WHERE TWO ENTRIES ARE SHOWN, THE FIRST ENTRY DENOTES CRITERIA FOR THE ROADWAY LUMINAIRE, AND THE SECOND ENTRY DENOTES THE CRITERIA FOR THE PEDESTRIAN LUMINAIRE.

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REVISIONS				 GIL RAMIREZ P.E. No. 62600 1970 DAIRY ROAD WEST MELBOURNE FLORIDA, 32904 PH: 321.499.4679 FAX: 321.499.4680 CERTIFICATE OF AUTHORIZATION 9227	THE CITY OF DAYTONA BEACH, FLORIDA			SHEET NO.  <b>RL-5</b>
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT ID	
					MLK BLVD.	VOLUSIA	2015-085	



MATCH LINE STA.: 103+00

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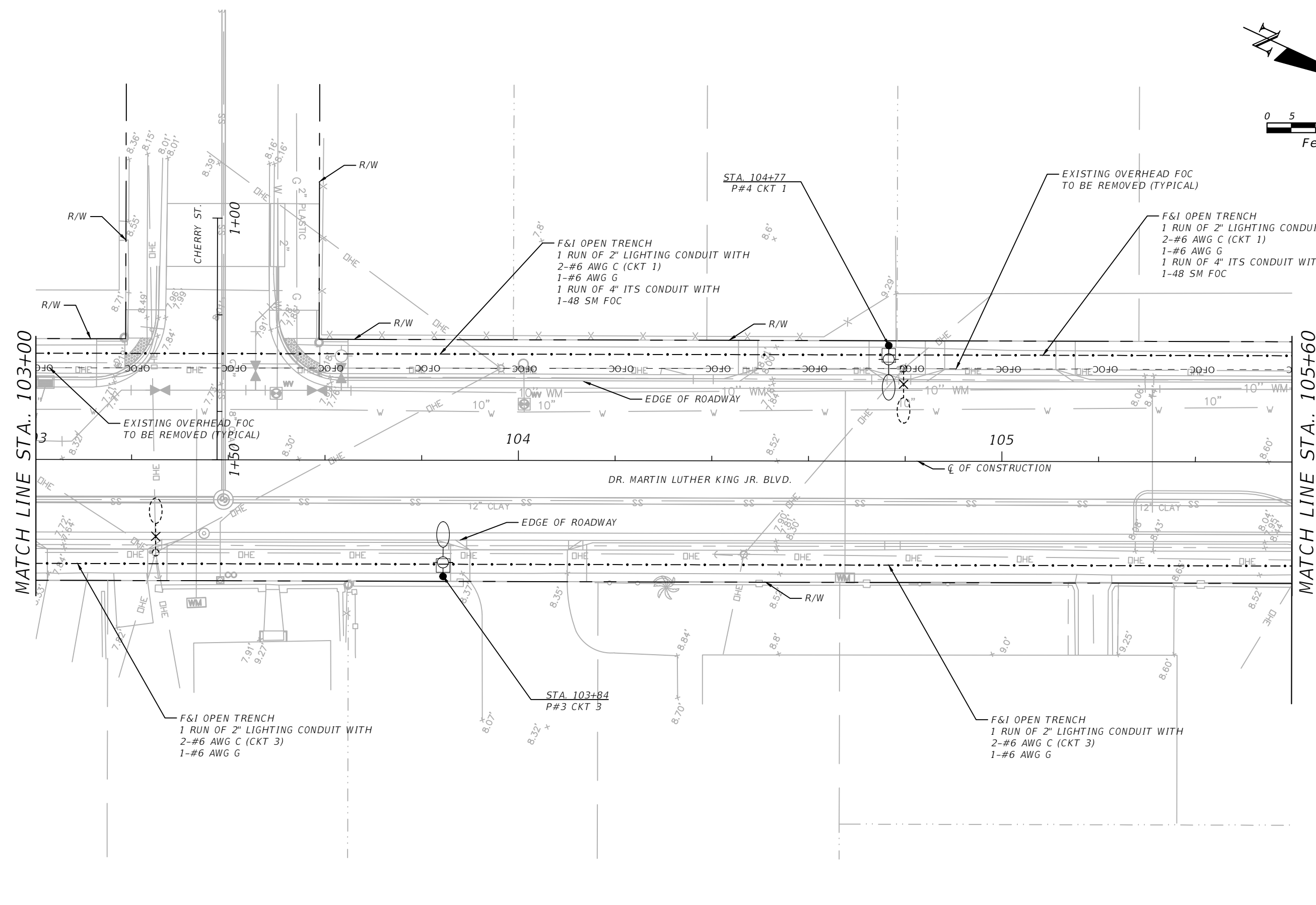
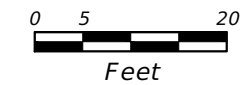
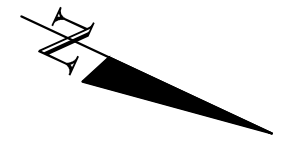
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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THE CITY OF DAYTONA BEACH, FLORIDA		
ROAD NO.	COUNTY	PROJECT ID
MLK BLVD.	VOLUSIA	2015-085

**DR. MARTIN LUTHER KING, JR. BLVD.  
 LIGHTING & ITS PLANS**

SHEET NO.
RL-6



MATCH LINE STA.. 103+00

MATCH LINE STA.. 105+60

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

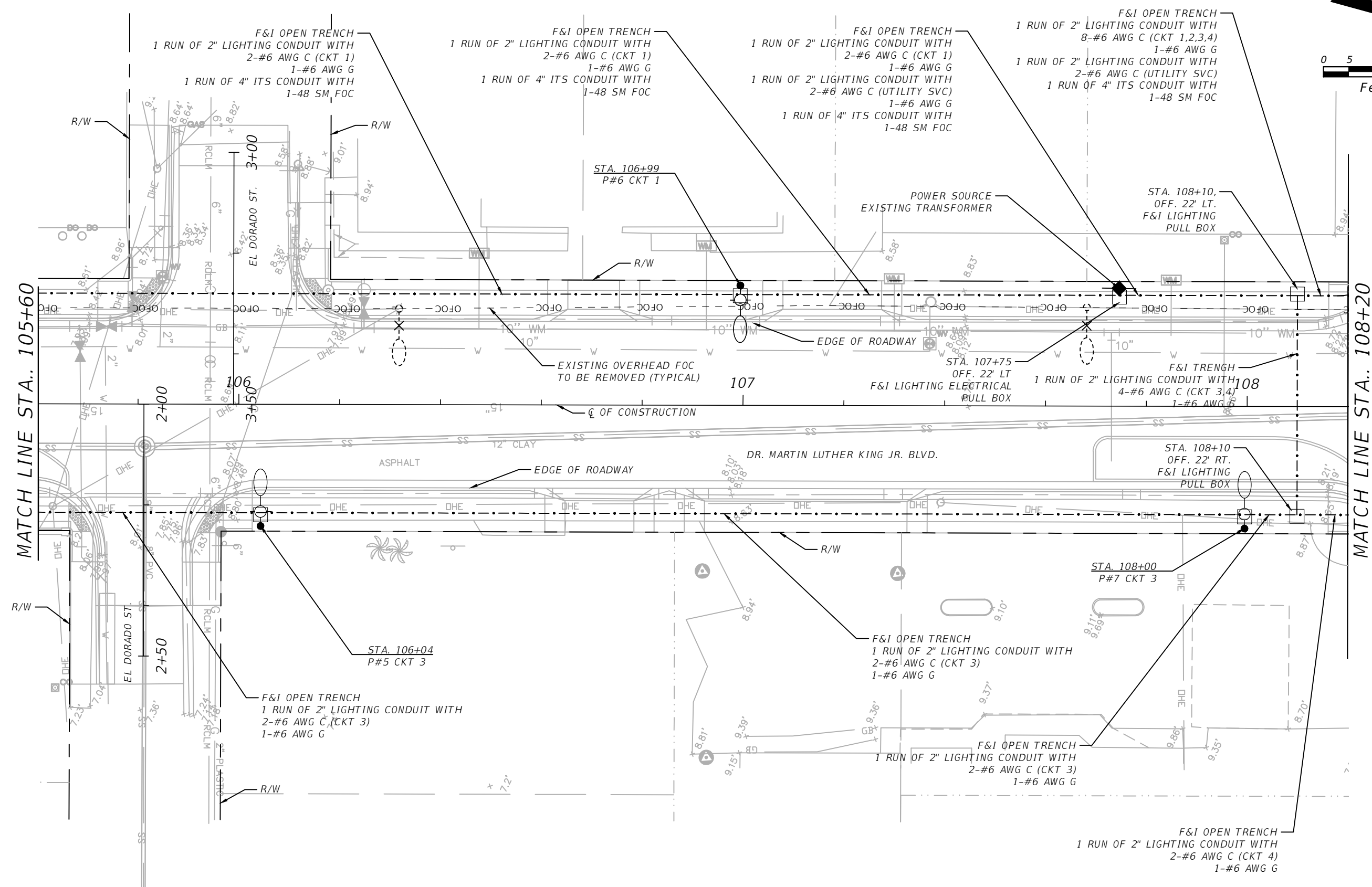
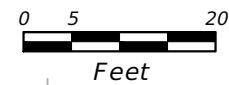
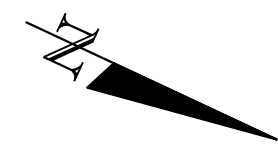
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 1970 DAIRY ROAD  
 WEST MELBOURNE FLORIDA, 32904  
 PH: 321.499.4679 FAX: 321.499.4680  
 CERTIFICATE OF AUTHORIZATION 9227

THE CITY OF DAYTONA BEACH, FLORIDA		
ROAD NO.	COUNTY	PROJECT ID
MLK BLVD.	VOLUSIA	2015-085

**DR. MARTIN LUTHER KING, JR. BLVD.  
 LIGHTING & ITS PLANS**

SHEET NO.  
**RL-7**

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MATCH LINE STA.. 105+60

MATCH LINE STA.. 108+20

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

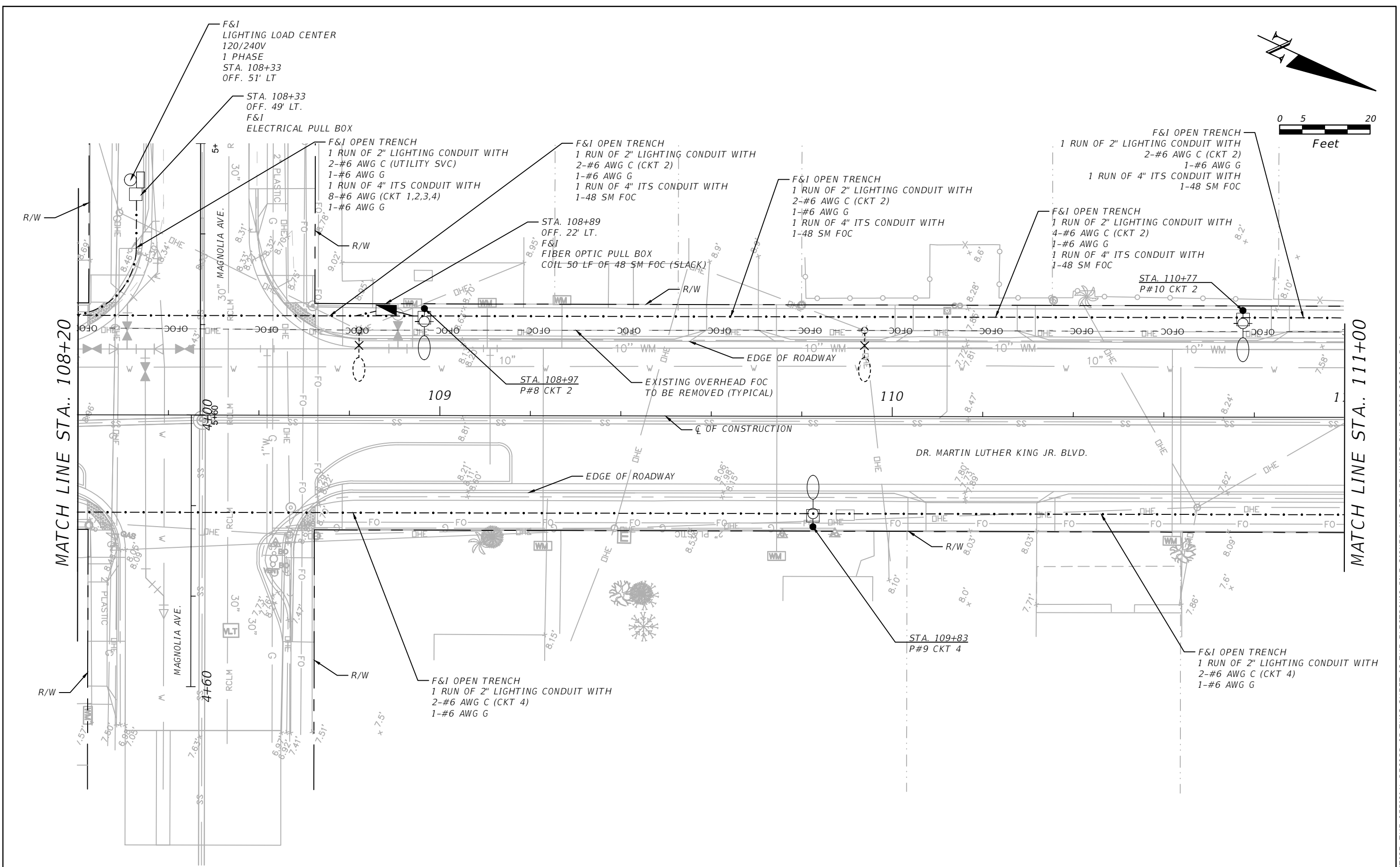
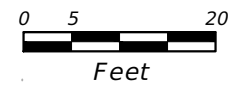
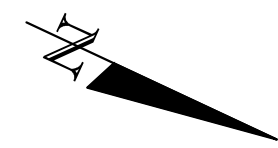
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THE CITY OF DAYTONA BEACH, FLORIDA		
ROAD NO.	COUNTY	PROJECT ID
MLK BLVD.	VOLUSIA	2015-085

**DR. MARTIN LUTHER KING, JR. BLVD.  
 LIGHTING & ITS PLANS**

SHEET NO.  
**RL-8**

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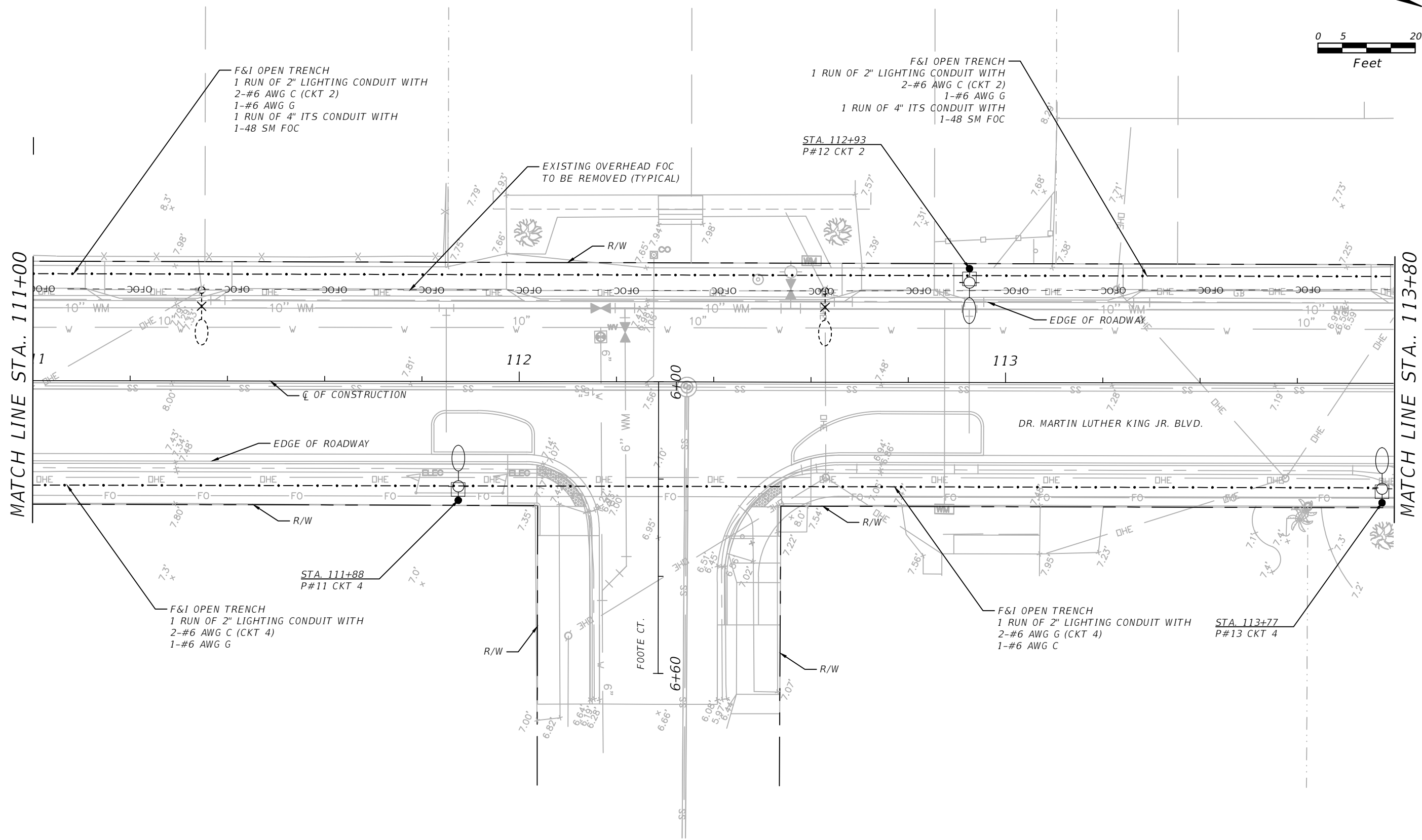
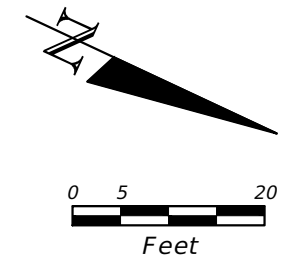
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THE CITY OF DAYTONA BEACH, FLORIDA		
ROAD NO.	COUNTY	PROJECT ID
MLK BLVD.	VOLUSIA	2015-085

**DR. MARTIN LUTHER KING, JR. BLVD.  
 LIGHTING & ITS PLANS**

SHEET NO.
RL-9

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MATCH LINE STA.. 111+00

MATCH LINE STA.. 113+80

F&I OPEN TRENCH  
 1 RUN OF 2" LIGHTING CONDUIT WITH  
 2-#6 AWG C (CKT 2)  
 1-#6 AWG G  
 1 RUN OF 4" ITS CONDUIT WITH  
 1-48 SM FOC

F&I OPEN TRENCH  
 1 RUN OF 2" LIGHTING CONDUIT WITH  
 2-#6 AWG C (CKT 2)  
 1-#6 AWG G  
 1 RUN OF 4" ITS CONDUIT WITH  
 1-48 SM FOC

F&I OPEN TRENCH  
 1 RUN OF 2" LIGHTING CONDUIT WITH  
 2-#6 AWG C (CKT 4)  
 1-#6 AWG G

F&I OPEN TRENCH  
 1 RUN OF 2" LIGHTING CONDUIT WITH  
 2-#6 AWG G (CKT 4)  
 1-#6 AWG C

STA. 111+88  
 P#11 CKT 4

STA. 113+77  
 P#13 CKT 4

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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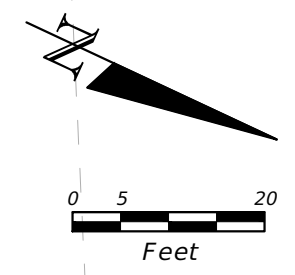
GIL RAMIREZ  
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THE CITY OF DAYTONA BEACH, FLORIDA		
ROAD NO.	COUNTY	PROJECT ID
MLK BLVD.	VOLUSIA	2015-085

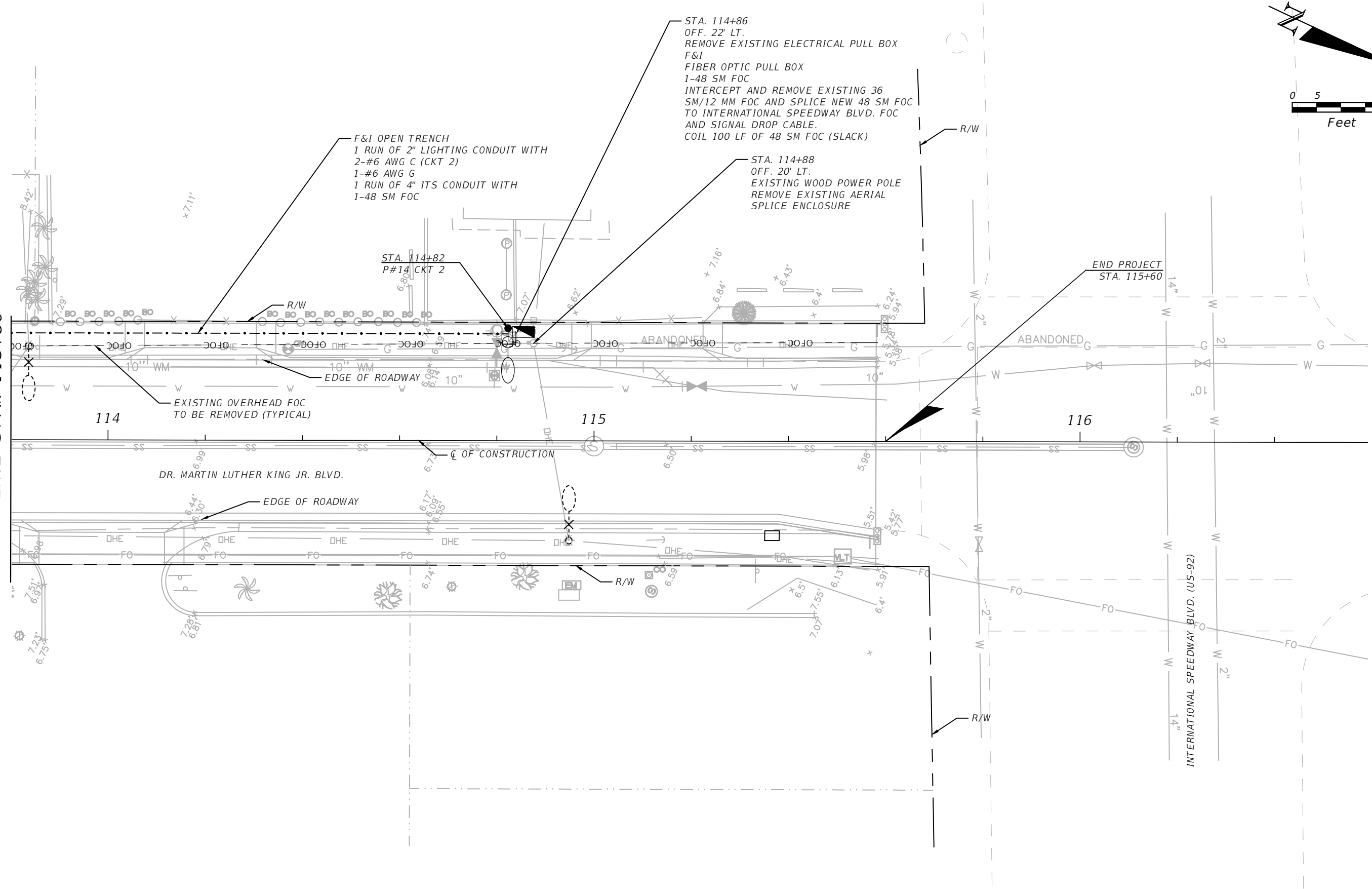
**DR. MARTIN LUTHER KING, JR. BLVD.**  
**LIGHTING & ITS PLANS**

SHEET NO.  
**RL-10**


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MATCH LINE STA. 113+80



REVISIONS			
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 WEST MELBOURNE FLORIDA, 32904  
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THE CITY OF DAYTONA BEACH, FLORIDA		
ROAD NO.	COUNTY	PROJECT ID
MLK BLVD.	VOLUSIA	2015-085

**DR. MARTIN LUTHER KING, JR. BLVD.**  
**LIGHTING & ITS PLANS**

SHEET NO.  
**RL-11**

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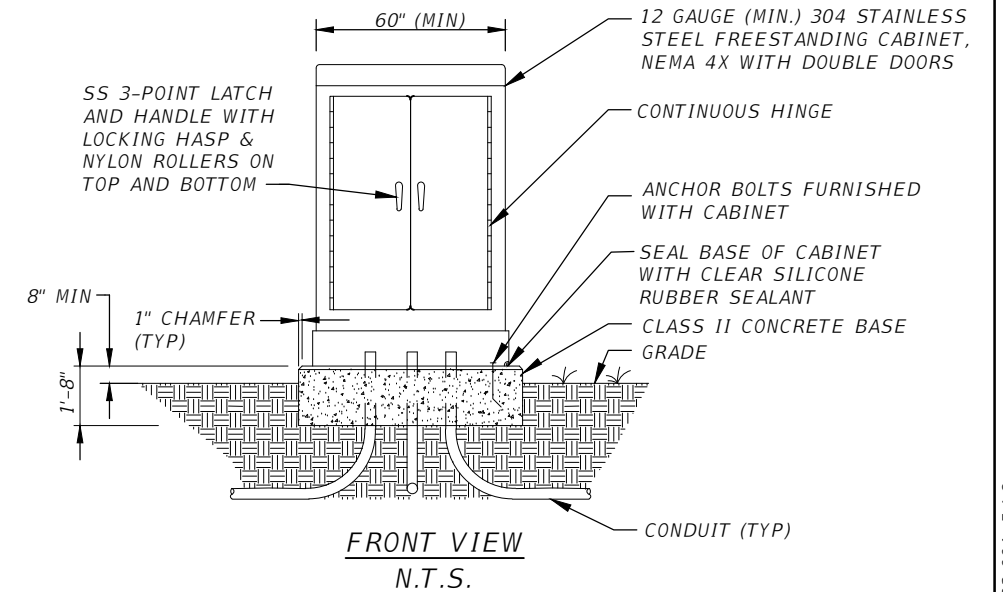


**KEYED NOTES:**

- 1 120/240 V SINGLE PHASE 3-WIRE UNDERGROUND SERVICE DROP.
- 2 2#3 XHHW INSULATED CONDUCTORS IN 2" CONDUIT.
- 3 METER CAN WITH BLANK PANEL BY CONTRACTOR.
- 4 100A, 240V, 2-POLE S/N HEAVY DUTY NEMA 3R SAFETY SWITCH.
- 5 PANEL BOARD, 60A, 120/240V, SINGLE PHASE, 3-WIRE WITH GROUND BAR CIRCUIT BREAKERS AS INDICATED.
- 6 LUMINAIRE CONNECTED TO CIRCUIT (TYPICAL)
- 7 COPPER CLAD GROUND ROD 5/8" DIA. 40 FT LONG.
- 8 #4 INSULATED COPPER GROUND IN 3/4" PVC.
- 9 CONTROL TRANSFORMER 1 KVA SINGLE PHASE, 240V PRIMARY 120V SECONDARY.
- 10 LIGHTNING ARRESTER.
- 11 #6 INSULATED COPPER GROUND WIRE IN 3/4" RIGID GALVANIZED STEEL.
- 12 60A, 2-POLE, ELECTRICALLY HELD CONTACTOR.
- 13 FREE STANDING NEMA 4X STAINLESS STEEL ENCLOSURE WITH TWO DOORS AND BACK PANEL DIMENSIONS AS NECESSARY, AND PER NEC.
- 14 PHOTO ELECTRIC SWITCH INSTALL BOTTOM OF PE SWITCH ABOVE TOP OF CABINET.
- 15 HAND-OFF AUTOMATIC SELECTOR SWITCH.
- 16 MAIN CIRCUIT BREAKER 60A, 2-POLE, 240V

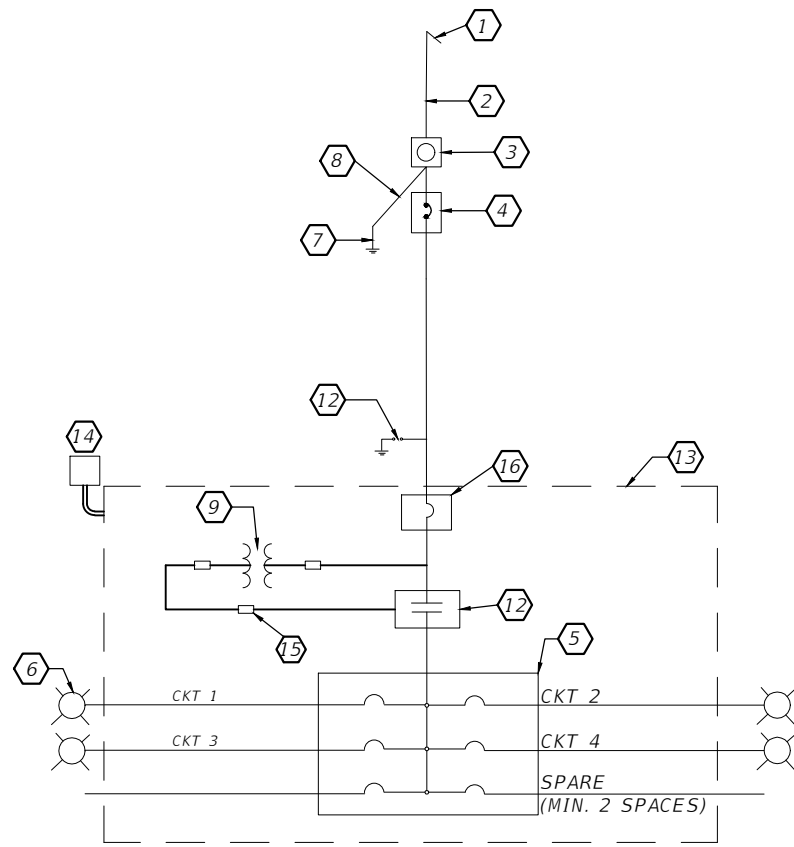
LOAD CENTER	CKT #	AMPS	POLE
A	1	10	1
		10	4
		10	6
	2	10	8
		10	10
		10	12
		10	14
	3	10	2
		10	3
		10	5
		10	7
	4	10	9
10		11	
10		13	

**CIRCUIT DETAILS**

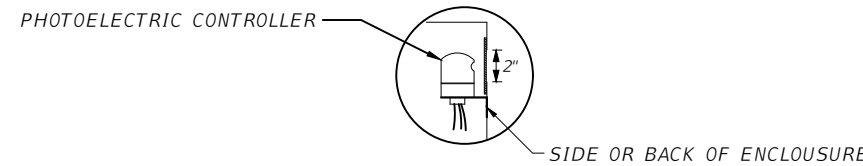


**GENERAL NOTES**

- 1. CABINET SHALL BE GROUNDED PER NEC AND FDOT STANDARDS.
- 2. STUB-OUT ONE (1) SPARE 2" PVC CONDUIT BELOW GRADE AND BEYOND CONCRETE BASE. CAP ENDS AND INDICATE LOCATION OF STUB-OUT INSIDE CABINET.

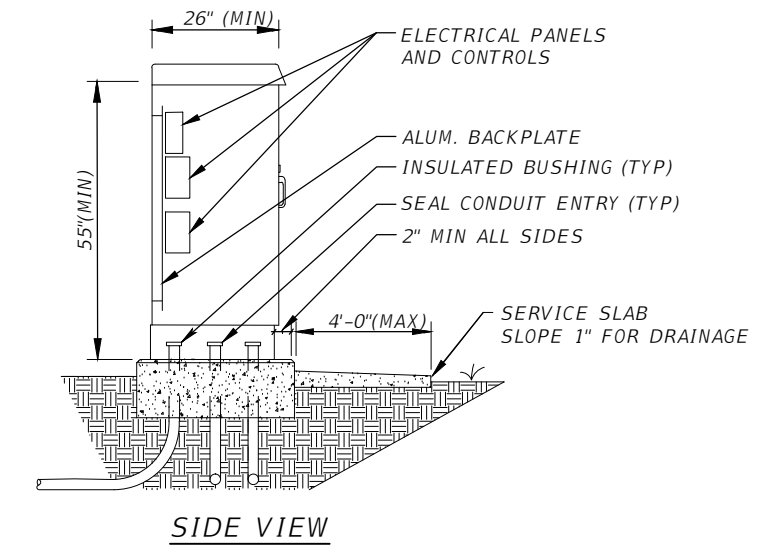


**LOAD CENTER SCHEMATIC DIAGRAM**  
N.T.S.



CUT A 2" HOLE IN THE SIDE OF THE LIGHTING CONTROL PANEL ENCLOSURE FOR THE OPERATION AND MOUNTING OF THE P.E. CONTROLLER. USE PLEXIGLASS AND A CLEAR SILICONE SEALANT TO COVER HOLE, INSTALL P.E. CONTROLLER.

**PHOTO ELECTRIC CONTROLLER DETAIL**  
N.T.S.



**LOAD CENTER ENCLOSURE DETAIL**  
N.T.S.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

**LTG** Engineering & Planning

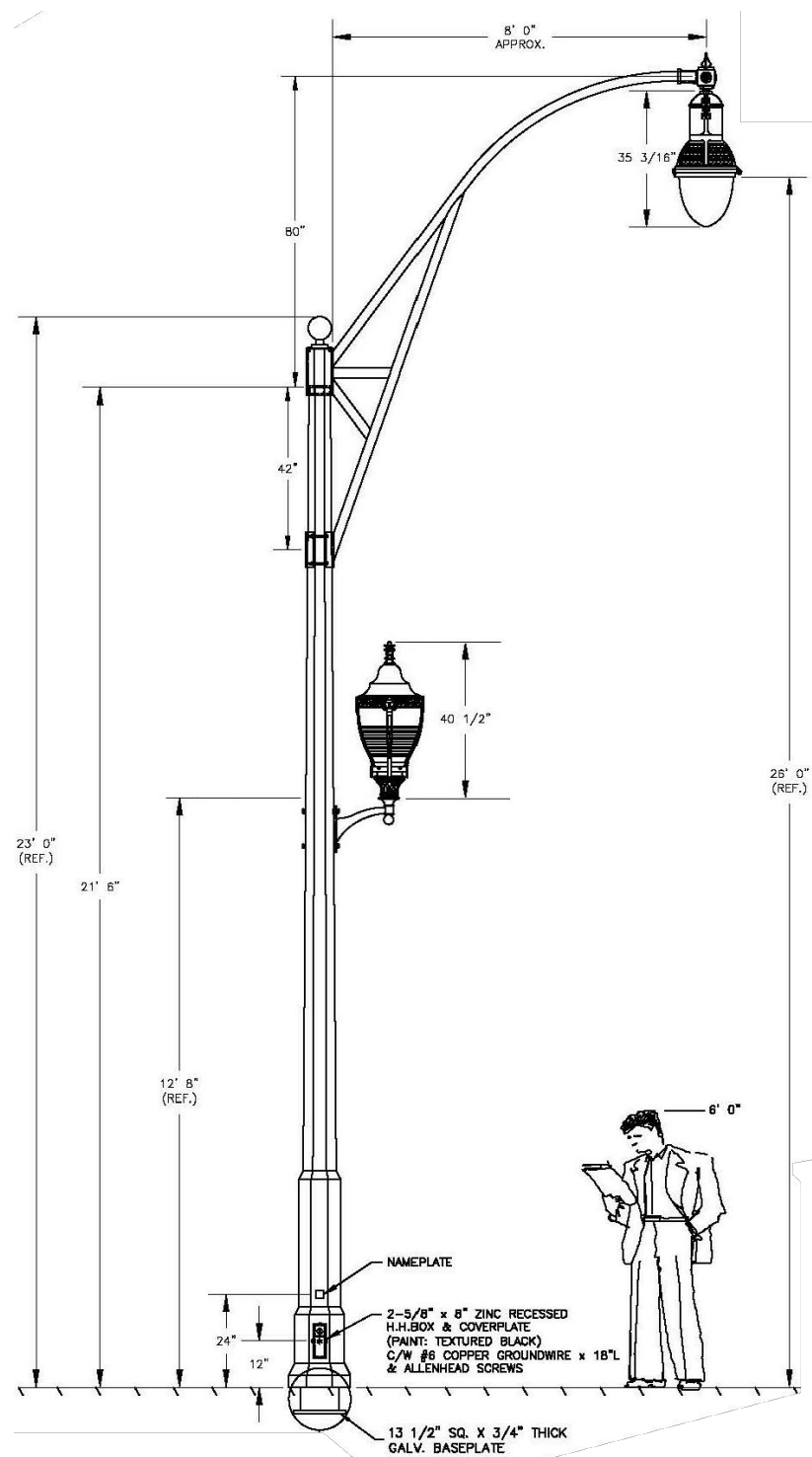
GIL RAMIREZ  
P.E. No. 62600  
1970 DAIRY ROAD  
WEST MELBOURNE FLORIDA, 32904  
PH: 321.499.4679 FAX: 321.499.4680  
CERTIFICATE OF AUTHORIZATION 9227

THE CITY OF DAYTONA BEACH, FLORIDA		
ROAD NO.	COUNTY	PROJECT ID
MLK BLVD.	VOLUSIA	2015-085

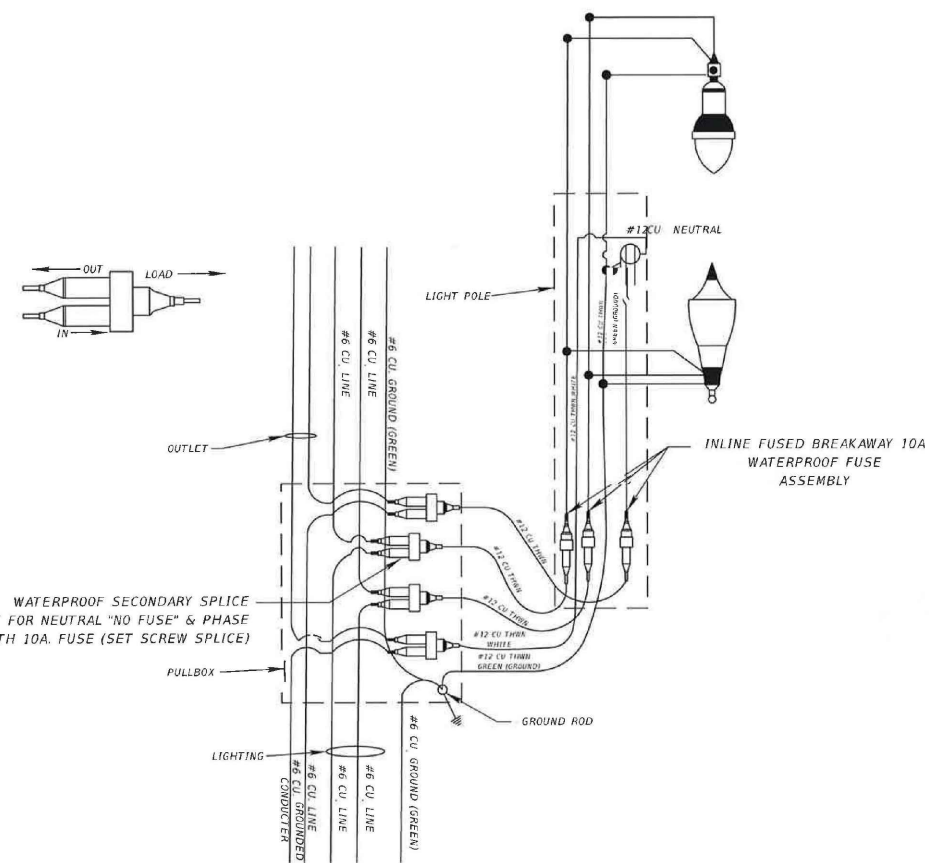
**LOAD CENTER DETAILS**

SHEET NO.

RL-12



TYPICAL POLE DETAIL



TYPICAL WIRING DETAIL

NOTES:

1. ALL POLES SHALL BE APPROVED BY THE CITY BEFORE ORDERING.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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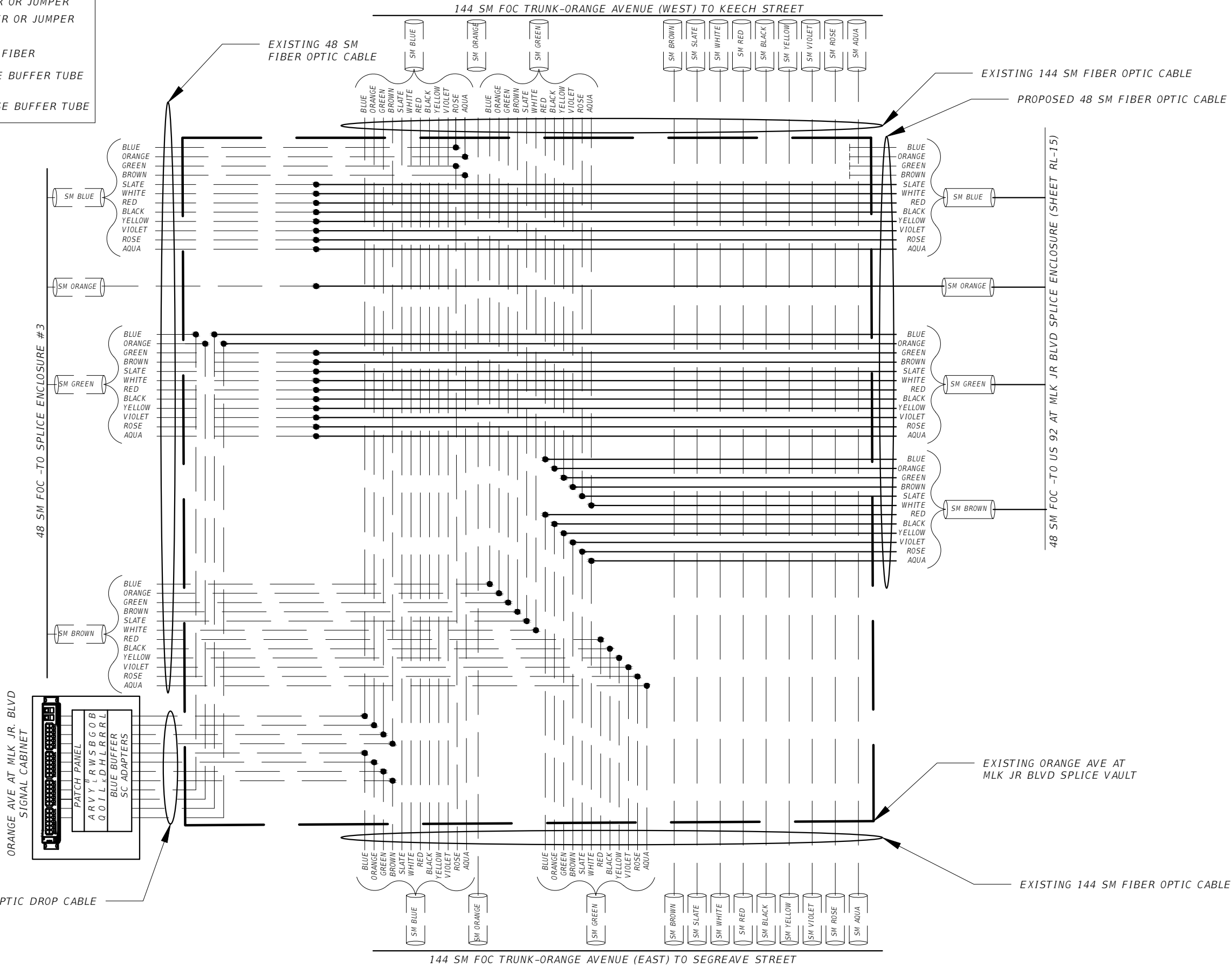
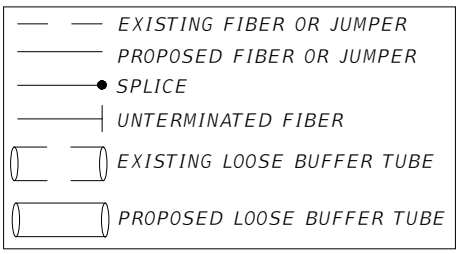
THE CITY OF DAYTONA BEACH, FLORIDA		
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POLE & WIRING DETAILS

SHEET NO.

RL-13

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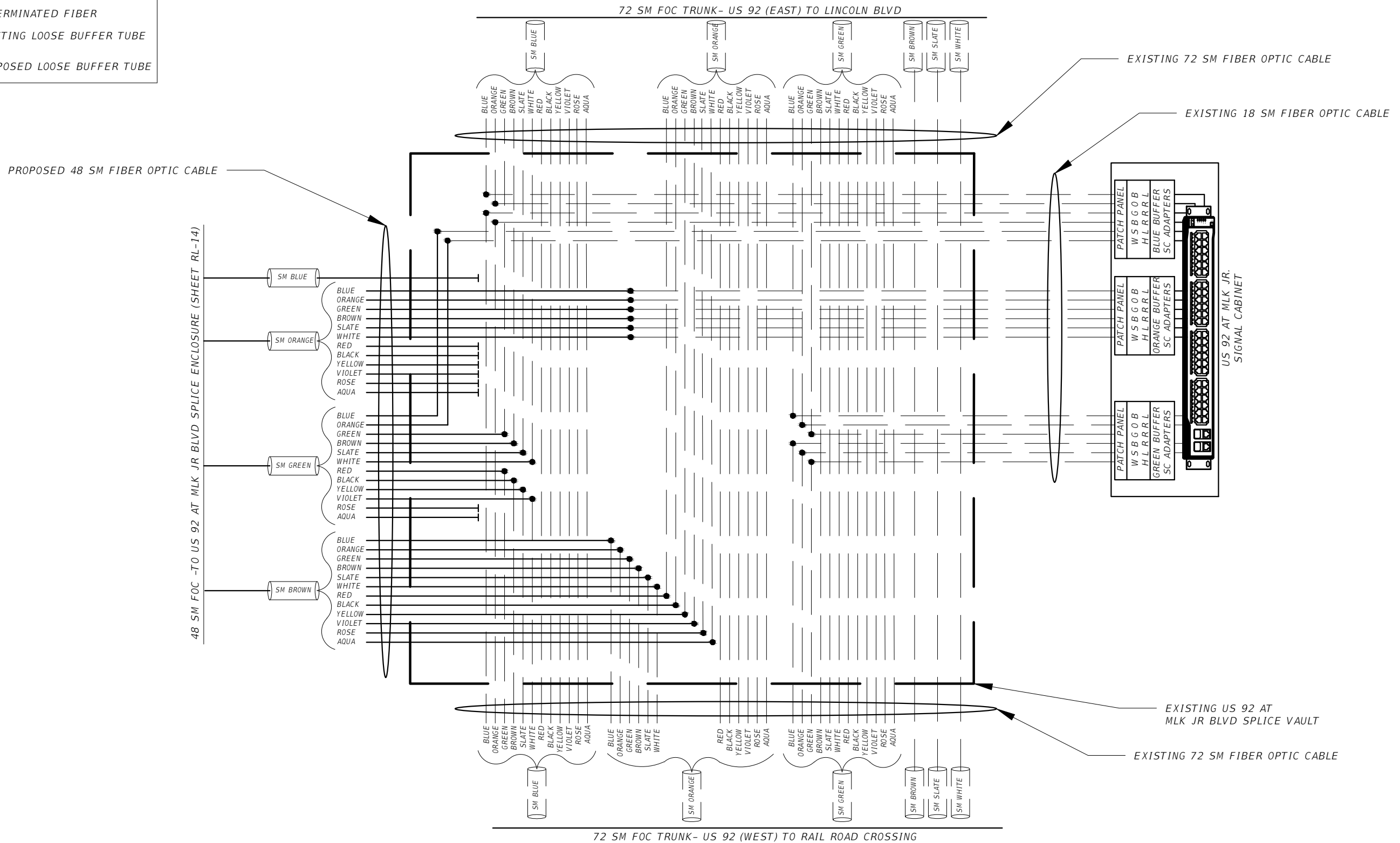
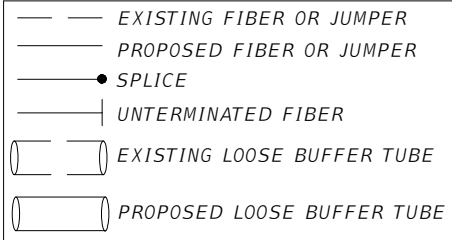
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**SPLICE DIAGRAM (1)**

SHEET NO.  
RL-14

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**SPLICE DIAGRAM (2)**  
 SHEET NO. RL-15

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