CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO NE 148th STREET

150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FLORIDA 33130
Ph: (786) 507-3898 Fax: (786) 439-0400
CA License No: 2429
www.tetratech.com

TETRA TECH

MAYOR:	**DR. SMITH JOSEPH**
COUNCIL DISTRICT 1:	**SCOTT GALVIN**
VICE MAYOR/COUNCIL DISTRICT 2:	**CAROL KEYS, ESQ.**
COUNCIL DISTRICT 3:	**PHILLIPPE BIEN-AIME**
COUNCIL DISTRICT 4:	**ALIX DESULME**
INTERIM CITY MANAGER:	**ARTHUR H. SOREY**
PUBLIC WORKS DIRECTOR:	**WISLER PIERRE-LOUIS**

INDEX OF DRAWINGS

SHEET NUMBER	TITLE
G-001	COVER
G-002	GENERAL NOTES
G-003	LEGENDS AND ABBREVIATIONS
G-004	KEY SHEET MAP
G-005	OVERALL WM VALVES & SAMPLE POINTS MAP
C-101 - C-107	PLAN AND PROFILE SHEETS
C-201 - C-202	STANDARD DETAILS
C-203	FDOT MISCELLANEOUS UTILITY DETAILS
C-204	FDOT CONCRETE SIDEWALK DETAILS
C-205	POLLUTION PREVENTION NOTES AND SPECS
C-206 - C-208	MOT DETAILS
P-101 - P-104	PAVEMENT RESTORATION AND MARKING PLANS
P-105 - P-108	PAVEMENT RESTORATION AND MARKING DETAILS

Janine M. Alexander, P.E.
P.E. No. 59244, FL

150 W. Flager Street, Suite 1625
Miami, Florida 33130

DATE _____

PROJECT LOCATION:

CLIENT INFORMATION:
CITY OF NORTH MIAMI
776 NE 125 STREET - 3rd FLOOR
NORTH MIAMI, FL 33161

Tt PROJECT No.:
200-66798-15001

CLIENT IMPROVEMENT No.:
16

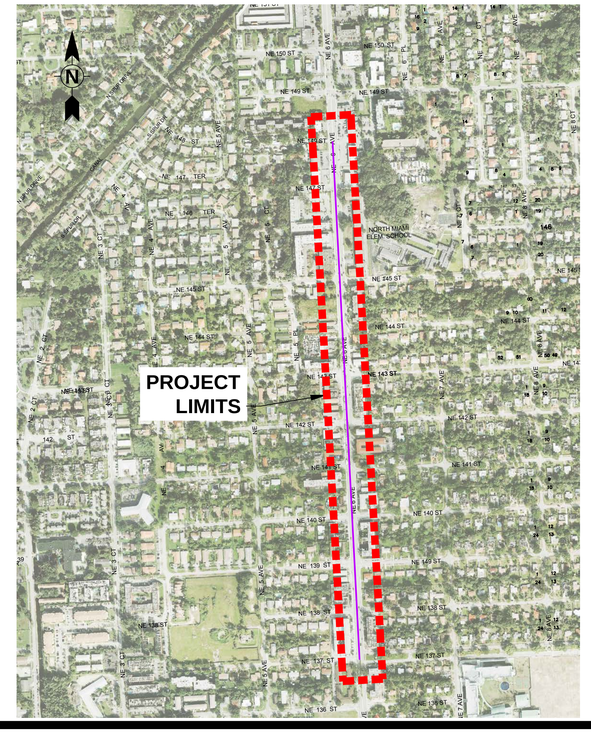
PROJECT DESCRIPTION / NOTES:

THIS PROJECT INCLUDES INSTALLATION OF APPROXIMATELY 3,600 LINEAR FEET OF 12" DIP WATER MAIN ALONG N.E. 6th AVENUE BETWEEN N.E. 137th STREET AND N.E. 148th STREET ALONG WITH FIRE HYDRANT REPLACEMENTS AND ASSOCIATED WATER SERVICE TIE-INS/RECONNECTIONS. THE EXISTING 6" DIAMETER WATER MAIN ALONG N.E. 6th AVENUE WILL BE PLACED OUT OF SERVICE.

ISSUED:

BID SET - APRIL 2016

VICINITY MAP:



GENERAL NOTES

1. THE INFORMATION PROVIDED IN THESE DRAWINGS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS WHICH WILL BE ENCOUNTERED DURING THE COURSE OF THE WORK. THE CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSION REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH BIDS WILL BE BASED.
2. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO APPLICABLE STANDARDS AND SPECIFICATIONS OF THE CITY OF NORTH MIAMI'S PUBLIC WORKS DEPARTMENT AND ALL OTHER LOCAL, STATE AND NATIONAL CODES, WHERE APPLICABLE.
3. LOCATIONS, ELEVATIONS, SIZES, MATERIALS, ALIGNMENTS, AND DIMENSIONS OF EXISTING FACILITIES, UTILITIES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE PLANS, AND DO NOT PURPORT TO BE ABSOLUTELY CORRECT. ALSO, THERE MAY HAVE BEEN OTHER IMPROVEMENTS, UTILITIES, ETC., WITHIN THE PROJECT AREA WHICH WERE CONSTRUCTED AFTER THE PREPARATION OF THESE PLANS AND/OR THE ORIGINAL SITE SURVEY. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS, AND OTHER FEATURES AFFECTING HIS/HER WORK PRIOR TO CONSTRUCTION, AND NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICT BETWEEN DRAWINGS AND ACTUAL CONDITIONS ARE DISCOVERED. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY FACILITIES SHOWN OR NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL WORK AS NEEDED TO AVOID CONFLICT WITH EXISTING UTILITIES (NO ADDITIONAL COST SHALL BE PAID FOR THIS WORK). EXISTING UTILITIES SHALL BE MAINTAINED IN SERVICE DURING CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE RESPECTIVE UTILITY OWNER.
4. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITIES TO ARRANGE FOR THE RELOCATION AND TEMPORARY SUPPORT OF UTILITY FEATURES, ETC. AS NECESSARY TO COMPLETE THE WORK.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ANY AND ALL EXISTING UTILITIES ON THIS PROJECT, AND TO ENSURE THAT EXISTING UTILITIES ARE MAINTAINED IN SERVICE DURING CONSTRUCTION UNLESS APPROVED OTHERWISE BY THE UTILITY OWNER.
6. THE CONTRACTOR SHALL GIVE AT LEAST 48 HOURS NOTICE TO UTILITY COMPANIES TO PROVIDE FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES IN ADVANCE OF CONSTRUCTION. CONTACT UTILITIES NOTIFICATION CENTER AT 1-800-432-4770 (SUNSHINE ONE-CALL OF FLORIDA).
7. CONTRACTOR SHALL ADJUST ALL EXISTING UTILITY CASTINGS INCLUDING VALVE BOXES, MANHOLES, HAND-HOLES, PULL-BOXES, STORMWATER INLETS, AND SIMILAR STRUCTURES IN CONSTRUCTION AREA TO BE OVERLAID WITH ASPHALT PAVEMENT.
8. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL APPLICABLE CONSTRUCTION PERMITS PRIOR TO THE START OF CONSTRUCTION.
9. THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DEPARTMENT AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
10. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND INSTALLATION OF THE PROPOSED IMPROVEMENTS, SHOP DRAWINGS SHALL BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT IN ACCORDANCE WITH THE CONTRACT DOCUMENT'S REQUIREMENTS, FOR APPROVAL. IN ADDITION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY OTHER AGENCY SHOP DRAWING APPROVAL, IF REQUIRED.
11. THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS DEPARTMENT IMMEDIATELY FOR ANY CONFLICT ARISING DURING CONSTRUCTION OF ANY IMPROVEMENTS SHOWN ON THESE DRAWINGS. THIS WORK BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
12. ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988, (NAVD88).
13. THERE IS NO STAGING / STORAGE AREA PROVIDED BY THE CITY OF NORTH MIAMI. CONTRACTOR SHALL PROVIDE PROVIDING STAGING / STORAGE AREA AS NECESSARY FOR CONSTRUCTION WORK.
14. CONTRACTOR SHALL HAUL AWAY EXCESSIVE STOCKPILE OF SOIL FOR DISPOSAL EVERY DAY. NO STOCKPILE SOIL IS ALLOWED TO BE LEFT ON THE CONSTRUCTION SITE OVER NIGHT.
15. CONTRACTOR SHALL CLEAN /SWEEP THE ROAD AT LEAST ONCE A DAY OR AS REQUIRED BY THE ENGINEER.
16. CONTRACTOR SHALL PROTECT CATCH BASINS WITHIN / ADJACENT TO THE CONSTRUCTION SITE WITH ULTRA-DRAIN GUARDS. CONTRACTOR SHALL MAINTAIN AND REMOVE DIRT TRAPPED IN THE ULTRA-DRAIN GUARDS AFTER EACH RAIN EVENT.
17. THE CITY OF NORTH MIAMI HAS A NOISE ORDINANCE (CHAPTER 12), WHICH PROHIBITS OPERATING OR PERMITTING THE OPERATION OF ANY TOOLS OR EQUIPMENT USED IN CONSTRUCTION, DRILLING OR DEMOLITION WORK BETWEEN THE HOURS OF 9:00 P.M. AND 8:00 A.M. THE FOLLOWING DAY ON WEEKDAYS OR AT ANY TIME ON WEEKENDS OR HOLIDAYS, SUCH THAT THE SOUND THEREFROM CREATES A NOISE DISTURBANCE ACROSS A RESIDENTIAL REAL PROPERTY BOUNDARY OR WITHIN A NOISE SENSITIVE ZONE, EXCEPT FOR EMERGENCY WORK OF PUBLIC SERVICE UTILITIES.
18. SUITABLE EXCAVATED MATERIAL SHALL BE USED IN FILL AREAS. NO SEPARATE PAY ITEM FOR THIS WORK, INCLUDE COST IN OTHER ITEMS. APPROVAL OF SUITABLE SOILS IS REQUIRED BY THE ENGINEER.
19. ALL ROAD CROSSINGS ARE OPEN CUT AS PER THE REQUIREMENTS OF THE PUBLIC WORKS DEPARTMENT UNLESS OTHERWISE NOTED ON THE DRAWINGS.
20. THE CONTRACTOR SHALL REPLACE ALL PAVING, STABILIZING EARTH, DRIVEWAYS, SIDEWALKS, SOD AND SWALE GRADING, ETC. TO SATISFY THE INSTALLATION OF THE PROPOSED IMPROVEMENTS WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT FIELD ENGINEER.
21. THE CONTRACTOR SHALL NOT ENCROACH INTO PRIVATE PROPERTY WITH PERSONNEL, MATERIAL OR EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN ACCESS AT ALL TIMES TO PRIVATE HOMES AND BUSINESSES.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE, REMOVAL OR MODIFICATION, CAUSED TO ANY IRRIGATION SYSTEM (PRIVATE OR PUBLIC) ACCIDENTALLY OR PURPOSELY. THE CONTRACTOR SHALL REPLACE ANY DAMAGED, REMOVED OR MODIFIED IRRIGATION PIPES, SPRINKLER HEADS OR OTHER PERTINENT APPURTENANCES AT NO ADDITIONAL COST.
23. MAIL BOXES, FENCES OR OTHER HOME OWNER PROPERTY DAMAGED DURING THE CONSTRUCTION OF THE IMPROVEMENTS SHALL BE REPLACED TO MATCH OR EXCEED EXISTING CONDITION.
24. CONTRACTOR SHALL PROVIDE A CERTIFIED MAINTENANCE OF TRAFFIC PLAN SIGNED AND SEALED BY PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA IN ACCORDANCE WITH FDOT, M.U.T.C.D. STANDARDS AND CITY OF CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT STANDARDS FOR SUBMITTAL TO AND APPROVAL BY THE CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT.
25. NO TREES ARE TO BE REMOVED OR RELOCATED WITHOUT PRIOR APPROVAL FROM THE PUBLIC WORKS DEPARTMENT FIELD ENGINEER. CONTRACTOR SHALL PROTECT ALL LANDSCAPING AND TREES AS NEEDED.
26. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE NECESSARY TREE REMOVAL OR RELOCATION PERMITS FROM THE CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT FOR TREES LOCATED IN THE PUBLIC RIGHT OF WAY.
27. COMPLETE HARDCOPY AND ELECTRONIC (AUTOCAD) "AS-BUILT" INFORMATION RELATIVE TO LOCATION, ALIGNMENT SIZE AND DEPTH OF NEW PIPES, MANHOLES, INLETS, ETC., SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR AND SUBMITTED (SIGNED AND SEALED BY A FLORIDA CERTIFIED P.L.S.) TO PUBLIC WORKS DEPARTMENT PRIOR TO FINAL ACCEPTANCE OF THE WORK. ALL RECORD INFORMATION ON EXISTING UTILITY CROSSINGS ENCOUNTERED DURING CONSTRUCTION, INCLUDING BUT NOT LIMITED TO PIPES, INLETS, MANHOLE, ETC. SHALL BE RECORDED BY A FLORIDA REGISTERED SURVEYOR AND SHOWN ON THE RECORD DRAWINGS. THE COST OF SIGNED AND SEALED AS-BUILTS SHALL BE COVERED IN OVERALL BID. A SIGNED AND SEALED COPY OF THIS AS BUILT SHALL BE ALSO SUBMITTED TO PUBLIC WORKS DEPARTMENT.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF AND MAKING THE REPAIRS TO EXISTING PAVEMENT, DRIVEWAY APRONS, SIDEWALKS, PIPES, CONDUITS, CURBS, CABLES, ETC., WHETHER OR NOT SHOWN ON THE PLANS DAMAGED AS A RESULT OF THE CONTRACTORS OPERATIONS AND/OR THOSE OF HIS SUBCONTRACTORS, AND SHALL RESTORE THEM PROMPTLY AT NO ADDITIONAL EXPENSE TO THE OWNER. CONTRACTOR SHALL REPORT ANY DAMAGE TO SIDEWALK. DRIVEWAY, ETC., PRIOR TO BEGINNING WORK IN ANY AREA. IT IS CONTRACTOR'S RESPONSIBILITY TO SURVEY EXISTING CONDITIONS OF AREA.
29. IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE REGULATORY STANDARDS / REQUIREMENTS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF PUBLIC WORKS DEPARTMENT.
30. WHERE NEW PAVEMENT MEETS EXISTING, CONNECTION SHALL BE MADE IN A NEAT STRAIGHT LINE AND FLUSH WITH EXISTING PAVEMENT TO MATCH EXISTING CONDITIONS.
31. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR LEAVE EXCAVATED TRENCHES, OR PARTS OF, EXPOSED OR OPENED AT THE END OF THE WORKING DAY, WEEKENDS, HOLIDAYS OR OTHER TIMES, WHEN THE CONTRACTOR IS NOT WORKING, UNLESS OTHERWISE DIRECTED. ALL TRENCHES SHALL BE COVERED, FIRMLY SECURED AND MARKED ACCORDINGLY FOR PEDESTRIAN TRAFFIC.
32. ALL EXCAVATED MATERIAL REMOVED FROM THIS PROJECT SHALL BE DISPOSED OF OFF THE PROPERTY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
33. ALL CAST IRON PRODUCTS SHALL BE HEAVY DUTY CLASSIFICATION SUITABLE FOR HIGHWAY TRAFFIC LOADS, OR 16,000 LB.
34. ALL GRASSED AREAS AFFECTED BY CONSTRUCTION SHALL BE RE-SODDED.
35. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION, INSTALLATION AND MAINTENANCE OF ALL TRAFFIC CONTROL AND SAFETY DEVICES, IN ACCORDANCE WITH SPECIFICATIONS OF THE LATEST FDOT DESIGN STANDARDS. IN ADDITION, THE CONTRACTOR IS RESPONSIBLE FOR THE RESETTING OF ALL TRAFFIC CONTROL AND INFORMATION SIGNAGE REMOVED OR DAMAGED DURING THE CONSTRUCTION PERIOD.
36. EXCAVATED OR OTHER MATERIAL STORED ADJACENT TO OR PARTIALLY UPON A ROADWAY PAVEMENT SHALL BE ADEQUATELY MARKED FOR TRAFFIC SAFETY AT ALL TIMES.
37. TEMPORARY PATCH MATERIAL MUST BE ON THE JOB SITE WHENEVER PAVEMENT IS CUT, OR THE INSPECTOR WILL SHUT THE JOB DOWN.
38. CONTRACTOR MUST PROVIDE FLASHER ARROW SIGNAL FOR ANY LANE THAT IS CLOSED OR DIVERTED.
39. CONTRACTOR SHALL NOTIFY LAW ENFORCEMENT AND FIRE PROTECTION SERVICES TWENTY-FOUR (24) HOURS IN ADVANCE OF THE TRAFFIC DETOUR IN ACCORDANCE WITH SECTION 336.07 OF FLORIDA STATUTES.
40. CONTRACTOR TO RESTORE DRIVEWAYS, PAVEMENT AND PAVEMENT MARKINGS TO ORIGINAL CONDITION AS REQUIRED.
41. CONTRACTOR TO PREPARE AND SUBMIT THE NPDES NOI TO THE CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT. CONTRACTOR TO PREPARE AND SUBMIT TO THE CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT A STORMWATER POLLUTION PREVENTION PLAN SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
42. NOTIFY MARIBEL LENA FDOT PID (305-470-5277) ONE (1) WEEK PRIOR TO CONSTRUCTION.

MOT NOTES

THE FLORIDA DEPARTMENT OF TRANSPORTATION'S "ROADWAY AND TRAFFIC DESIGN STANDARDS" LATEST EDITION. CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING AND SUBMITTING A M.O.T. PLAN IN ACCORDANCE WITH FDOT GUIDELINES, REGULATIONS AND STANDARDS TO THE CITY OR COUNTY(WHICHEVER IS APPLICABLE) FOR APPROVAL PRIOR TO COMMENCING WORK. THE CONTRACTOR'S M.O.T. PLAN SHALL BE SEALED BY A FLORIDA REGISTERED CIVIL ENGINEER WITH KNOWLEDGE OF PREPARING TRAFFIC CONTROL PLANS.

THE POSTED SPEED LIMITS ALONG THE ROADWAYS UNDER CONSTRUCTION SHALL BE IN FORCE, UNLESS IT IS DEEMED APPROPRIATE THAT THE SPEED BE REDUCED.

THE CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE PATTERNS DURING CONSTRUCTION ACTIVITIES.

THE CONTRACTOR SHALL NOTIFY BUSINESSES, RESIDENCES, AND SCHOOLS WITHIN THE CONSTRUCTION AREA AT LEAST (7) WORKING DAYS PRIOR TO CONSTRUCTION AND SHALL MAINTAIN ACCESS AT ALL TIMES.

THE CONTRACTOR SHALL ADJUST THE MAINTENANCE OF TRAFFIC SIGNS AND BARRICADES AS NEEDED PER FIELD CONDITIONS.

CONTRACTOR SHALL MAINTAIN PEDESTRIAN AND VEHICULAR TRAFFIC PER FDOT REQUIREMENTS. CONTRACTOR SHALL PROVIDE AND PAY FOR ALL WARNING SIGNALS, SIGNS, LIGHTS AND FLAG MEN, POLICE, AND ALL OTHER NECESSARY MOT ITEMS AND MEET FDOT STANDARDS IN THE "MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES" (FDOT INDEXES 600 - 8501, TO ENSURE SAFE PASSAGE OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING CONSTRUCTION ACTIVITIES.

WATER NOTES

1. ALL DUCTILE IRON PIPE TO BE MECHANICAL JOINT, WRAPPED IN POLY.
2. POLYETHYLENE ENCASEMENT MATERIAL SHALL BE USED TO ENCASE ALL BURIED DUCTILE IRON PIPE, FITTINGS, VALVES, RODS, AND APPURTENANCES IN ACCORDANCE WITH AWWA C105, METHOD A. THE POLYETHYLENE WRAP SHALL BE CUT TWO FEET LONGER THAN THE PIPE SECTION AND SHALL OVERLAP THE ENDS OF THE PIPE BY ONE FOOT. THE POLYETHYLENE WRAP SHALL BE GATHERED AND LAPPED TO PROVIDE A SNUG FIT AND SHALL BE SECURED AT QUARTER POINTS WITH POLYETHYLENE TAPE. EACH END OF THE POLYETHYLENE WRAP SHALL BE SECURED WITH A WRAP OF POLYETHYLENE TAPE. THE WATER MAIN WRAP SHALL BE BLUE IN COLOR.
3. THE POLYETHYLENE WRAP SHALL PREVENT CONTACT BETWEEN THE PIPE AND BEDDING MATERIAL, BUT IS NOT INTENDED TO BE A COMPLETELY AIRTIGHT AND WATERTIGHT ENCLOSURE. DAMAGED POLYETHYLENE WRAP SHALL BE REPAIRED IN A WORKMANLIKE MANNER USING POLYETHYLENE TAPE. OR THE DAMAGED SECTION SHALL BE REPLACED. POLY WRAP WILL NOT BE PAID FOR AS A SEPARATE BID ITEM. IT SHALL BE CONSIDERED TO BE A PART OF THE PRICE BID FOR WATER MAINS.
4. FIRE HYDRANT BARRELS SHALL BE ENCASED IN POLY WRAP UP TO THE GROUND SURFACE AND THE WEEP HOLES SHALL NOT BE COVERED BY THE POLY WRAP.
5. GATE VALVES FOR USE WITH PIPE LESS THAN THREE INCHES (3") IN DIAMETER SHALL BE RATED FOR TWO HUNDRED (200) PSI WORKING PRESSURE, NON-SHOCK, BLOCK PATTERN, SCREWED BONNET, NON-RISING STEM, BRASS BODY, AND SOLID WEDGE, THEY SHALL BE STANDARD THREADED FOR DIP PIPE AND HAVE A MALLEABLE IRON HANDWHEEL. GATE VALVES LESS THAN THREE INCHES (3") IN DIAMETER SHALL BE NIBCO-SCOTT T -133 OR T -136 WITH NO SUBSTITUTIONS ALLOWED. LARGE GATE VALVES OVER 3" THRU 16" IN DIAMETER, MUST BE RESILIENT SEAT AND BIDIRECTIONAL FLOW ONLY. MANUFACTURERS, MUELLER, AMERICAN DARLING, AVK, OR CITY APPROVED EQUAL. VALVES FOR SPECIAL APPLICATION WILL REQUIRE CITY UTILITY APPROVAL.
6. VALVE BOXES AND COVERS FOR ALL SIZE VALVES SHALL BE OF CAST IRON CONSTRUCTION AND ADJUSTABLE SCREW-ON TYPE, THE LID SHALL HAVE CAST IN THE METAL THE WORD "WATER" FOR THE WATER LINES. ALL VALVE BOXES SHALL BE SIX INCH (6") NOMINAL DIAMETER AND SHALL BE SUITABLE FOR DEPTHS OF THE PARTICULAR VALVE. THE STEM OF THE BURIED VALVE SHALL BE WITHIN TWENTY-FOUR INCHES (24') OF THE FINISHED GRADE UNLESS OTHERWISE APPROVED BY THE CITY.
7. FIRE HYDRANTS: PRESENTLY CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT SPECIFICATIONS ALLOW ONLY MANUFACTURERS, MUELLER MODEL SUPER CENTURION 200 5 ¼" SIZE REFERENCE CATALOG NO. A-423 AND AMERICAN DARLING MODEL B-84-B 5 ¼" SIZE.. ANY DEVIATION FROM REQUIRED SPECIFICATIONS WILL REQUIRE CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT APPROVAL.
8. ALL PIPE, FITTINGS AND APPURTENANCES SHALL MEET THE REDUCTION OF LEAD IN DRINKING WATER ACT. ALL WATER SERVICE FITTINGS AND FIRE HYDRANTS SHALL BE DESIGNATED NO-LEAD.
9. NEW WATER MAINS MUST BE CLEARED FOR USE BY THE DEPARTMENT OF HEALTH, AND TIE-INS COORDINATED WITH THE CITY, PRIOR TO PLACING THEM INTO SERVICE.

SURVEYOR'S NOTES

1. THE LAND DESCRIPTION SHOWN HEREON WAS PROVIDED BY THE CLIENT. EASEMENTS AND RIGHTS-OF-WAY PER RECORD PLAT HAVE BEEN SHOWN HEREON. NO FURTHER SEARCH FOR MATTERS OF RECORD HAS BEEN MADE BY THIS FIRM.
2. THIS SURVEY IS PREPARED FOR THE SOLE AND EXCLUSIVE USE OF THE PARTIES AS SURVEYED FOR AND AS CERTIFIED TO AND SHALL NOT BE RELIED UPON BY ANY OTHER ENTITY OR INDIVIDUAL.
3. ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
4. MIAMI-DADE BENCHMARK N-360-R ELEVATION 7.39.
5. NORTH ARROW RELATIVE TO ASSUMED NORTH ALONG THE CENTERLINE OF NE 6TH STREET.
6. HORIZONTAL CONTROL DATA RELATIVE TO FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983 / 1990 ADJUSTMENT.
7. UNDERGROUND UTILITIES SHOWN PER SUNSHINE LOCATES, PER UTILITY DRAWINGS PROVIDED TO THIS OFFICE AND PER CITY OF NORTH MIAMI PUBLIC WORKS DEPARTMENT GIS AND ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE SHOWN IN APPROXIMATE LOCATION. CALL SUNSHINE STATE ONE CALL FOR LOCATES PRIOR TO CONSTRUCTION FOR EXACT LOCATIONS.

PIPING MATERIAL SCHEDULE

MARK	SERVICE / INSTALLATION	BURIED PIPE		BURIED FITTINGS (RMJ)	COLOR
		MATERIAL	CLASS	MATERIAL	
– —DIP— –	POTABLE WATER/ OPEN CUT	DIP	52 AWWA C151-09*	DUCTILE IRON	BLUE, PER 62-555.320 (21)(B)(3),F.A.C.

ADDITIONAL NOTE:

1. CONTRACTOR TO COMPLY WITH FDOT STANDARDS AND SPECIFICATIONS FOR ALL WORK WITHIN NE 6TH AVE. ROW LIMITS.

RER NOTES ON WATER-SEWER INSTALLATION

1. A PREFERRED HORIZONTAL DISTANCE (OUTSIDE TO OUTSIDE) OF 10 FEET OR MINIMUM OF 6 FEET SHALL BE MAINTAINED BETWEEN GRAVITY OR PRESSURE SEWER PIPES AND WATER MAINS. THE HORIZONTAL SEPARATION CAN BE REDUCED TO A MINIMUM OF 3 FEET ONLY FOR GRAVITY SEWER PIPES WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SANITARY SEWER. WHEN THE ABOVE SPECIFIED HORIZONTAL DISTANCE CRITERIA CANNOT BE MET DUE TO AN EXISTING UNDERGROUND FACILITY CONFLICT, SMALLER SEPARATIONS ARE ALLOWED IF:
   1.1. THE SEWER PIPES ARE DESIGNED AND CONSTRUCTED EQUAL TO THE WATER PIPE AND PRESSURE TESTED AT 150 PSI.
   1.2. THE SEWER IS ENCASED IN A WATERTIGHT CARRIER PIPE OR CONCRETE.
   1.3. THE TOP OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER PIPE.
2. A VERTICAL DISTANCE OF AT LEAST 12 INCHES (OUTSIDE TO OUTSIDE) SHALL BE MAINTAINED BETWEEN ANY WATER AND SEWER MAINS WITH SEWER PIPES PREFERABLY CROSSING UNDER WATER MAINS. THE MINIMUM VERTICAL SEPARATION CAN BE REDUCED TO 6 INCHES FOR GRAVITY SEWERS WHERE THE SEWER PIPE IS CROSSING BELOW THE WATER MAIN. THE CROSSING SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST 6 FEET FROM ALL JOINTS IN GRAVITY AND PRESSURE SEWER PIPES. WHEN THE ABOVE SPECIFIED VERTICAL DISTANCE CRITERIA CANNOT BE MET DUE TO AN EXISTING UNDERGROUND FACILITY CONFLICT, SMALLER SEPARATIONS ARE ALLOWED IF:
   2.1. THE SEWER PIPES ARE DESIGNED AND CONSTRUCTED EQUAL TO THE WATER PIPE AND PRESSURE TESTED AT 150 PSI.
   2.2. THE SEWER IS ENCASED IN A WATERTIGHT CARRIER PIPE OR CONCRETE.
3. THE CONTRACTOR SHALL VERIFY NATURE, DEPTH, AND CHARACTER OF EXISTING UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
4. ALL OTHER PUBLIC OR PRIVATE UTILITY FACILITIES SHALL BE CONSTRUCTED AT LEAST 5 FEET FROM ANY WATER AND SEWER MAIN AS MEASURED FROM THE OUTSIDE BELL OF THE WATER OF THE UTILITY PIPE.
5. WHEN THE 5 FEET SEPARATION BETWEEN PROPOSED AND EXISTING LINE IS NOT POSSIBLE, THE CONTRACTOR SHALL HAND DIG OR EXPOSE THE WATER AND SEWER PIPES BEFORE PROCEEDING WITH POWER EQUIPMENT EXCAVATION.
6. IN NO CASE SHALL A CONTRACTOR INSTALL UTILITY PIPES, CONDUITS, CABLES, ETC. IN THE SAME TRENCH PARALLEL AND ABOVE AN EXISTING WATER OR SEWER PIPE EXCEPT WHERE THEY CROSS. ANY DEVIATION FROM NOTES 3, 4 AND 5 SHALL BE APPROVED IN WRITING BY THE RESPONSIBLE WATER AND SEWER UTILITY.
7. IN HIGHLY CONGESTED AREAS, WHERE EITHER WATER OR SEWER FACILITIES ARE EXISTING OR THE SEPARATION REQUIREMENTS CANNOT BE MET, SPECIAL CONSIDERATION MAY BE GIVEN SUBJECT TO SUBMITTAL OF DOCUMENTATION SHOWING THAT THE PROPOSED ALTERNATIVE WILL RESULT IN AN EQUIVALENT LEVEL OF RELIABILITY AND PUBLIC HEALTH PROTECTION.
8. GRAVITY SANITARY SEWERS CONSTRUCTED WITHIN A PUBLIC WELLFIELD PROTECTION AREA SHALL BE PVC-900 OR DUCTILE IRON PIPE THE MAXIMUM ALLOWABLE EXFILTRATION, INFILTRATION, OR LEAKAGE FOR GRAVITY SANITARY SEWERS CONSTRUCTED WITHIN A PUBLIC WELLFIELD PROTECTION AREA SHALL BE FIFTY (50) GALLONS PER INCH PIPE DIAMETER PER MILE PER DAY FOR RESIDENTIAL LAND USE AND TWENTY (20) GALLONS PER INCH PIPE DIAMETER PER MILE PER DAY FOR NON-RESIDENTIAL LAND USE WITH NO ALLOWANCES FOR MANHOLES OR LATERALS. THE MAXIMUM ALLOWABLE EXFILTRATION, INFILTRATION, OR LEAKAGE IN GRAVITY SANITARY SEWERS CONSTRUCTED OUTSIDE A PUBLIC WELLFIELD PROTECTION AREA SHALL BE ONE HUNDRED (100) GALLONS PER INCH PIPE DIAMETER PER MILE PER DAY. THE DURATION OF ALL TESTS SHALL BE A MINIMUM OF TWO (2) HOURS. ANY OBSERVED LEAKS OR ANY OBVIOUSLY DEFECTIVE JOINTS OR PIPES SHALL BE REPLACED EVEN WHEN THE TOTAL LEAKAGE IS BELOW THAT ALLOWED.
9. FORCE MAIN SEWERS CONSTRUCTED IN A PUBLIC WELLFIELD PROTECTION AREA SHALL BE EITHER DUCTILE IRON OR REINFORCED CONCRETE PRESSURE SEWER PIPES.
   9.1. FOR DUCTILE IRON PIPE EXFILTRATION RATE SHALL NOT BE GREATER THAN THE ALLOWABLE LEAKAGE RATE SPECIFIED IN AMERICAN WATER WORKS ASSOCIATION STANDARD (AWWAS) C600-82 AT A TEST PRESSURE OF 100 PSI.
   9.2. FOR REINFORCED CONCRETE PRESSURE SANITARY SEWER EXFILTRATION RATE SHALL NOT BE GREATER THAN HALF (1/2) THE ALLOWABLE LEAKAGE RATE SPECIFIED IN AWWA C600-82 AT A TEST PRESSURE OF 100 PSI.
10. A NON-RESETTABLE ELAPSED TIME METER SHALL BE INSTALLED AT EACH PUMP TO RECORD THE TOTAL NUMBER OF OPERATING HOURS OF THE STATION.

FDOH NOTES

WATER MAIN CROSSING

1. WATER MAIN CROSSING ANY EXISTING OR PROPOSED GRAVITY, VACUUM OR STORM SEWER SHALL BE 6" AND PREFERABLY 12" ABOVE THE SEWER, WATERMAINS BELOW SEWER AT CROSSING SHALL HAVE AT LEAST 12" SEPARATION.
2. PRESSURE TYPE SANITARY SEWER, WASTE WATER OR STORMWATER FORCE MAIN, OR RECLAIMED WATER LINES SHALL BE AT LEAST 12" ABOVE OR BELOW WATER MAIN.
3. NOTE CENTER 1-FULL LENGTH OF WATER MAIN PIPE AT CROSSINGS; ALTERNATIVELY ARRANGE PIPES SO JOINTS ARE AT LEAST 3 FEET FROM JOINTS IN VACUUM, STORM OR STORM FORCE MAINS, AT LEAST 6 FEET FROM JOINTS IN GRAVITY OR PRESSURE SEWERS. WASTEWATER FORCEMAINS OR RECLAIMED WATER.
4. ALL WATER MAIN TEES, PLUGS, AND HYDRANTS INSTALLED UNDER THIS PROJECT SHALL BE PROVIDED WITH THRUST BLOCKS OR RESTRAINED JOINTS TO PREVENT MOVEMENT AS PER FAC 62-555.320(21)(b) AND RSWW 8.5.4.

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 459-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET
GENERAL NOTES

Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

G-002
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

1/19/2016 8:15:26 AM - P:\ER\66798\200-66798-15001\CAD\SHEETFILES\G-001 GENERAL NOTES.DWG - MARQUEZ, GERMAIN

LIST OF STANDARD ABBREVIATIONS

ABBREVIATION	ABBREVIATED TERM
A	
AAP	ALARM ANNUNCIATOR PANEL
AARV	AUTOMATIC AIR RELEASE AIR VALVE
AAV	AUTOMATIC AIR VENT
AB	ANCHOR BOLT
ABAN	ABANDON(ED)
ABRSV	ABRASIVE
ABS	ACRYLONITRILE BUTADIENE STYRENE
ABV	ABOVE
AC	ALTERNATING CURRENT
ACCMP	ASPHALT-COATED CORRUGATED METAL PIPE
ACP	ASBESTOS CEMENT PIPE
ADDM	ADDENDUM
ADH	ADHESIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFS	ABOVE FINISHED SLAB
AHD	AHEAD
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
AMT	AMOUNT
ANT	ANTENNA
APRX	APPROXIMATE(LY)
ARCH	ARCHITECT(URAL)
AS	ALUM SOLUTION
ASPH	ASPHALT
ASSY	ASSEMBLY
ATS	AUTOMATIC TRANSFER SWITCH
AVE	AVENUE
A/C	AIR CONDITIONING
A/VV	AIR/VACUUM AIR VALVE
B	
BAF	BAFFLE
BCV	BALL CHECK VALVE
BCR	BROWARD COUNTY RECORDS
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BI	BLACK IRON
BITUM	BITUMINOUS OR BITUMASTIC
℄	BASELINE
BLDG	BUILDING
BLK	BLOCK
BM	BENCH MARK
BOC	BACK OF CURB
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BSP	BLACK STEEL PIPE
BV	BALL VALVE
BW	BOTH WAYS
BWW	BACKWASH WATER
C	
CAP	CAPACITY
CA	COMPRESSED AIR
CAV	COMBINATION AIR VALVE
CB	CATCH BASIN
CCC	CHLORINE CONTACT CHAMBER
CE	CHLORINATED EFFLUENT
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CV	CHECK VALVE
CI	CAST IRON
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
℄	CENTER LINE
CL2	CHLORINE GAS
CLF	CHAIN LINK FENCE
CLR	CLEAR OR CLEARANCE
CLVT	CULVERT
CM	CONCRETE MONUMENT
CMP	CORRUGATED METAL PIPE
CMPA	CORRUGATED METAL PIPE ARCH
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CNR	CORNER
CO	CLEAN OUT
CO2	CARBON DIOXIDE
COAG	COAGULANT
COL	COLUMN
COM	COMMON
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCT(ION)
CONT	CONTINUOUS
CONTR	CONTRACT(OR)
COORD	COORDINATE
CO.	COMPANY
CP	CONCRETE PIPE
CPA	CONCRETE PIPE ARCH
CPLG	COUPLING
CPP	CORRUGATED PLASTIC PIPE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CONCENTRIC REDUCER
CS	CHLORINE SOLUTION
CSG	CASING
CTV	CABLE TELEVISION
CY	CUBIC YARD
CYL	CYCLINDER
C&G	CURB AND GUTTER
C/C	CENTER TO CENTER
D	
DAT	DATUM
DBL	DOUBLE
DC	DIRECT CURRENT
DEMO	DEMOLITION
DEPT	DEPARTMENT
DESC	DESCRIPTIN
DET	DETAIL
DF	DIESEL FUEL
DH	DRILL HOLE
DI	DUCTILE IRON
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DIR	DIRECTION
DMH	DROP MANHOLE
DN	DOWN
DR	DRAIN
DV	DIAPHRAGM VALVE
DW	DRIVEWAY
DWG	DRAWING
DWV	DRAIN, WASTE, AND VENT

ABBREVIATION	ABBREVIATED TERM
E	
E	EAST
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EFF	EFFLUENT
℄	EASEMENT LINE
EL	ELEVATION
ELAST	ELASTOMERIC
ELEC	ELECTRICAL
EM	ELECTRIC METER
EMER	EMERGENCY
ENC	ENCASE(MENT)
ENGR	ENGINEER
EP	EDGE OF PAVEMENT
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EPRF	EXPLOSION PROOF
EQUIP	EQUIPMENT
ER	ECCENTRIC REDUCER
ESMT	EASEMENT
EST	ESTIMATE(D)
ET	ELECTRIC TRANSFORMER
EW	EACH WAY
EXC	EXCAVATE
EXP	EXPANSION
EXST	EXISTING
EXST GR	EXISTING GRADE
EXT	EXTERIOR
EXTN	EXTENSION
F	
F	FOUND
FAB	FABRICATE(D)
FAC	FLANGED ADAPTER COUPLING
FB	FLAT BAR
FCV	FLOW-CONTROL VALVE
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FILTER(ED) EFFLUENT
FF	FINISHED FLOOR
FH	FIRE HYDRANT
FO	FIBER OPTIC
FIG	FIGURE
FIN	FINISH(ED)
FIN FL	FINISH FLOOR
FIN GR	FINISH GRADE
FL	FLORIDE
FLG	FLANGE(D)
FLL	FLOW LINE
FLTR	FILTER
FM	FORCE MAIN
FPKD	FOUND P/K NAIL & DISK
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT OR FEET
FUT	FUTURE
FV	FOOT VALVE
FW	FINISHED WATER
FWP	FACTORY WIRED PANEL
F/F	FACE TO FACE
G	
G	GAS
GA	GAGE
GAL	GALLON(S)
GALV	GALVANIZED
GAS	NATURAL GAS
GIP	GALVANIZED IRON PIPE
GJ	GROOVE JOINT
GM	GAS METER
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPS	GALLONS PER SECOND
GR	GRADE
GRTG	GRATING
GS	GALVANIZED STEEL
GSP	GALVANIZED STEEL PIPE
GSR	GROUND STORAGE RESERVOIR
GST	GROUND STORAGE TANK
GT	GROUT
GV	GATE VALVE
H	
HB	HOSE BIBB
HD	HEAVY-DUTY
HDPE	HIGH-DENSITY POLYETHYLENE
HDR	HYDRAULIC
HGR	HANGER
HGT	HEIGHT
HNDRL	HAND RAIL
HOA	HAND-OFF-AUTO
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPA	HIGH PRESSURE AIR
HR	HOUR
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
HZ	HERTZ
I	
ID	INSIDE DIAMETER
IN	INCH(ES)
INF	INFLUENT
INT	INTERSECTION
INTR	INTERIOR
INV	INVERT
IP	IRON PIPE
IPS	INTERNATIONAL PIPE STANDARD
IR	INTERNAL RECYCLE
IRRV	IRRIGATION VALVE
IW	IRRIGATION WATER
J	
JB	JUCTION BOX
JBL	JURISDICTIONAL BOUNDARY LINE
JT	JOINT
K	
K	KIP (1,000 LB)
KPL	KICK PLATE
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KW	KILOWATT
KWH	KILOWATT-HOUR
L	
L	LEFT
LAB	LABORATORY
LAM	LAMINATE OR LAMINATION
LATL	LATERAL
LAV	LAVATORY
LEN	LENGTH
LB	POUND(S)
LF	LINEAR FEET
LP	LIGHT POLE
LS	LIME SLURRY
LSS	LIME STABILIZED SLUDGE
LVR	LOUVER
LWL	LOW WATER LEVEL

ABBREVIATION	ABBREVIATED TERM
M	
M	METER
MAINT	MAINTAIN OR MAINTENANCE
MAN	MANUAL(LY)
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MAILBOX
MCC	MOTOR CONTROL CENTER
ME	MITERED END
MECH	MECHANICAL
MEG	MATCH EXISTING GRADE
MFR	MANUFACTURE(R)
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MI	MILE(S)
MIN	MINIMUM
MIN	MINUTE(S)
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MIXED LIQUOR
MO	MASONARY OPENING
MON	MONUMENT
MPH	MILES PER HOUR
MPT	MALE PIPE THREAD
MS	MOTOR STARTER
MSP	MOTOR STARTER PANEL
MTD	MOUNTED
MV	MOTORIZED VALVE
MW	MONITORING WELL
MWP	MAXIMUM WORKING PRESSURE
MWL	MEAN WATER LEVEL
N	
N	NORTH
ND	NAIL & DISK
NL	NAIL
NE	NORTHEAST
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NPF	NATIONAL PIPE THREAD
NPT	NATIONAL PIPE TAPER (THREAD)
NPW	NON-POTABLE WATER
NRS	NON-RISING SYSTEM
NTS	NOT TO SCALE
NW	NORTHWEST
N/A	NOT APPLICABLE
O	
O2	OXYGEN
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODP	OPEN DRIP PROOF
OF	OUTSIDE FACE
OH	OVER HEAD
OHW	OVER HEAD WIRE
OPP	OPPOSITE
OPT	OPTIONAL
O.R.B.	OFFICIAL RECORDS BOOK
OSY	OUTSIDE SCREW AND YOKE
O&M	OPERATION AND MAINTENANCE
P	
(P)	PER PLAT
PA	PROCESS AIR
PB	PLAT BOOK
PC	POINT OF CURVE
PCM	PERMANENT CONTROL MONUMENT
PE	PLAIN END
PG	PRESSURE GAGE
PI	POINT OF INTERSECTION
PK	PK NAIL
PL	PLATE
℄	PROPERTY LINE
PNV	PINCH VALVE
POB	POINT OF BEGINNING
POJ	PUSH-ON JOINT
POL	POLYMER
PP	POWER POLE
PPD	POUNDS PER DAY
PPM	PARTS PER MILLION
PREFAB	PREFABRICATED
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PRV	PRESSURE REDUCING VALVE
PRW	PROCESS WATER
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PT	POINT OF TANGENCY
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
PWR	POWER
Q	
Q	FLOW
QTY	QUANTITY
R	
RAD	RADIUS
RAS	RETURN ACTIVATED SLUDGE
RC	REINFORCED CONCRETE
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RCPA	REINFORCED CONCRETE PIPE ARCH
RD	ROAD
RDC	REDUCER
REBAR	REINFORCING STEEL
REF	REFERENCE
REINF	REINFORCE(D)(ING)(MENT)
REM	REMOVE(ABLE)
REQD	REQUIRED
RF	RAISED FACE
RJ	RESTRAINED JOINT
RM	ROOM
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RT	RIGHT
RVT	RIVETED
RW	REUSE WATER
RWW	RAW WASTEWATER
R/W	RIGHT-OF-WAY

ABBREVIATION	ABBREVIATED TERM
S	
S	SOUTH
SA	SAMPLE
SAN	SANITARY
SCHED	SCHEDULE
SC	SECTION CORNER
SD	STORM DRAIN
SE	SOUTHEAST
SECT	SECTION
SEFF	SECONDARY EFFLUENT
SF	SQUARE FOOT OR FEET
SH	SPRINKLER HEAD
SHT	SHEET(ED)(ING)
SIG	SIGNAL
SIM	SIMILAR
SL	SLUDGE
SLV	SLEEVE
SM	SHEET METAL
SOLN	SOLUTION
SP	SOIL PIPE
SP	SPACE(ING)
SPEC	SPECIFICATION
SPIG	WATER SPIGOT
SPRT	SUPPORT
SQ	SQUARE
SS	SANITARY SEWER
SSE	SUBSTANDARD EFFLUENT
SST	STAINLESS STEEL
ST	STORM SEWER
STA	STATION
STD	STANDARD
STK	STAKE
STL	STEEL
STR	STRAIGHT
STRUCT	STRUCTURAL
SURF	SURFACE
SV	SANITARY SEWER VALVE
SVCE	SERVICE
SW	SOUTHWEST
SWD	SIDEWATER DEPTH
SWSH	SURFACE WASH
SYM	SYMBOL
SYMM	SYMMETRICAL
S/W	SIDEWALK
T	
TAN	TANGENT
TB	TELEPHONE RISER
TBM	TEMPORARY BENCH MARK
TB-xx	TEST BORING-xx (e.g. TB-1)
TD	TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TE	TOTALLY ENCLOSED
TEFC	TOTALLY ENCLOSED FAN COOLED
TEL	TELEPHONE
TENV	TOTALLY ENCLOSED NON-VENTILATED
THD	THREAD(ED)
THK	THICK(NESS)
TLM	TELEMETRY
TOB	TOP OF BANK
TOC	TOP OF CURB
TOS	TOE OF SLOPE
TOT	TOTAL
TP	TRAVERSE POINT
TS	THICKENED SLUDGE
TSC	TRAFFIC SIGNAL CONTROL
TSP	TRAVERSE SIGNAL POLE
TV	TELEVISON
TV	TELEVISON
TYP	TYPICAL
T&B	TOP AND BOTTOM
U	
UD	UNDERDRAIN
UE	UNDERGROUND UTILITY LINES
UEC	UNDERGROUND ELECTRIC CABLE
UED	UNDERGROUND ELECTRIC DUCT
UG	UNDERGROUND
ULT	ULTIMATE
UN	UNION
UON	UNLESS OTHERWISE NOTED
UTC	UNDERGROUND TELEPHONE CABLE
UTD	UNDERGROUND TELEPHONE DUCT
UTIL	UTILITY
V	
V	VOLT(S)
VAC	VACUUM
VAR	VARIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
W	
W	WATER
WAS	WASTE ACTIVATED SLUDGE
WCO	WALL CLEAN OUT
WF	WIDE FLANGE
WH	WOODEN HUB
WL	WATER LINE
WM	WATER MAIN
WP	WATER PROOF(ING)
WPR	WORKING PRESSURE
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
WT	WEIGHT
WTP	WATER TREATMENT PLANT
WV	WATER VALVE
WW	WASH WATER
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
WWTP	WASTEWATER TREATMENT PLANT
W/	WITH
W/O	WITHOUT
X	
XFER	TRANSFER
XC	X CUT
Y	
YD	YARD(S)
YH	YARD HYDRANT
YR	YEAR(S)

SITE LEGENDS

UTILITY SYMBOLS

- EXISTING POTABLE WATER METER
- GATE VALVE (AS SHOWN)
- FIRE HYDRANT ASSEMBLY (AS SHOWN)
- SANITARY SEWER MANHOLE
- CLEANOUT
- STORM DRAIN MANHOLE
- TELEPHONE MANHOLE
- ROADSIDE INLET
- CATCH BASIN LIDS
- GAS VALVE
- PROPOSED CAPS

MISCELLANEOUS

- CONTROL POINT
- TEST HOLE
- SP# WATER SAMPLE

SITE SYMBOLS

FEATURES

- TRAFFIC SIGN POST
- WOOD POWER POLE
- CONCRETE POWER POLE
- MBX MAIL BOX
- ANCHOR/GUY WIRE
- CONCRETE LIGHT POLE
- BACKFLOW PREVENTOR
- SIAMESE CONNECTION
- BOLLARD
- METAL LIGHT POLE
- BUSH
- PALM
- TREE
- HEDGE
- EXISTING ELEVATION
- FLAG POLE
- CBL CABLE TV RISER
- TEL TELEPHONE RISER
- EB ELECTRIC BOX

SITE LINETYPES

- STA XX — BASELINE/CENTER LINE
- RIGHT OF WAY LINE
- PROPERTY LINE
- UTILITY EASEMENTS
- FENCE (CHAINLINK)
- FENCE (METAL)
- FENCE (WOOD)
- FENCE (PVC)
- CONCRETE WALL
- LIMITED ACCESS RIGHT-OF-WAY LINE
- EXISTING EDGE OF PAVEMENT
- MAST ARM

UTILITY LINETYPES

FOR UTILITIES LESSER THAN 36 INCHES IN DIAMETER

- X"PVC — PROPOSED X"PVC WATER MAIN
- X"DIP — PROPOSED DIP WATER MAIN
- W — POTABLE WATER MAIN (PIPE Ø NOTED ON SHEETS)
- SS — GRAVITY SANITARY SEWER (PIPE Ø NOTED ON SHEETS)
- FM — FORCE MAIN (PIPE Ø NOTED ON SHEETS)
- SD — STORM DRAIN PIPE (PIPE Ø NOTED ON SHEETS)
- UTV — UNDERGROUND CABLE TV (COMCAST)
- UE — UNDERGROUND ELECTRIC (POWER)
- OU — OVERHEAD UTILITY
- UE/T — UNDERGROUND ELECTRIC/TELEPHONE (AT&T/BELLSOUTH)
- FP&L — BURIED FIBER OPTIC LINES (FP&L)
- G — NATURAL GAS (PIPE Ø NOTED ON SHEETS)

UTILITY DOUBLE LINE SYMBOLS

FOR UTILITIES GREATER OR EQUAL THAN 36 INCHES IN DIAMETER

- FP&L Duct — FP&L BURIED FIBER OPTIC LINES (SIZE SPECIFIED ON PLANS)
- AT&T Duct — UNDERGROUND ELEC./TEL (AT&T/BELLSOUTH (SIZE SPECIFIED ON PLANS)
- Storm Drain — STORM DRAIN PIPE (SIZE SPECIFIED ON PLANS)
- San-Sewer or Forcemain — GRAVITY SANITARY SEWER OR FORCEMAIN (SIZE SPECIFIED ON PLANS)
- Level 3 Duct — GRAVITY SANITARY SEWER OR FORCEMAIN (SIZE SPECIFIED ON PLANS)
- T — TELEPHONE DUCT

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

LEGENDS AND ABBREVIATIONS

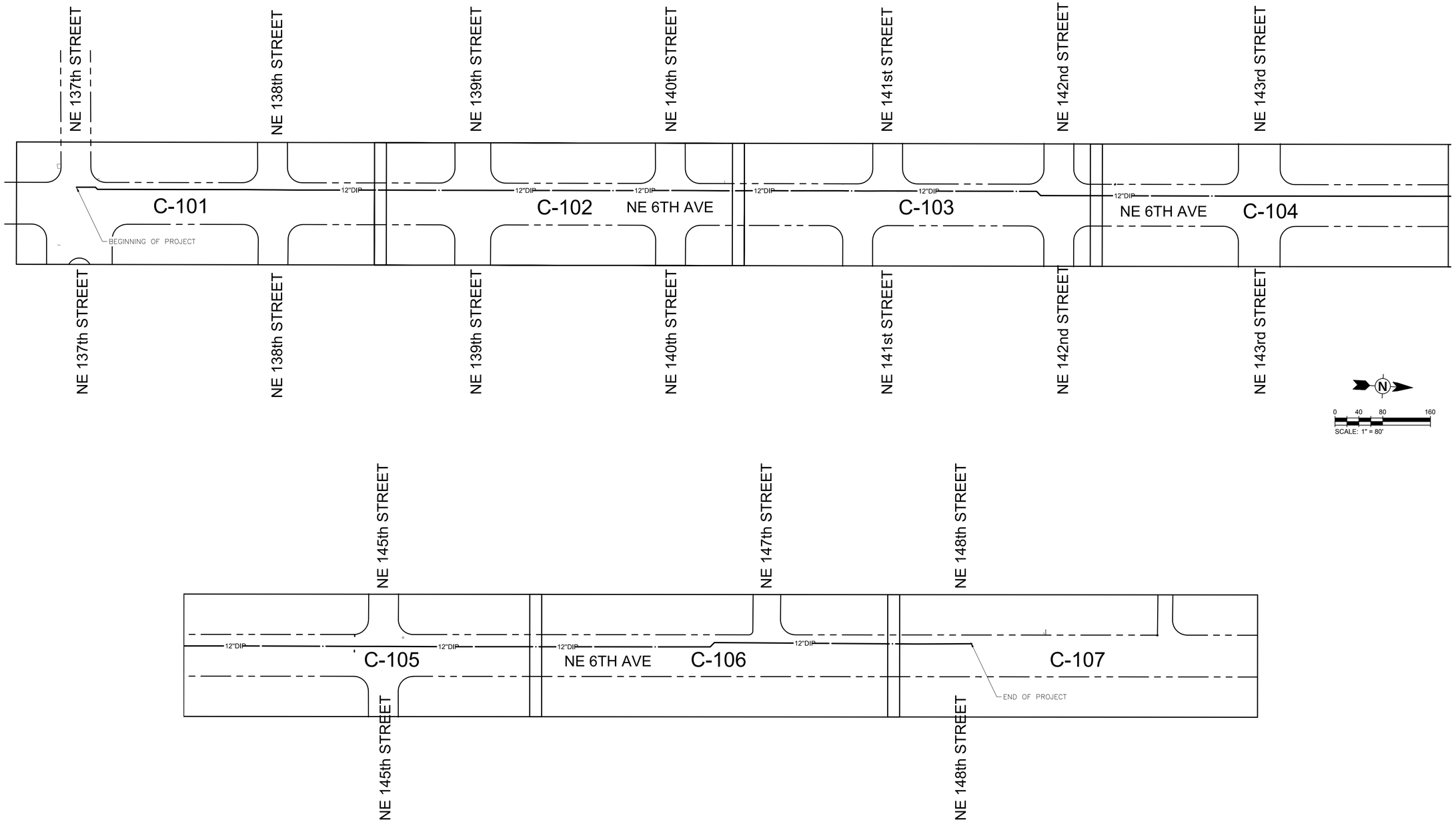
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

G-003
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

1/19/2016 8:15:54 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\G-002 LEGENDS AND ABBREVIATIONS.DWG - MARQUEZ, GERMAIN



0 40 80 160
SCALE: 1" = 80'

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET
KEY SHEET MAP

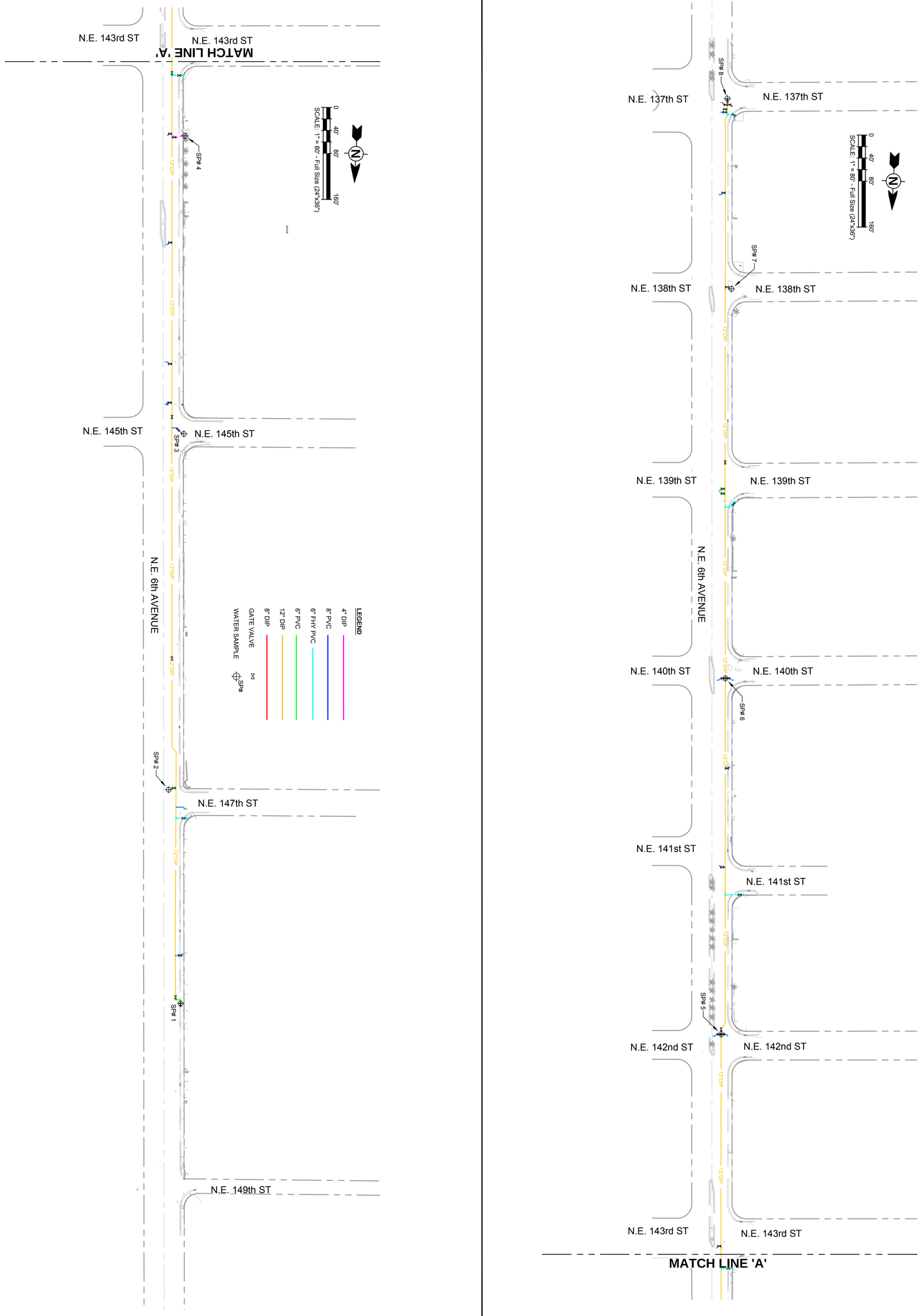
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

G-004
Sheet

Bar Measures 1 inch

Copyright: Tetra Tech

2/24/2016 7:14:53 PM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\G-003 KEY SHEET.DWG - MARQUEZ, GERMAIN



CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

OVERALL WATER MAIN VALVES AND SAMPLING POINTS MAP

MARK	DATE	DESCRIPTION	BY

NORTH MIAMI FLORIDA

100% SUBMITTAL

NOT FOR CONSTRUCTION

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flager Street, Suite 1625
Miami, Florida 33130

DATE _____

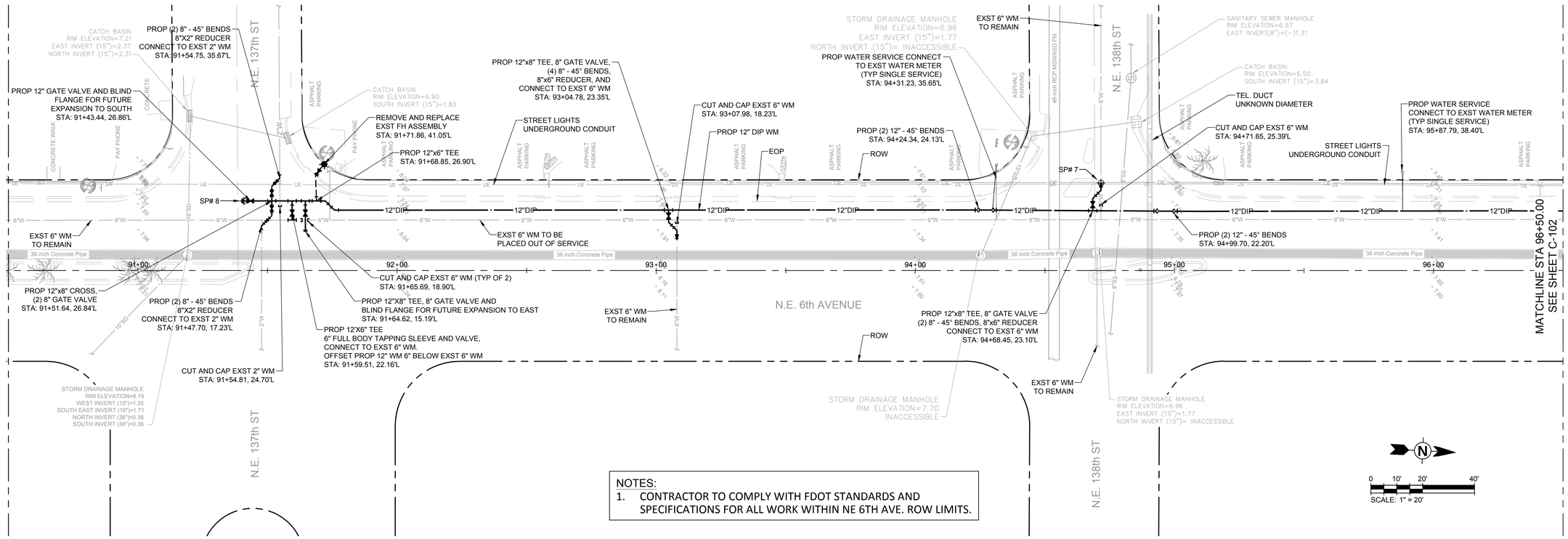
TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Project No.: 200-66798-15001
Designed By: DEM
Drawn By: GM
Checked By: JA

Sheet
G-005

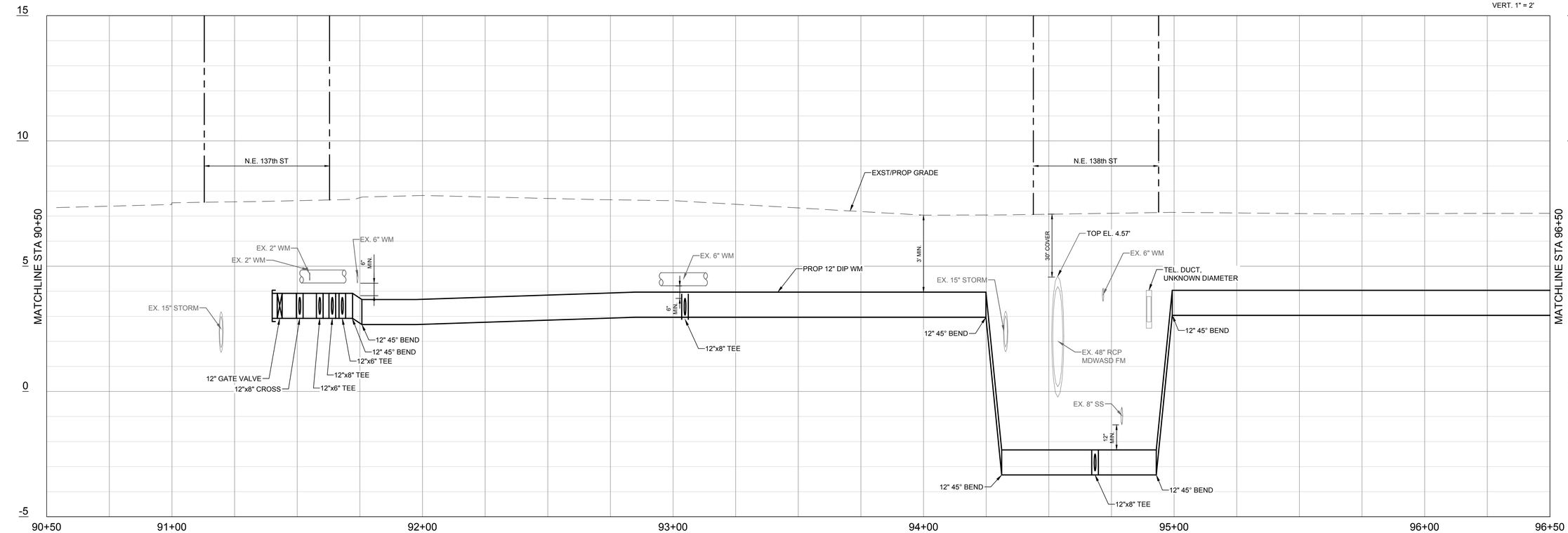
Bar Measures 1 inch

Copyright: Tetra Tech



NOTES:
1. CONTRACTOR TO COMPLY WITH FDOT STANDARDS AND SPECIFICATIONS FOR ALL WORK WITHIN NE 6TH AVE. ROW LIMITS.

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 2'



TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PLAN AND PROFILE

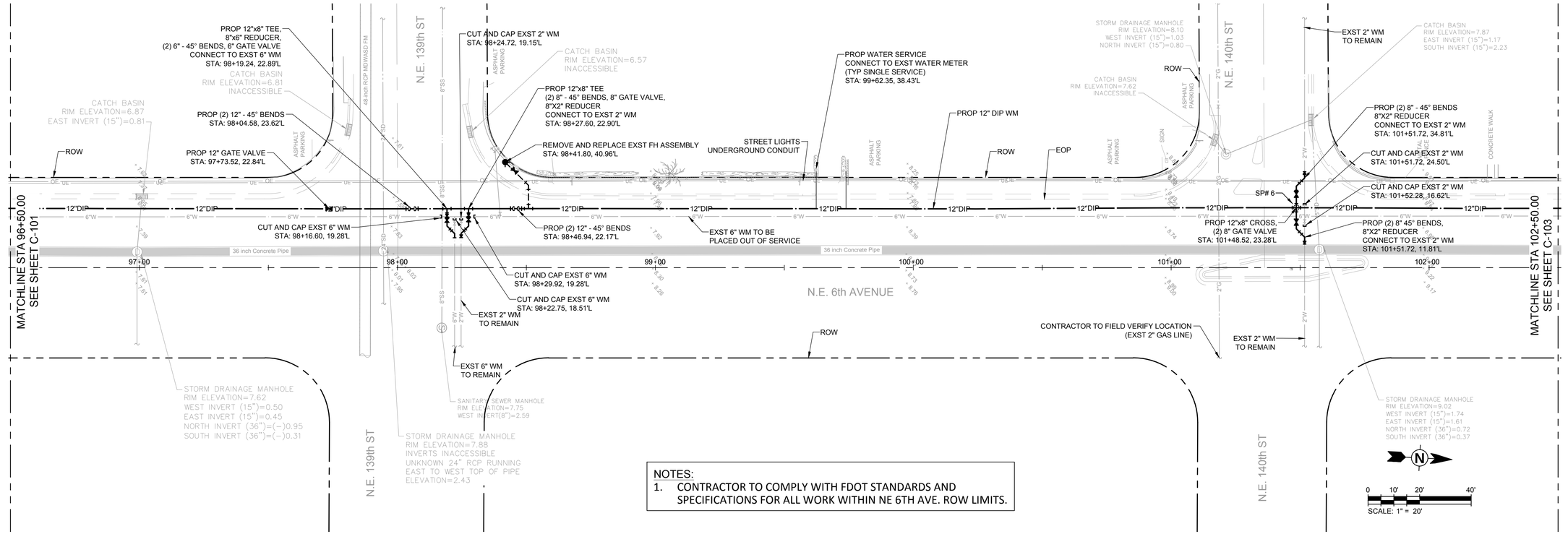
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-101
Sheet

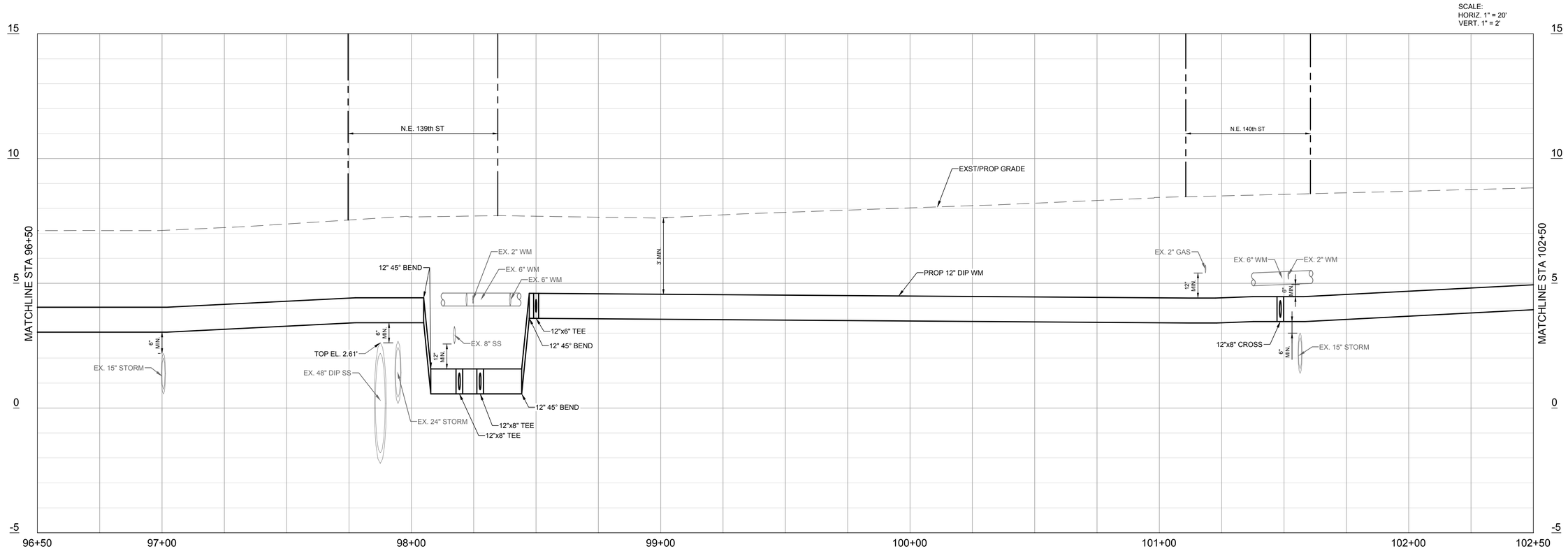
Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:19:23 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\C-PLAN-PROF.DWG - MARQUEZ, GERMAIN



NOTES:
1. CONTRACTOR TO COMPLY WITH FDOT STANDARDS AND SPECIFICATIONS FOR ALL WORK WITHIN NE 6TH AVE. ROW LIMITS.



TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PLAN AND PROFILE

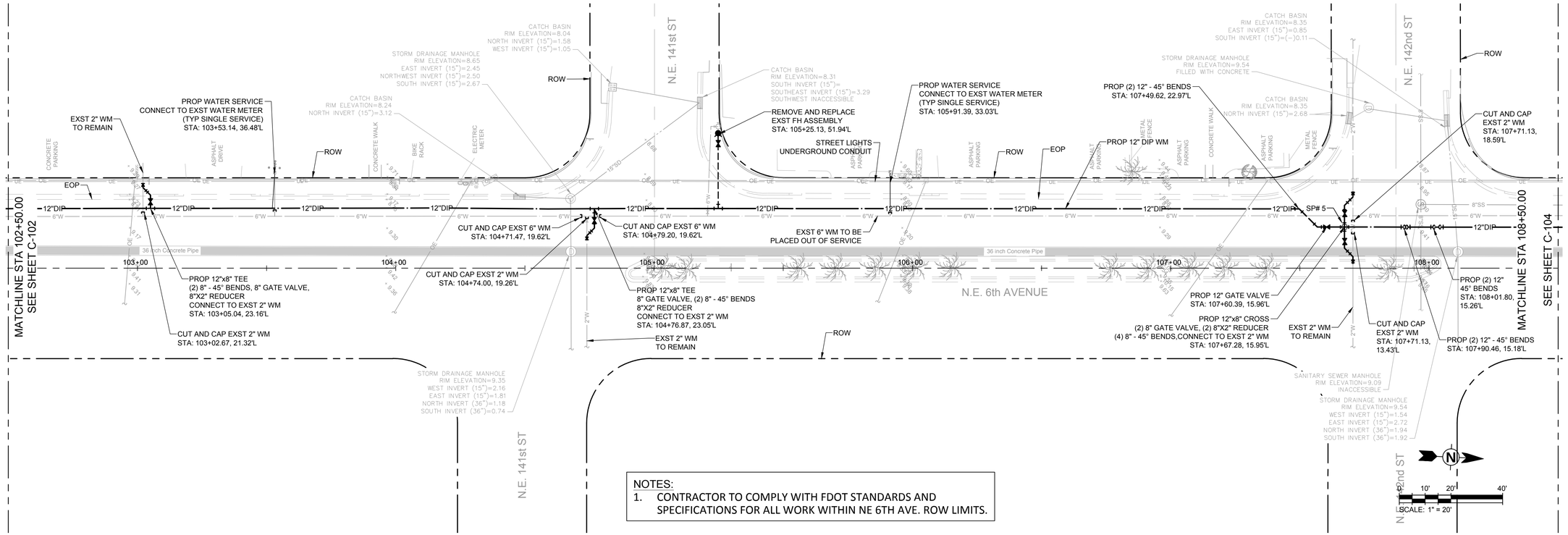
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-102
Sheet

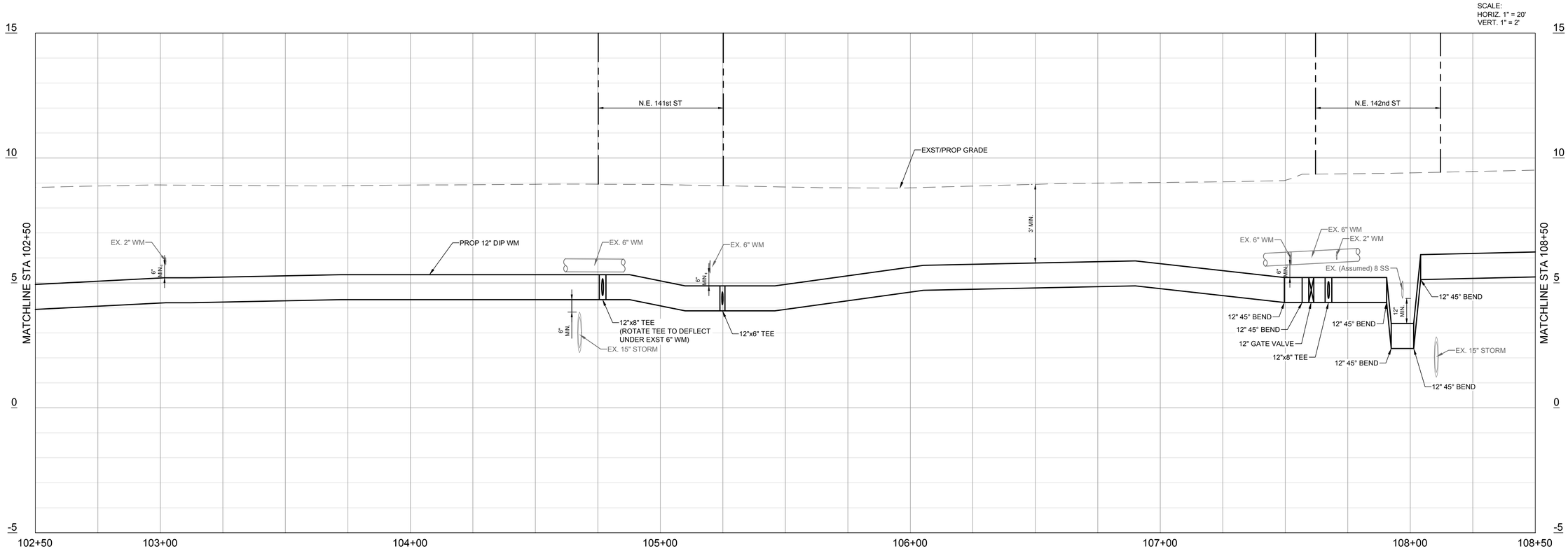
Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:19:33 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\C-PLAN-PROF.DWG - MARQUEZ, GERMAIN



NOTES:
1. CONTRACTOR TO COMPLY WITH FDOT STANDARDS AND SPECIFICATIONS FOR ALL WORK WITHIN NE 6TH AVE. ROW LIMITS.



TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PLAN AND PROFILE

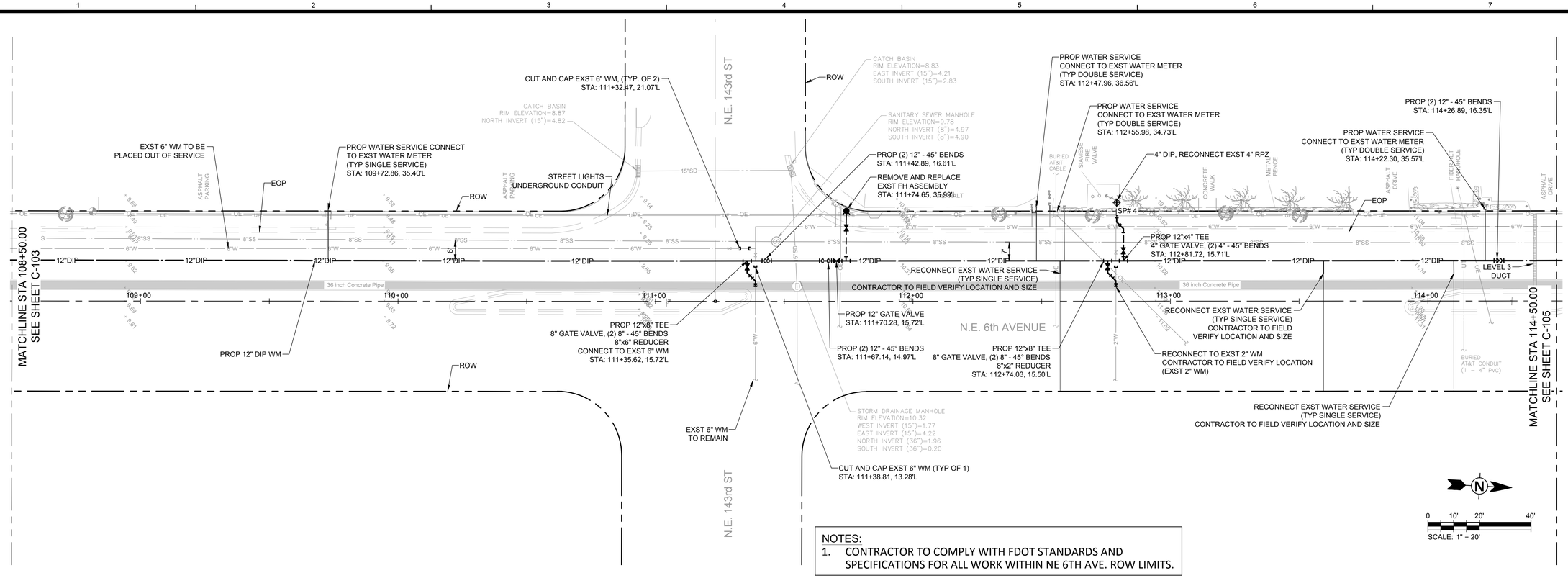
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-103
Sheet

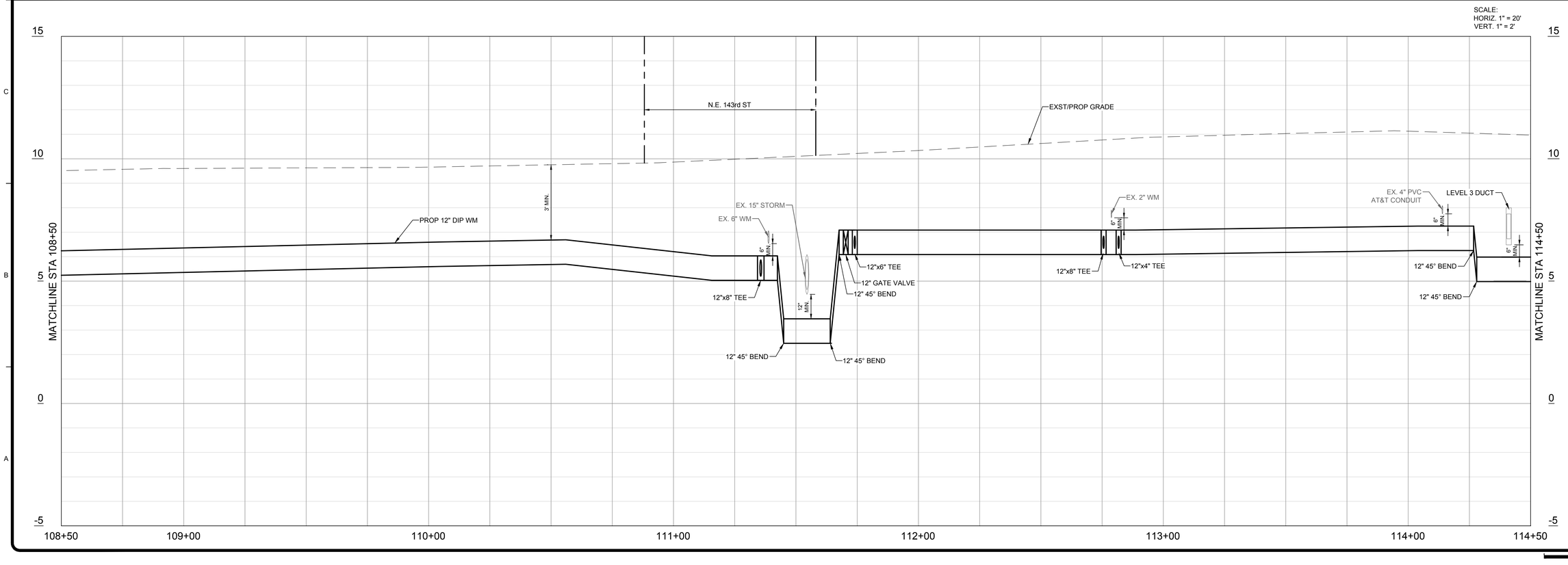
Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:19:40 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\C-PLAN-PROF.DWG - MARQUEZ, GERMAIN



NOTES:
1. CONTRACTOR TO COMPLY WITH FDOT STANDARDS AND SPECIFICATIONS FOR ALL WORK WITHIN NE 6TH AVE. ROW LIMITS.



TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PLAN AND PROFILE

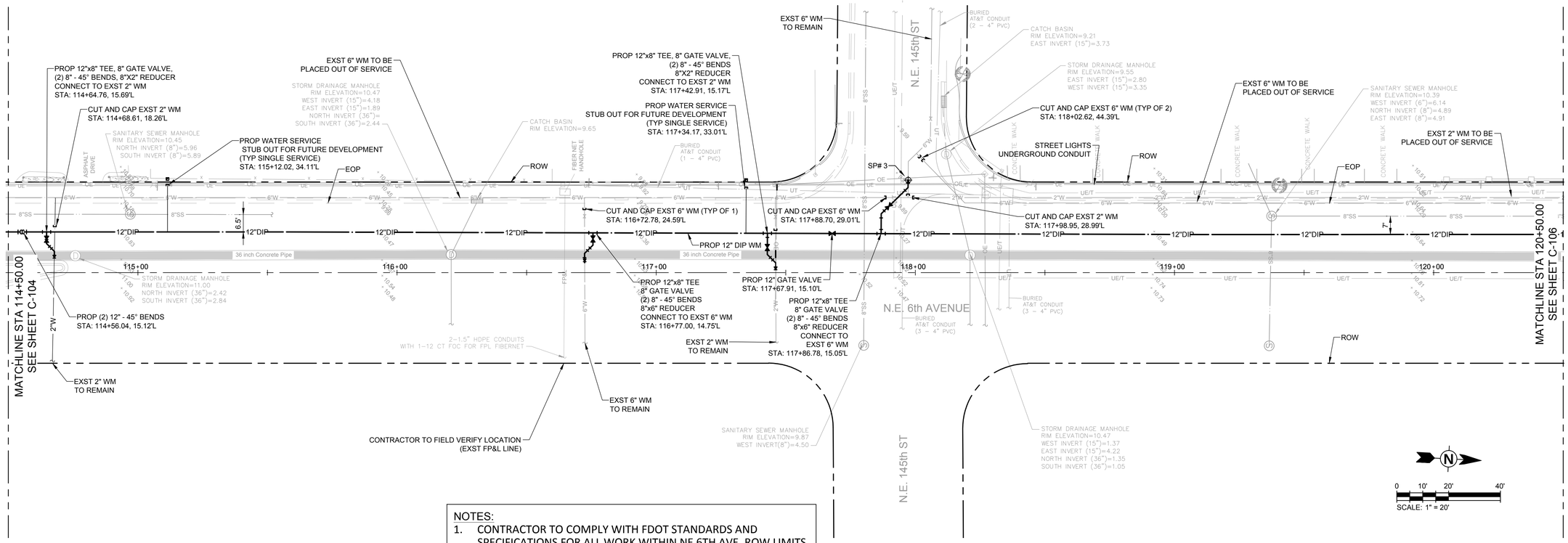
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

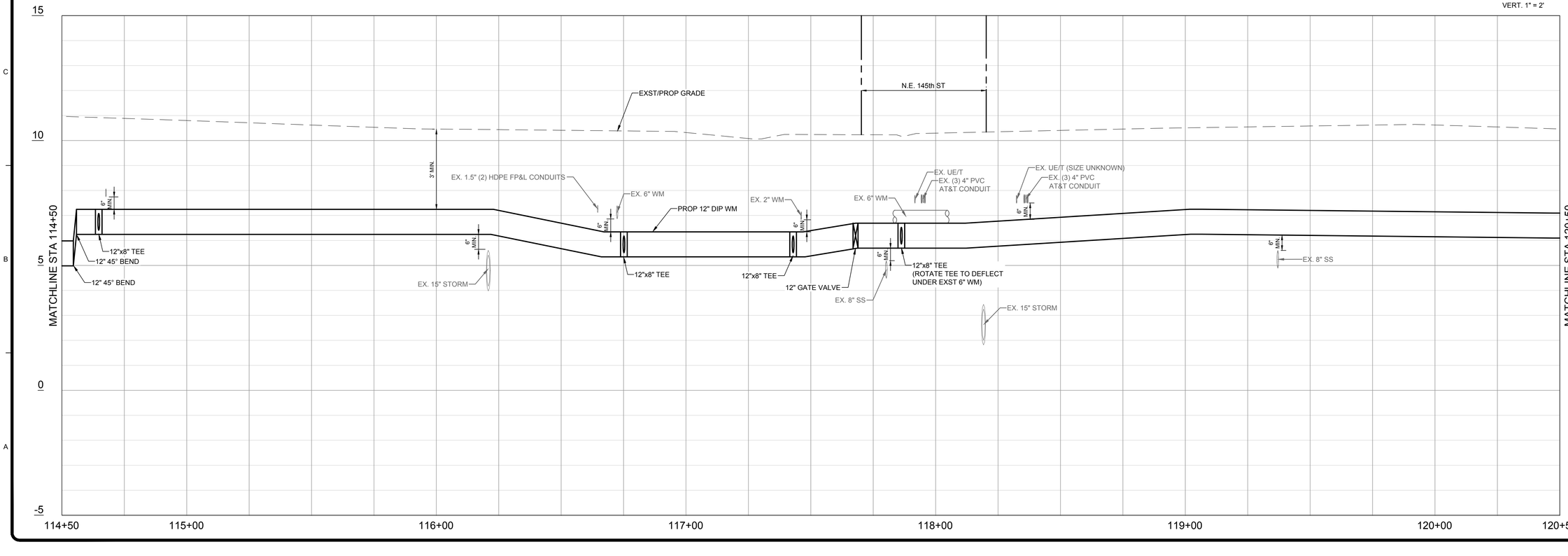
C-104
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

1/22/2016 10:05:11 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\C-PLAN-PROF.DWG - MARQUEZ, GERMAIN





TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130
DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET
PLAN AND PROFILE

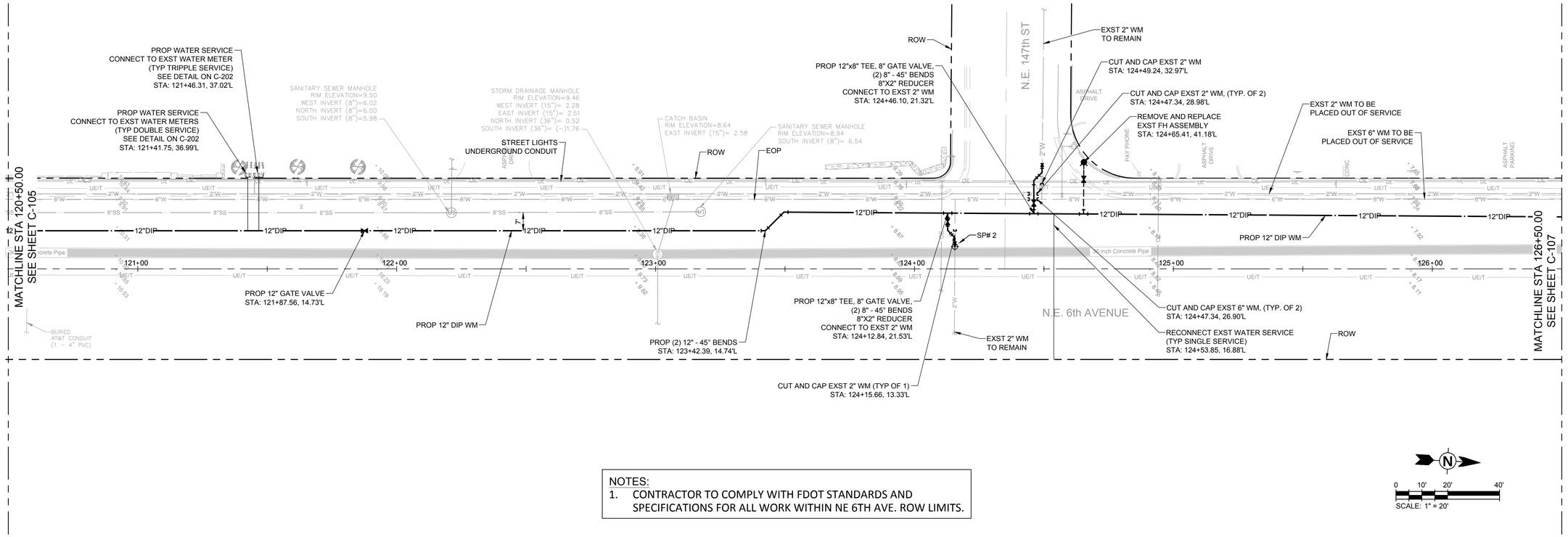
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-105
Sheet

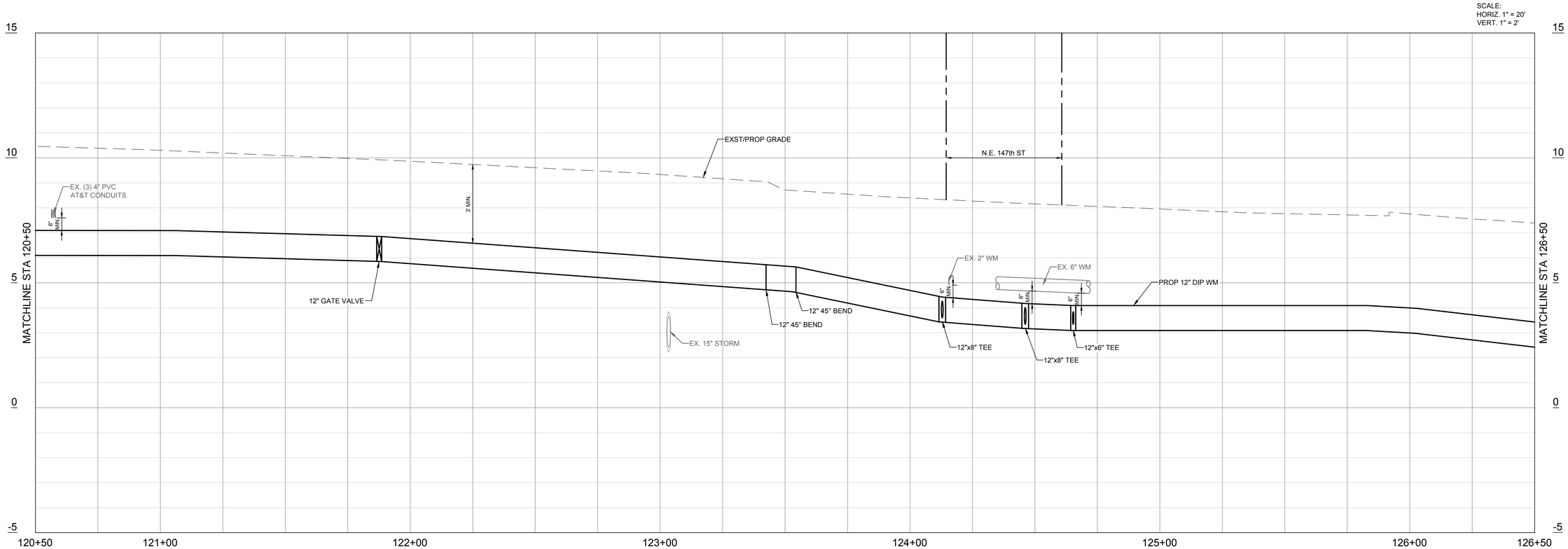
Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:20:00 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\C-PLAN-PROF DWG - MARQUEZ, GERMAIN



NOTES:
1. CONTRACTOR TO COMPLY WITH FDOT STANDARDS AND SPECIFICATIONS FOR ALL WORK WITHIN NE 6TH AVE. ROW LIMITS.



TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PLAN AND PROFILE

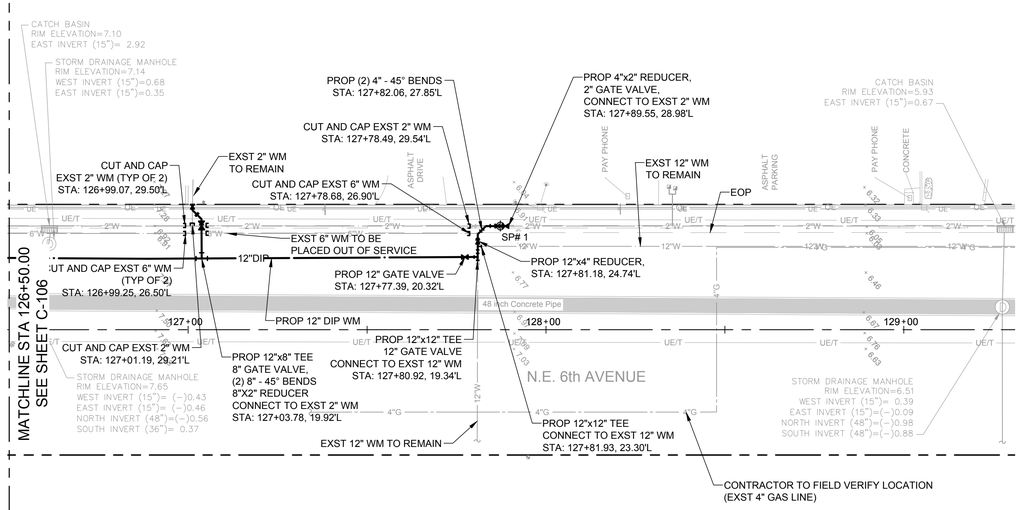
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-106
Sheet

Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:20:06 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\C-PLAN-PROF.DWG - MARQUEZ, GERMAIN



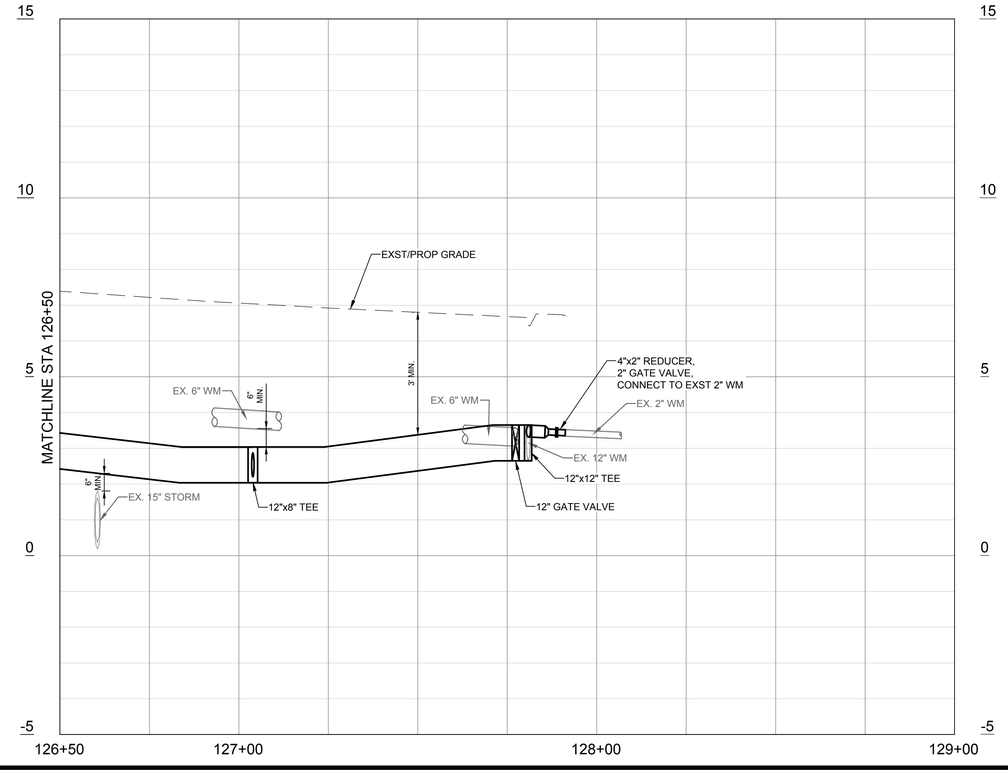
NOTES:
1. CONTRACTOR TO COMPLY WITH FDOT STANDARDS AND SPECIFICATIONS FOR ALL WORK WITHIN NE 6TH AVE. ROW LIMITS.

N

0 10' 20' 40'

SCALE: 1" = 20'

SCALE:
HORIZ. 1" = 20'
VERT. 1" = 2'



TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PLAN AND PROFILE

Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-107
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

1/19/2016 8:20:16 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\C-PLAN-PROF DWG - MARQUEZ, GERMAIN

1. ALL MATERIALS AND LABOR UNDER THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE MIAMI-DADE WATER AND SEWER DEPARTMENT AND SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS AVAILABLE AND ON FILE WITH THE DEPARTMENT. SUBMIT SHOP DRAWINGS FOR ALL MATERIALS.
2. COVER OVER WATER OR SEWER FORCE MAINS SHALL BE 4'-0" MIN.
3. ALL MAIN LINE VALVES SHALL BE INSTALLED COMPLETE WITH 10" RISER PIPES AND NO. 3 OR 53 VALVE BOXES FIRE HYDRANTS AND SERVICE VALVES SHALL BE INSTALLED COMPLETE WITH 6" RISER PIPES AND NO. 2 VALVE BOXES.
4. ALL FORCE MAIN SERVICE CONNECTIONS INTO PRESSURE TRANSMISSION MAINS SHALL HAVE A SHUT OFF VALVE AND CHECK VALVE AT THE POINT OF ENTRY.
5. ALL GRAVITY SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DEPARTMENT STANDARDS.
6. ALL WATER METERS WILL BE INSTALLED BY THE MIAMI-DADE WATER AND SEWER DEPARTMENT PROVIDING THE APPROPRIATE CHARGES HAVE BEEN PREPAID.
7. FIRE HYDRANT REQUIREMENTS (NUMBER AND LOCATION) SHALL BE AS REQUIRED BY THE MIAMI-DADE COUNTY FIRE DEPARTMENT OR THE APPROPRIATE FIRE AGENCY WITH INSTALLATION IN ACCORDANCE WITH DEPARTMENT STANDARDS.
8. CONTRACTOR MUST CALL M-DWASD INSPECTION DIVISION TO ARRANGE FOR A PRECONSTRUCTION MEETING 2 FULL BUSINESS DAYS PRIOR TO PROPOSED START OF CONSTRUCTION. CONTACT ONE CALL CENTER 48 HRS PRIOR TO EXCAVATION.
9. CONTRACT INSPECTOR WILL INSPECT ANY FACILITIES APPROVED BY THE DEPARTMENT. ALL OTHER REQUIREMENTS OF THE PERMITTING AGENCY SHALL BE IN ACCORDANCE WITH THEIR STANDARDS AND REQUIREMENTS.
10. WORK PERFORMED UNDER THIS PROJECT WILL NOT BE CONSIDERED AS COMPLETE UNTIL FINAL ACCEPTANCE OF THE SYSTEM BY THE DEPARTMENT AND UNTIL THE FOLLOWING DOCUMENTS ARE RECEIVED AND APPROVED BY THE DEPARTMENT.
   a. EASEMENTS, IF REQUIRED.
   b. CONTRACTOR'S WAIVER AND RELEASE OF LIEN.
   c. ABSOLUTE BILL OF SALE.
   d. i. CONTRACTOR'S LETTER OF WARRANTY (I.E., LETTER AGREEMENT).
      ii. DEVELOPER'S CONTRACT BOND (I.E., CONTRACT AGREEMENT).
   e. "AS-BUILT" PRINTS 24"x36" SHOWING SPECIFIC LOCATIONS, DEPTH, ETC. OF ALL WATER AND SEWER FACILITIES AS LOCATED BY A LICENSED FLORIDA SURVEYOR, ALONG WITH PRINTS OF "AS-BUILT" WHICH HAVE BEEN SIGNED AND SEALED BY A REGISTERED SURVEYOR. (No. OF PRINTS: 3-FOR WATER, 4-FOR GRAVITY SEWER AND 5-FOR FORCE MAIN OR PUMP STATION PROJECTS). THE DEPARTMENT RESERVES THE RIGHT TO REQUIRE SUBMITTAL ON ELECTRONIC MEDIA IN ACCORDANCE WITH SEC. 01775 "MAGNETIC MEDIA SUBMITTAL".
   f. H.R.S. LETTER OF RELEASE REQUIRED FOR ALL WATER PROJECTS.
   g. BILL OF SALE SKETCH (8½"x11") FOR WATER AND SEWER, SEPARATELY.
11. ALL NEW CONNECTIONS FROM EXISTING DEPARTMENT MAINS TO BE MADE BY THE CONTRACTOR, AFTER COORDINATING WITH THE CITY.
12. AN APPROVED PAVING AND DRAINAGE PLAN MUST BE SUBMITTED TO MDWASD FOR ALL NEW SUBDIVISIONS PRIOR TO APPROVAL OF WATER AND SEWER PERMIT PLANS, UPON REQUEST.

ITEM	CROSS REF.	SPEC. REF.

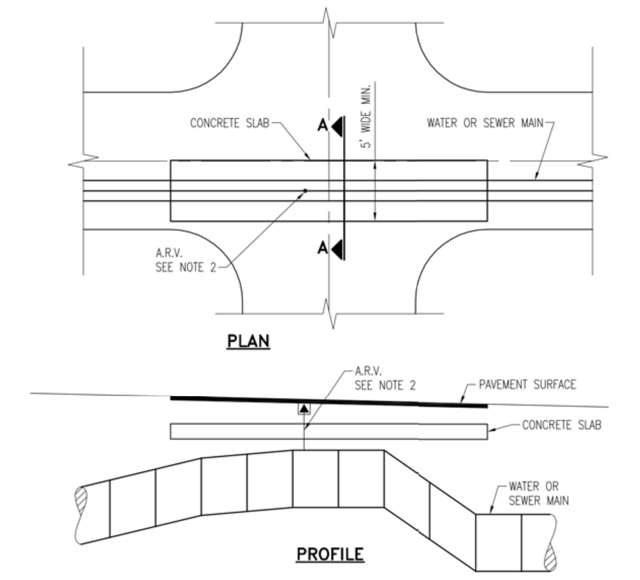
ISSUE DATE	APPROVED BY	STANDARD DETAIL	
03/01/2010	V.F.C.	STANDARD REQUIREMENTS WATER AND SEWER CONSTRUCTION	GS 0.5 SHEET 1 OF 2

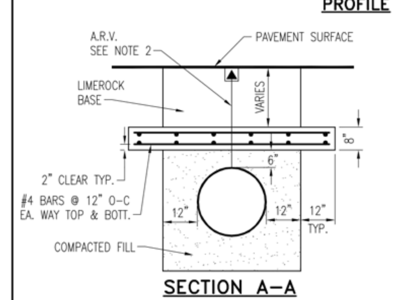
1. AT THE COMPLETION OF ANY WATER AND SEWER JOB, EITHER DONATION OR CONTRACT, THE CONTRACTOR SHALL SUBMIT:
   a. AS-BUILT PRINTS WHICH HAVE BEEN SIGNED AND SEALED BY A FLORIDA LICENSED PROFESSIONAL SURVEYOR AND MAPPER. (QTY. OF PRINTS, AS REQUIRED BY THE DEPARTMENT.)
2. "AS-BUILT" FORMAT:
   a. 24"x36" PRINTS
   b. LOCATION MAP SCALE SHOULD BE 1"=300' AND SECTION-TOWNSHIP-RANGE SHOULD BE SHOWN.
   c. THE WORD "AS-BUILT" IN LARGE LETTERS.
   d. TITLE BLOCK WITH DEPARTMENT DS, DW OR ER NUMBER AND PERTINENT INFORMATION.
   e. PREFERRED SCALE TO BE 1"= 40' HORIZONTALLY AND 1"= 4' VERTICALLY*.
   f. STREET NOMENCLATURE.
   g. SEPARATE AS-BUILTS FOR WATER AND SEWER.
   h. SEPARATE WATER AND SEWER PROFILE.
   i. STATIONING STARTING WITH 0+00 AT PERMANENT REFERENCE POINT (I.E., ℄, ℄, ETC.) OR AS SHOWN ON DESIGN PERMIT PLANS, AND TO RUN CONTINUOUSLY TO END OF MAIN.
   j. EASEMENTS, IF ANY, TIED TO PERMANENT REFERENCE POINT.
   k. IDENTIFY ALL CONTROL LINES (I.E. BLDG. LINE, PROPERTY LINE, R/W, ETC).
   l. ALL "PROPOSED" INFORMATION TO BE REMOVED FROM PRINTS, LEAVING ONLY "AS-BUILT" INFORMATION REFLECTED IN DRAWINGS.
3. WATER "AS-BUILTS" MUST INCLUDE:
   a. PLANS SHOWING PIPE SIZE, MATERIAL AND OFFSET OF MAIN, DEFLECTIONS (IF ANY), STATION OF SERVICES, HYDRANTS AND FITTINGS AT THE MAINLINE (IF PERPENDICULAR TO IT), AND AT MAIN AND END OF SERVICES IF ANY, OTHER ANGLE, AND DEFLECTION OF PIPE, IF ANY.
   b. PROFILE SHOWING TOP OF GROUND AND TOP OF PIPE ELEVATIONS AT EVERY 100' STATION AND AT ANY CHANGE IN GRADE (WITH CORRESPONDING STATION), PIPE SIZE AND PIPE MATERIALS REFERENCED TO PLAN.
4. SEWER "AS-BUILTS" MUST INCLUDE:
   a. PLAN SHOWING MANHOLE NUMBER, PIPE SIZE AND PIPE MATERIAL OF PIPE, DEFLECTION, IF ANY (FORCE MAIN ONLY), AND LOCATION OF LATERALS WITH REFERENCE TO MANHOLE.
   b. PROFILE SHOWING MANHOLE NUMBER (AS PER PLAN), RIM AND INVERT ELEVATIONS (IF MORE THAN ONE INVERT, LABEL NORTH, SOUTH , ETC), AND STATION STARTING AT EACH 0+00 AT DOWNSTREAM MANHOLE.
5. FORCE MAIN "AS-BUILT" SAME AS WATER MAIN ABOVE.
6. EACH AS-BUILT SHALL SHOW THE FLORIDA STATE PLANE COORDINATES (CURRENT READJUSTMENT) OF ALL THE MANHOLES AND VALVES AND OF AT LEAST TWO HORIZONTAL CONTROL POINTS PROPERLY IDENTIFIED AND LOCATED WITHIN THE PROJECT.

* OTHER SCALE MAY BE PERMITTED, BUT MUST BE APPROVED BY THE DEPA
OF DRAWINGS.

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY	STANDARD DETAIL	
03/11/2009	V.F.C.	"AS-BUILT" REQUIREMENTS	GS 0.5 SHEET 2 OF 2





NOTES:
1. FOR PIPE DIA. ≥ 30", A REINF. CONCRETE SLAB TO BE DESIGNED BY A FLA. REGISTERED P.E. AND SUBMITTED FOR APPROVAL.
2. AIR RELEASE VALVES (A.R.V.) REQUIRED ON SEWER FORCE MAINS ONLY.

ITEM	CROSS REF.	SPEC. REF.
AIR RELEASE VALVE	SS 11.0	

ISSUE DATE	APPROVED BY	STANDARD DETAIL	
06/01/2008	V.F.C.	REINFORCED CONC. SLAB FOR GROUND COVER LESS THAN 2.5'	GS 1.2 SHEET 1 OF 1

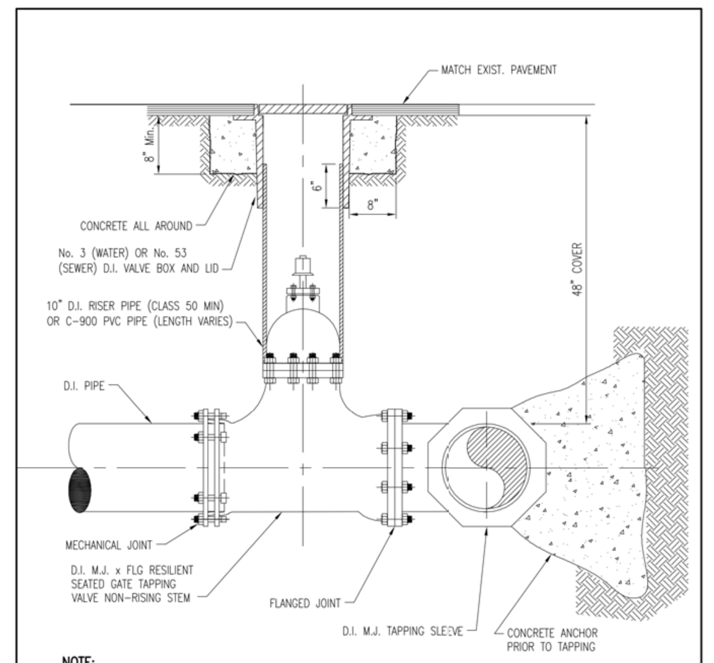
LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS (1)	JOINT SPACING AT CROSSINGS (FULL JOINT CENTERED)
STORM SEWER; STORMWATER FORCE MAIN; RECLAIMED WATER (2)	Water Main — 3 ft. minimum	Water Main — 12 inches is the minimum, except for storm sewer, then 6 inches is the minimum and 12 inches is preferred.	Water Main — Alternate: 3 ft. minimum
VACUUM SANITARY SEWER	Water Main — 10 ft. preferred, 3 ft. minimum	Water Main — 12 inches preferred, 6 inches minimum	Water Main — Alternate: 3 ft. minimum
GRAVITY OR PRESSURE; SANITARY SEWER; SANITARY SEWER FORCE MAIN; RECLAIMED WATER (4)	Water Main — 10 ft. preferred, 6 ft. minimum (3)	Water Main — 12 inches is the minimum, except for storm sewer, then 6 inches is the minimum and 12 inches is preferred.	Water Main — Alternate: 6 ft. minimum
ON-SITE SEWAGE TREATMENT & DISPOSAL SYSTEM	10 ft. minimum	-	-

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

ITEM	CROSS REF.	SPEC. REF.

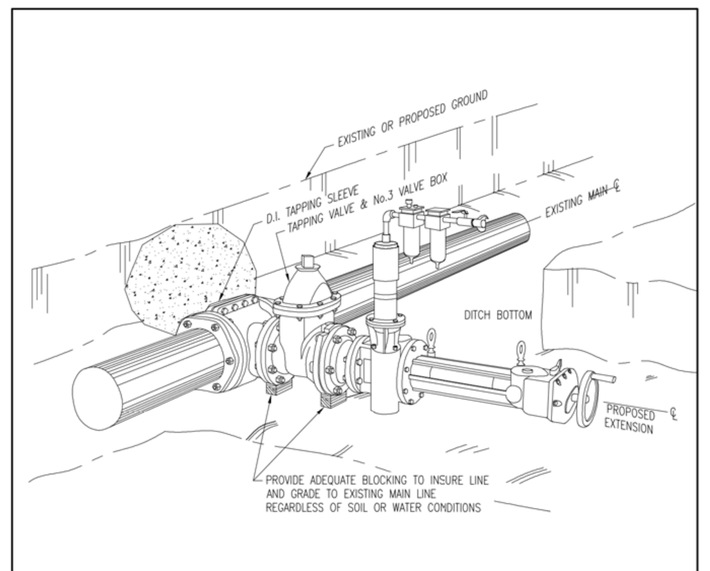
ISSUE DATE	APPROVED BY	STANDARD DETAIL	
10/06/2008	V.F.C.	WATER AND SEWER MAINS CROSSING	GS 1.5 SHEET 1 OF 1



NOTE:
RESILIENT SEATED GATE TAPPING VALVE CAN BE USED FOR SEWER CONNECTION.

ITEM	CROSS REF.	SPEC. REF.
No. 53 VALVE BOX	SS 13.0	
No. 3 VALVE BOX	WS 3.11	
INSTALLATION	GS 1.8	

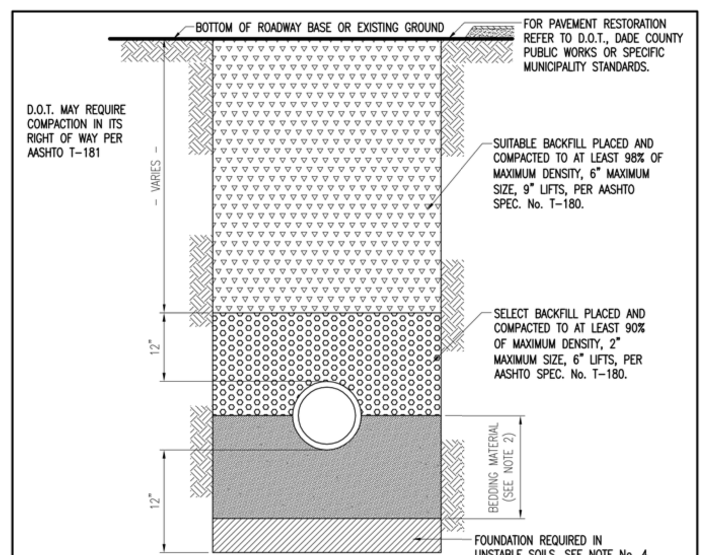
ISSUE DATE	APPROVED BY	STANDARD DETAIL	
01/22/2009	V.F.C.	TYPICAL TAPPING VALVE SETTING (16" AND SMALLER)	GS 1.7 SHEET 1 OF 1



PROCEDURE:
1. CONTRACTOR TO INSTALL AND PRESSURE TEST TAPPING SLEEVE AND VALVE, WITNESSED BY MDWASD INSPECTOR.
2. NOTE DELETED.
3. NOTE DELETED.
4. BY-PASS VALVE FOR 20" AND LARGER VALVES, PER AWWA C-500, INSTALLED WITH No. 2 VALVE BOX.

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY	STANDARD DETAIL	
01/22/2009	V.F.C.	TAPPING SLEEVE AND VALVE INSTALLATION	GS 1.8 SHEET 1 OF 1



NOTES:
1 FOR EXCAVATION AND BACKFILL AROUND MANHOLES, APPURTENANCES, OR IN WATER, REFER TO PROVISIONS WITHIN THE SPECIFICATIONS.
2 UNLESS OTHERWISE SPECIFIED, BEDDING MATERIAL SHALL CONSIST OF SELECT BACKFILL MATERIAL 2" MAX. SIZE, OR WASHED AND GRADED LIMEROCK (3/8"-7/8"), COMPACTED TO AT LEAST 90° OF MAX. DENSITY, 6" LIFTS, PER AASHTO SPEC. No. T-180.
3 WHERE REQUIRED, SHEETING AND SHORING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS.
4 WHERE UNSTABLE SOILS ARE ENCOUNTERED, INCLUDING PEAT, MUCK OR OTHER ORGANIC SOILS, ELASTIC SILT AND CLAYS BELOW THE WATER TABLE, A FOUNDATION IS REQUIRED. COMPACTED TO AT LEAST 90° OF MAX. DENSITY, 6" LIFTS, PER AASHTO SPEC. NO. T-180. FOUNDATION MATERIAL SHALL BE SELECT BACKFILL MATERIAL, 2" MAXIMUM SIZE 6" LIFTS EXTEND EXCAVATION AT LEAST 2' DEEPER FOR FOUNDATION ENLESS SUITABLE MATERIAL IS FOUND AT A LESSER DEPTH, GREATER DEPTHS MAY BE REQUIRED FOR EXTREMELY POOR CONDITIONS.
5 POLYETHYLENE ENCASEMENT OF CAST IRON VALVES, PIPE AND FITTINGS, IF REQUIRED BY THE DEPARTMENT, SHALL BE PER ANSI/AWWA C105/A21.5, METHOD A, B OR C FOR TYPE I CLASS C TUBE, MIN. 8 MILS THIC

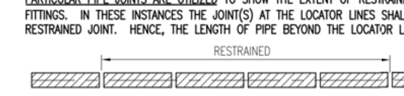
ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY	STANDARD DETAIL	
11/01/2006	V.E.F.	TYPICAL TRENCH BACKFILL FOR D.I. WATER AND FORCE MAINS	GS 1.9 SHEET 1 OF 1

MIN. LENGTH OF PIPE (FEET) TO BE RESTRAINED

(SOURCES: DIPRA RESTRAINT LENGTH CALCULATION PROGRAM FOR DUCTILE IRON PIPE , RELEASE 3.2)

NOTES:
1. THE DATA IN TABLES ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
   SOIL TYPE-SILT 2 (OR, SOIL WITH EQUIVALENT PROPERTIES)
   TEST PRESSURE-100 PSI TRENCH TYPE-4 SAFETY FACTOR-1.5
   MINIMUM PIPE LENGTH ALONG TEE RUN-20'
2. RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON AND PVC PIPES.
3. ALL JOINTS BETWEEN BENDS AT ALL HORIZONTAL & VERTICAL OFFSETS SHALL BE RESTRAINED.
4. DUCTILE IRON FITTINGS UP TO 20-INCHES IN DIAMETER SHALL BE RESTRAINED BY MECHANICAL MEANS, I.E. RESTRAINING JOINTS, MEGALUGS OR APPROVED EQUAL, FIELD-LOK GASKETS OR APPROVED EQUAL.
5. **24-INCH AND ABOVE DIAMETER DUCTILE IRON FITTINGS SHALL BE RESTRAINED BY** MECHANICAL MEANS, I.E. RESTRAINING JOINTS, MEGALUGS OR APPROVED EQUAL, FIELD-LOK GASKETS OR APPROVED EQUAL, ETC., WITH THRUST BLOCKS AND CONCRETE ANCHORS BEING OPTIONAL AT THE DISCRETION OF THE ENGINEER OF RECORD.
6. **ANY THRUST BLOCKS AND ANCHORS ARE TO BE DESIGNED BY THE ENGINEER OF RECORD. SIGNED AND SEALED CALCULATIONS SHALL BE SUBMITTED TO MDWASD FOR APPROVAL PRIOR TO INSTALLATION.**
7. THRUST BLOCKS CONSISTING OF POURED-IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGH OF 2,500 PSI AFTER 28 DAYS CURING AGE.
8. TABLES SHOWN ON SHEETS 1 OF 5 THRU 5 OF 5 SHALL SERVE AS A GENERAL DESIGN AND CONSTRUCTION GUIDE ONLY. IT IS THE SOLE RESPONSIBILITY OF THE ENGINEER-OF-RECORD TO JUSTIFY AND DOCUMENT ANY DEVIATIONS FROM THE PIPE LENGTHS SPECIFIED IN SAID TABLES BASED ON THE INSTALLATION & FIELD CONDITIONS.
9. AT TIMES ON THE PLANS, DIMENSIONAL ARROWS BETWEEN LOCATOR LINES WHICH ARE EVEN WITH PARTICULAR PIPE JOINTS ARE UTILIZED TO SHOW THE EXTENT OF RESTRAINED LENGTHS OF PIPE AND FITTINGS. IN THESE INSTANCES THE JOINT(S) AT THE LOCATOR LINES SHALL BE CONSIDERED AS A RESTRAINED JOINT. HENCE, THE LENGTH OF PIPE BEYOND THE LOCATOR LINE IS RESTRAINED.



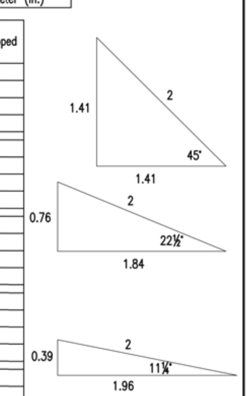
THUS, IN THE SCHEMATIC ABOVE, FOUR LENGTHS OF PIPE ARE BETWEEN THE LOCATOR LINES BUT ALL SIX LENGTHS ARE RESTRAINED.

ITEM	CROSS REF.	SPEC. REF.
XXXXX		

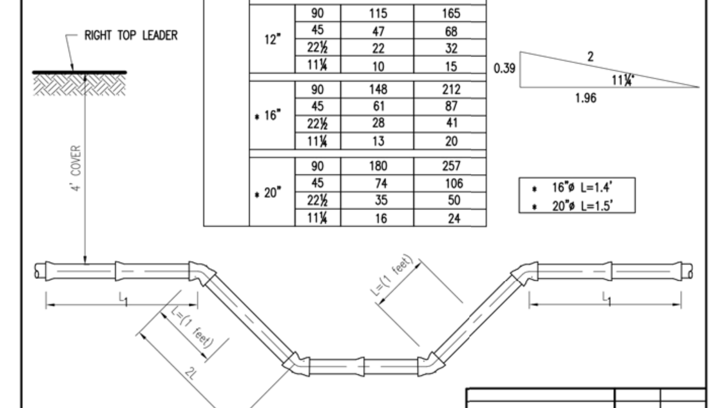
ISSUE DATE	APPROVED BY	STANDARD DETAIL	
4/10/2014	J. F.	STANDARD REQUIREMENTS FOR WATER AND SEWER MECHANICAL THRUST RESTRAINT	GS 2.0 SHEET 1 OF 5

TABLE No.1
(Combined Vertical Offset Under Object/other utility)
MIN. LENGTH OF PIPE (FEET) TO BE RESTRAINED
100 psi pressure, Soil Designation: Silt 2
L= 1 Feet (Minimum or Maximum) H= Depth of cover (ft.)
ø= Bend angle in degrees D= Nominal diameter (in.)

H	D	ø	L_1 Bare Pipe	L_1 Polywrapped Pipe
4'	6"	90	62	89
		45	25	36
		22½	12	17
		11¼	5	8
	8"	90	81	116
		45	33	47
		22½	15	22
		11¼	7	11
	10"	90	98	141
		45	40	58
		22½	19	27
		11¼	9	13
	12"	90	115	165
		45	47	68
		22½	22	32
		11¼	10	15
	• 16"	90	148	212
		45	61	87
		22½	28	41
		11¼	13	20
	• 20"	90	180	257
		45	74	106
		22½	35	50
		11¼	16	24



• 16"ø L=1.4'
• 20"ø L=1.5'

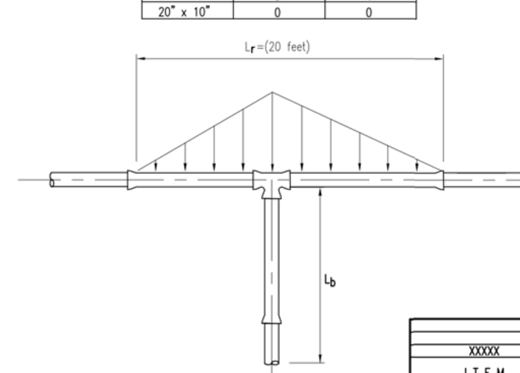


ITEM	CROSS REF.	SPEC. REF.
XXXXX		

ISSUE DATE	APPROVED BY	STANDARD DETAIL	
11/01/2006	V. E. F.	THRUST RESTRAINT DESIGN DUCTILE IRON/PVC PIPE (VERTICAL OFFSETS)	GS 2.0 SHEET 2 OF 5

TABLE No.2 (Tee)
MIN. LENGTH OF PIPE (Lb in Feet) TO BE RESTRAINED
100 psi pressure, Soil Designation: Silt 2
H= Depth of cover (ft.)
D= Nominal diameter (in.)

D	H=4 Bare Pipe L_b	H=4 Polywrapped Pipe L_b
8" x 8"	10	14
8" x 6"	0	0
10" x 10"	19	26
10" x 8"	2	3
12" x 12"	27	38
12" x 10"	12	17
12" x 8"	0	0
16" x 16"	43	62
16" x 12"	15	22
16" x 10"	0	0
20" x 20"	59	84
20" x 16"	34	49
20" x 12"	3	4
20" x 10"	0	0



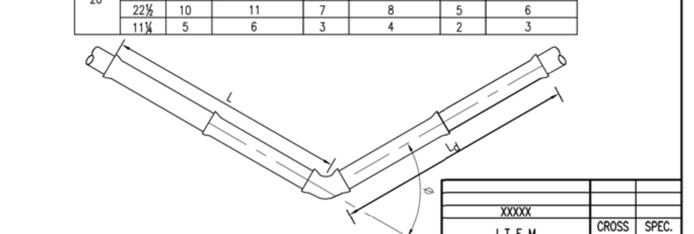
ITEM	CROSS REF.	SPEC. REF.
XXXXX		

ISSUE DATE	APPROVED BY	STANDARD DETAIL	
11/01/2006	V. E. F.	THRUST RESTRAINT DESIGN DUCTILE IRON/PVC PIPE (Tee and Tapping Sleeve)	GS 2.0 SHEET 3 OF 5

NOTE:
1. THE CITY IS USING MDWASD STANDARD DETAILS FOR THIS PROJECT EFFORT. ALL REFERENCES TO "DEPARTMENT" ARE EQUIVALENT TO "CITY" IN THE STANDARD DETAILS.

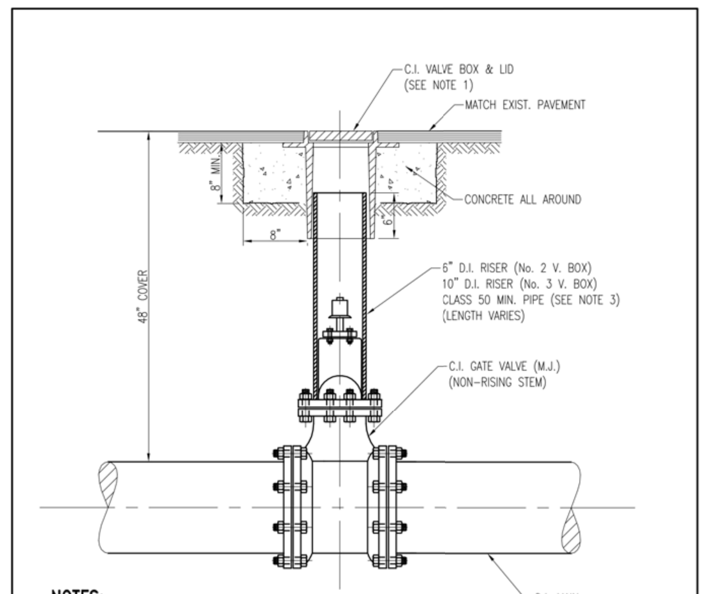
TABLE No.4 (Horizontal Bends)
MIN. LENGTH OF PIPE (L_d in feet) TO BE RESTRAINED
100 psi pressure, Soil Designation: Silt 2
ø = Bend angle in degrees H= Depth of cover (ft.) D= Nominal diameter (in.)

D	ø	H = 2.5 Bare Pipe	H = 2.5 Polywrapped Pipe	H = 4 Bare Pipe	H = 4 Polywrapped Pipe	H = 6 Bare Pipe	H = 6 Polywrapped Pipe
6"	90	19	22	12	14	9	10
	45	8	9	5	6	4	4
	22½	4	4	2	3	2	2
	11¼	2	2	1	1	1	1
8"	90	25	28	16	18	11	13
	45	10	12	7	8	5	5
	22½	5	6	3	4	2	2
	11¼	2	3	2	2	1	1
10"	90	29	33	19	22	13	15
	45	12	14	8	9	6	6
	22½	6	7	4	4	3	3
	11¼	3	3	2	2	1	1
12"	90	34	38	23	26	16	18
	45	14	16	9	11	7	7
	22½	7	8	5	5	3	4
	11¼	3	4	2	3	2	2
16"	90	43	48	29	33	20	23
	45	18	20	12	14	8	10
	22½	8	10	6	7	4	5
	11¼	4	5	3	3	2	2
20"	90	51	57	35	39	25	28
	45	21	24	14	16	10	12
	22½	10	11	7	8	5	6
	11¼	5	6	3	4	2	3



ITEM	CROSS REF.	SPEC. REF.
XXXXX		

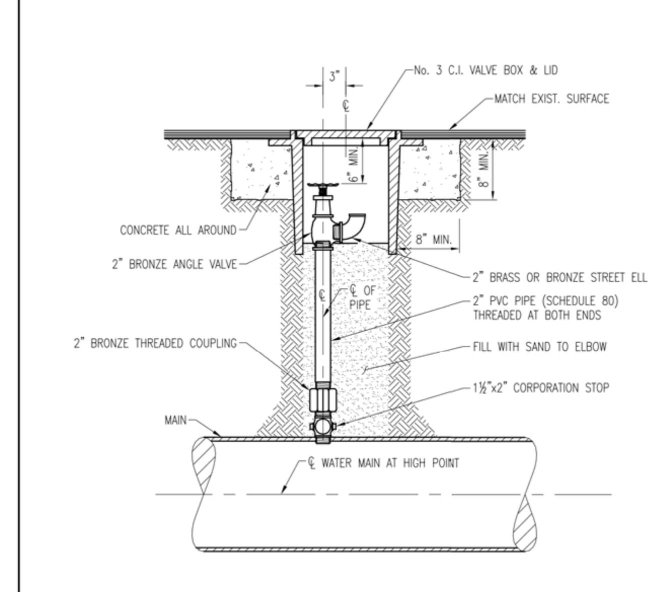
ISSUE DATE	APPROVED BY	STANDARD DETAIL	
11/01/2006	V. E. F.	THRUST RESTRAINT DESIGN FOR DUCTILE IRON/PVC PIPE (Horizontal Bends)	GS 2.0 SHEET 5 OF 5



NOTES:
1. USE No. 2 VALVE BOX FOR:
   - FIRE HYDRANT VALVES
   - FIRE LINE SERVICES & DOMESTIC SERVICES
   - 2" MAINS IN EASEMENTS
   - BYPASS VALVES
2. USE No. 3 VALVE BOX FOR ALL MAIN LINE VALVES.
3. PVC C900 PIPE CAN BE USED FOR RISER IN LIEU OF DUCTILE IRON.
4. IF USED FOR RECLAIMED WATER VALVES, THE LID SHALL BE MARKED "R" AND BOTH THE LID AND THE RISER PIPE ARE TO BE COLORED PURPLE PANTONE 522C.

ITEM	CROSS REF.	SPEC. REF.
No. 3 VALVE BOX & LID	WS 3.11	
No. 2 VALVE BOX & LID	WS 3.10	

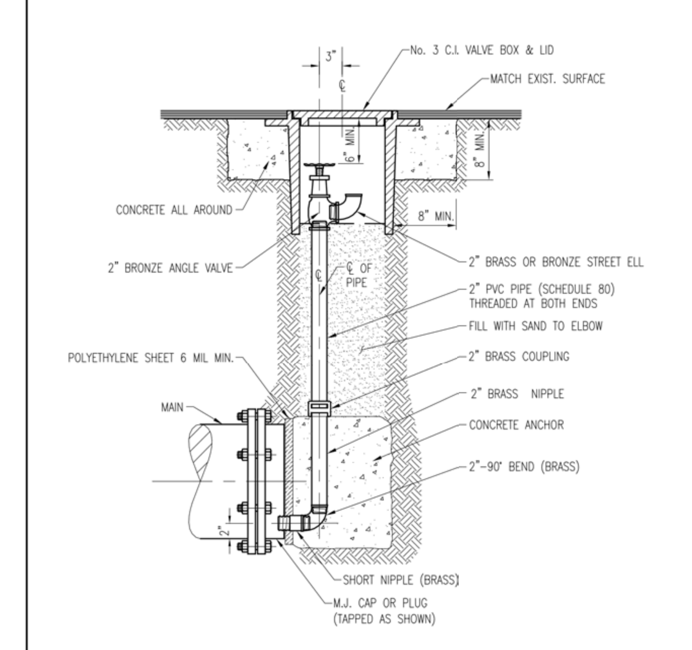
ISSUE DATE	APPROVED BY	STANDARD DETAIL	
10/10/2008	V.F.C.	TYPICAL GATE VALVE SETTING (SMALLER THAN 16")	WS 1.0 SHEET 1 OF 1



NOTE:
USE SERVICE SADDLE AND TAPPING SLEEVE FOR PVC RECLAIMED WATER MAINS. FOR DUCTILE IRON RECLAIMED WATER MAINS, SEE WS 2.16, 3 OF 3, FOR SADDLE REQUIREMENTS.

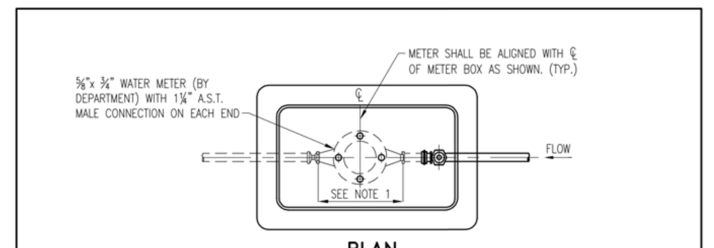
ITEM	CROSS REF.	SPEC. REF.
No. 3 VALVE BOX & LID	WS 3.11	

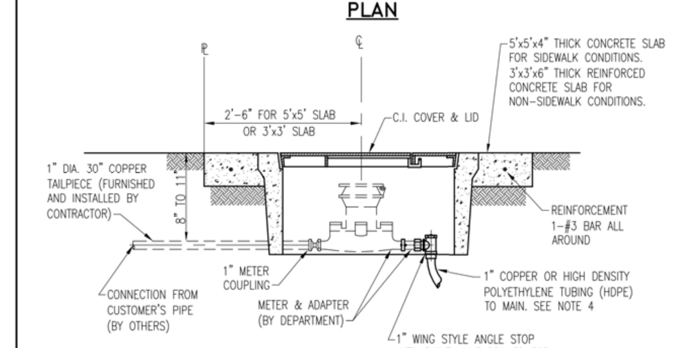
ISSUE DATE	APPROVED BY	STANDARD DETAIL	
10/06/2009	V.F.C.	AIR RELEASE VALVE	WS 1.60 SHEET 1 OF 1



ITEM	CROSS REF.	SPEC. REF.
No. 3 VALVE BOX & LID	WS 3.11	
CONCRETE ANCHORS	GS 1.1	

ISSUE DATE	APPROVED BY	STANDARD DETAIL	
10/06/2009	V.F.C.	TYPICAL FLUSHING VALVE OUTLET	WS 1.61 SHEET 1 OF 1





NOTES:
1. METER LAYING LENGTH AS SHOWN:
   10¾" (OUTLET TO OUTLET) FOR ⅝" OR 1" METER (11" WITH GASKETS).
2. USE SINGLE METER BOX.
3. CONCRETE SLAB REINFORCEMENT SHALL HAVE 1-#3 BAR ALL AROUND.
4. USE 1" BLUE COLOR HDPE OR 1" COPPER TUBING FOR POTABLE WATER SERVICE. USE ONLY 1" PURPLE COLOR HDPE (NO COPPER ALLOWED) FOR RECLAIMED WATER SERVICE.
5. METERS WILL NOT BE INSTALLED IF THE METER BOX IS IN A DRIVING SURFACE.
6. WHEN USING 1" HDPE SERVICE A TEN GAUGE BLUE (PURPLE FOR RECLAIMED WATER) DIRECT BURY STANDARD COPPER TRACE WIRE IS TO BE TAPED CONTINUOUSLY WITH POLY OR DUCT TAPE TO THE SERVICE FOR LOCATION PURPOSES. WIRE SHALL BE ATTACHED TO WATER MAIN. WIRE MUST EXTEND INTO METER BOX.
7. IF USED FOR RECLAIMED WATER, THE COVER SHALL BE PERMANENTLY EMBOSSED WITH THE WORDING: "RECLAIMED WATER-DO NOT DRINK-NO BEBER-PA BOUÈ".
8. ALL SPACER TUBES AND TAILPIECES SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
9. REPAIRS TO SLAB AND METER ARE PROHIBITED.

ITEM	CROSS REF.	SPEC. REF.
1" SERVICE CONNECTION	WS 4.11	
TYPICAL SERVICE PLAN	WS 4.10	

ISSUE DATE	APPROVED BY	STANDARD DETAIL	
06/01/2008	V.F.C.	SINGLE METER BOX INSTALLATION	WS 2.10 SHEET 1 OF 3

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flager Street, Suite 1625
Miami, Florida 33130
DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

STANDARD DETAILS

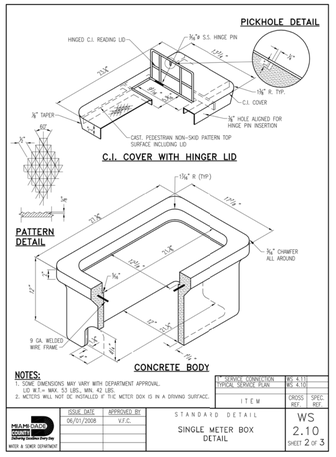
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-201
Sheet

Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:20:54 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\DETAILS.DWG - MARQUEZ, GERMAIN

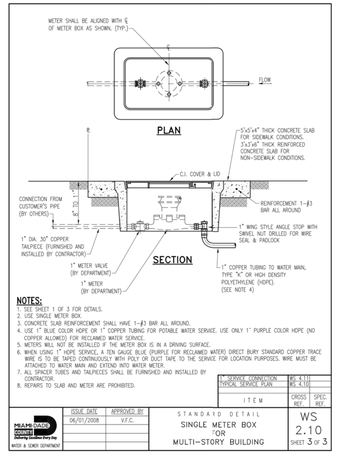


NOTES:
1. SOME DIMENSIONS MAY VARY WITH DEPARTMENT APPROVAL.
2. LID W.T.= MAX. 53 LBS.; MIN. 42 LBS.
3. METERS WILL NOT BE INSTALLED IF THE METER BOX IS IN A DRIVING SURFACE.

ITEM	CROSS REF.	SPEC. REF.
1" SERVICE CONNECTION (TYPICAL SERVICE PLAN	WC 4.1(1) WC 4.1(4)	

ISSUE DATE	APPROVED BY
06/01/2008	V.F.C.

STANDARD DETAIL
SINGLE METER BOX DETAIL
WS 2.10 SHEET 2 OF 3

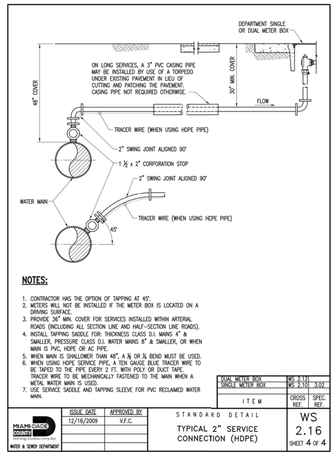


NOTES:
1. SEE SHEET 1 OF 3 FOR DETAILS.
2. USE SINGLE METER BOX.
3. CONCRETE SLAB REINFORCEMENT SHALL HAVE 1-#3 BAR ALL AROUND.
4. USE 1" BLUE COLOR HDPE OR 1" COPPER TUBING FOR POTABLE WATER SERVICE. USE ONLY 1" PURPLE COLOR HDPE (NO COPPER ALLOWED) FOR RECLAIMED WATER SERVICE.
5. METERS WILL NOT BE INSTALLED IF THE METER BOX IS IN A DRIVING SURFACE.
6. WHEN USING 1" HDPE SERVICE, A TEN GAUGE BLUE (PURPLE FOR RECLAIMED WATER) DIRECT BURY STANDARD COPPER TRACE WIRE IS TO BE TAPED CONTINUOUSLY WITH POLY OR DUCT TAPE TO THE SERVICE FOR LOCATION PURPOSES. WIRE MUST BE ATTACHED TO WATER MAIN AND EXTEND INTO WATER METER.
7. ALL SPACER TUBES AND TAILPIECES SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
8. REPAIRS TO SLAB AND METER ARE PROHIBITED.

ITEM	CROSS REF.	SPEC. REF.
1" SERVICE CONNECTION (TYPICAL SERVICE PLAN	WC 4.1(1) WC 4.1(4)	

ISSUE DATE	APPROVED BY
06/01/2008	V.F.C.

STANDARD DETAIL
SINGLE METER BOX OR MULTI-STORY BUILDING
WS 2.10 SHEET 3 OF 3

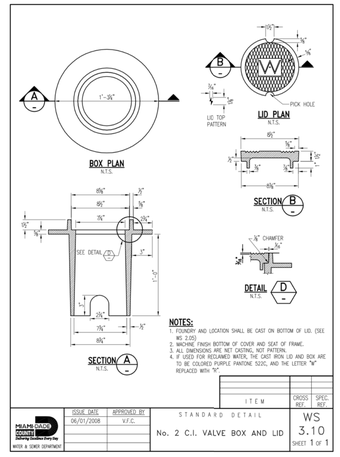


NOTES:
1. CONTRACTOR HAS THE OPTION OF TAPPING AT 45°.
2. METERS WILL NOT BE INSTALLED IF THE METER BOX IS LOCATED ON A DRIVING SURFACE.
3. PROVIDE 30" MIN. COVER FOR SERVICES INSTALLED WITHIN ARTERIAL ROADS (INCLUDING ALL SECTION LINE AND HALF-SECTION LINE ROADS).
4. INSTALL TAPPING SADDLE FOR: THICKNESS CLASS D.I. MAINS 4" & SMALLER, PRESSURE CLASS D.I. WATER MAINS 8" & SMALLER, OR WHEN MAIN IS PVC, HDPE OR AC PIPE.
5. WHEN MAIN IS SHALLOWER THAN 48", A ⅜ OR ½ BEND MUST BE USED.
6. WHEN USING HDPE SERVICE PIPE, A TEN GAUGE BLUE TRACER WIRE TO BE TAPED TO THE PIPE EVERY 2 FT. WITH POLY OR DUCT TAPE. TRACER WIRE TO BE MECHANICALLY FASTENED TO THE MAIN WHEN A METAL WATER MAIN IS USED.
7. USE SERVICE SADDLE AND TAPPING SLEEVE FOR PVC RECLAIMED WATER MAIN.

ITEM	CROSS REF.	SPEC. REF.
DUAL METER BOX SINGLE METER BOX	WS 2.10 WS 2.10	3.0V

ISSUE DATE	APPROVED BY
12/16/2009	V.F.C.

STANDARD DETAIL
TYPICAL 2" SERVICE CONNECTION (HDPE)
WS 2.16 SHEET 4 OF 4

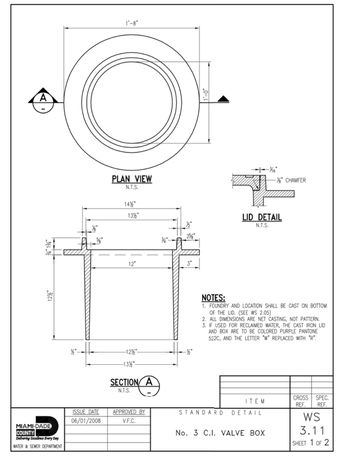


NOTES:
1. FOUNDRY AND LOCATION SHALL BE CAST ON BOTTOM OF LID. (SEE WS 2.05)
2. MACHINE FINISH BOTTOM OF COVER AND SEAT OF FRAME.
3. ALL DIMENSIONS ARE NET CASTING, NOT PATTERN.
4. IF USED FOR RECLAIMED WATER, THE CAST IRON LID AND BOX ARE TO BE COLORED PURPLE PANTONE 522C, AND THE LETTER "W" REPLACED WITH "R".

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY
06/01/2008	V.F.C.

STANDARD DETAIL
No. 2 C.I. VALVE BOX AND LID
WS 3.10 SHEET 1 OF 1

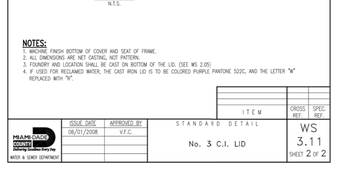


NOTES:
1. FOUNDRY AND LOCATION SHALL BE CAST ON BOTTOM OF THE LID. (SEE WS 2.05)
2. ALL DIMENSIONS ARE NET CASTING, NOT PATTERN.
3. IF USED FOR RECLAIMED WATER, THE CAST IRON LID AND BOX ARE TO BE COLORED PURPLE PANTONE 522C, AND THE LETTER "W" REPLACED WITH "R".

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY
06/01/2008	V.F.C.

STANDARD DETAIL
No. 3 C.I. VALVE BOX
WS 3.11 SHEET 1 OF 2



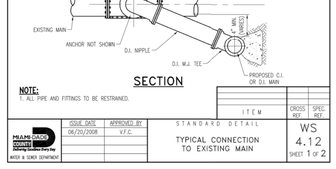
NOTES:
1. MACHINE FINISH BOTTOM OF COVER AND SEAT OF FRAME.
2. ALL DIMENSIONS ARE NET CASTING, NOT PATTERN.
3. FOUNDRY AND LOCATION SHALL BE CAST ON BOTTOM OF THE LID. (SEE WS 2.05)
4. IF USED FOR RECLAIMED WATER, THE CAST IRON LID IS TO BE COLORED PURPLE PANTONE 522C, AND THE LETTER "W" REPLACED WITH "R".

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY
06/01/2008	V.F.C.

STANDARD DETAIL
No. 3 C.I. LID
WS 3.11 SHEET 2 OF 2

VIEW NOT USED

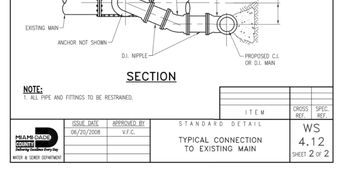


NOTE:
1. ALL PIPE AND FITTINGS TO BE RESTRAINED.

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY
06/20/2008	V.F.C.

STANDARD DETAIL
TYPICAL CONNECTION TO EXISTING MAIN
WS 4.12 SHEET 1 OF 2

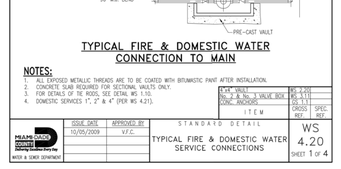


NOTE:
1. ALL PIPE AND FITTINGS TO BE RESTRAINED.

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY
06/20/2008	V.F.C.

STANDARD DETAIL
TYPICAL CONNECTION TO EXISTING MAIN
WS 4.12 SHEET 2 OF 2

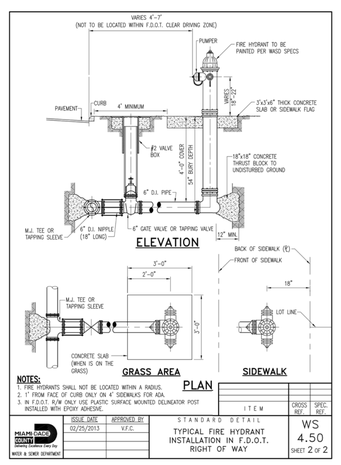


NOTES:
1. ALL EXPOSED METALLIC THREADS ARE TO BE COATED WITH BITUMASTIC PAINT AFTER INSTALLATION.
2. CONCRETE SLAB REQUIRED FOR SECTIONAL VALVES ONLY.
3. FOR DETAILS OF TIE RODS, SEE DETAIL WS 1.10.
4. DOMESTIC SERVICES 1", 2" & 4" (PER WS 4.21).

ITEM	CROSS REF.	SPEC. REF.
4'x4' VAULT No. 2 & No. 3 VALVE BOX CONC. ANCHORS	WS 2.2(1) WS 3.11 CROSS	

ISSUE DATE	APPROVED BY
10/05/2009	V.F.C.

STANDARD DETAIL
TYPICAL FIRE & DOMESTIC WATER SERVICE CONNECTIONS
WS 4.20 SHEET 1 OF 4

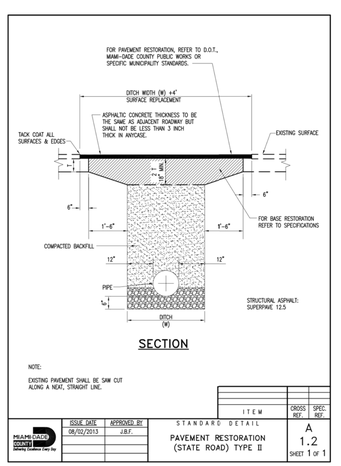


NOTES:
1. FIRE HYDRANTS SHALL NOT BE LOCATED WITHIN A RADIUS.
2. 1' FROM FACE OF CURB ONLY ON 4' SIDEWALKS FOR ADA.
3. IN F.D.O.T. R/W ONLY, USE PLASTIC SURFACE MOUNTED DELINEATOR POST INSTALLED WITH EPOXY ADHESIVE.

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY
02/25/2013	V.F.C.

STANDARD DETAIL
TYPICAL FIRE HYDRANT INSTALLATION IN F.D.O.T. RIGHT OF WAY
WS 4.50 SHEET 2 OF 2

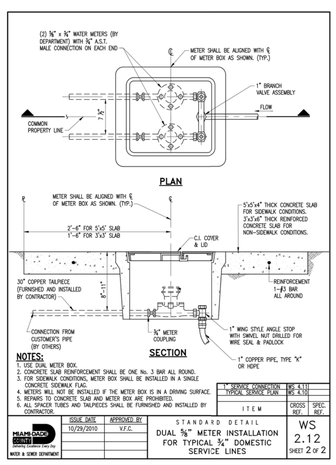


NOTE:
EXISTING PAVEMENT SHALL BE SAW CUT ALONG A NEAT, STRAIGHT LINE.

ITEM	CROSS REF.	SPEC. REF.

ISSUE DATE	APPROVED BY
06/02/2013	J.B.F.

STANDARD DETAIL
PAVEMENT RESTORATION (STATE ROAD) TYPE II
A 1.2 SHEET 1 OF 1

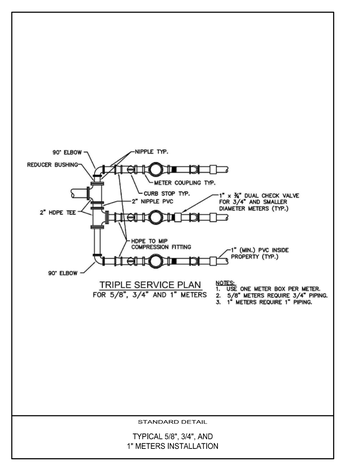


NOTES:
1. USE DUAL METER BOX.
2. CONCRETE SLAB REINFORCEMENT SHALL BE ONE No. 3 BAR ALL ROUND.
3. FOR SIDEWALK CONDITIONS, METER BOX SHALL BE INSTALLED IN A SINGLE CONCRETE SIDEWALK FLAG.
4. METERS WILL NOT BE INSTALLED IF THE METER BOX IS IN A DRIVING SURFACE.
5. REPAIRS TO CONCRETE SLAB AND METER BOX ARE PROHIBITED.
6. ALL SPACER TUBES AND TAILPIECES SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.

ITEM	CROSS REF.	SPEC. REF.
1" SERVICE CONNECTION TYPICAL SERVICE PLAN	WC 4.1(1) WC 4.1(4)	

ISSUE DATE	APPROVED BY
10/29/2010	V.F.C.

STANDARD DETAIL
DUAL ⅝" METER INSTALLATION FOR TYPICAL ¾" DOMESTIC SERVICE LINES
WS 2.12 SHEET 2 OF 2



NOTES:
1. USE ONE METER BOX PER METER.
2. 5/8" METERS REQUIRE ¾" PIPING.
3. 1" METERS REQUIRE 1" PIPING.

STANDARD DETAIL
TYPICAL 5/8", 3/4", AND 1" METERS INSTALLATION

NOTE:

1. THE CITY IS USING MDWASD STANDARD DETAILS FOR THIS PROJECT EFFORT. ALL REFERENCES TO "DEPARTMENT" ARE EQUIVALENT TO "CITY" IN THE STANDARD DETAILS.

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET
STANDARD DETAILS

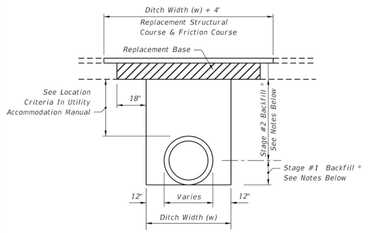
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

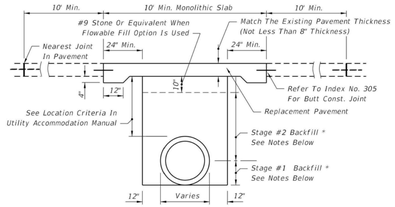
C-202
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

1/19/2016 8:20:58 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\DETAILS.DWG - MARQUEZ, GERMAIN





FLEXIBLE PAVEMENT NOTES

PAVEMENT REMOVAL AND REPLACEMENT

Pavement shall be mechanically sawed.

The replacement asphalt shall match the existing structural and friction courses for type and thickness in accordance with current FDOT asphalt mix specifications.

The new base materials shall be either of the same type and composition as the materials removed or of equal or greater structural adequacy (See Index No. 514).

BACKFILL

COMPACTED AND STABILIZED FILL OPTION

Backfill material shall be placed in accordance with Section 125 of the Standard Specifications.

In Stage #1, construct compacted fill beneath the haunches of the pipe, using mechanical tamps suitable for this purpose. This compaction applies to the material placed beneath the haunches of the pipe and above any bedding.

In Stage #2, construct compacted fill along the sides of the pipe and up to the bottom of the base,with the upper 12" receiving Type B Stabilization. In lieu of Type B Stabilization, the Contractor may construct using Optional Base Group 3.

*** FLOWABLE FILL OPTION**

If compaction can not be achieved through normal mechanical methods then flowable fill may be used.

Flowable fill is to be placed in accordance with Section 121 of the Specifications, as approved by the Engineer.

Do not allow the utility being installed to float. If a method is provided to prevent flotation from occurring, Stages #1 and #2 can be combined, if approved by the Engineer.

In Stage #1, place flowable fill midway up on both sides of the utility. Allow to harden before placing Stage #2.

In Stage #2, place flowable fill to the bottom of the existing base course.

FLEXIBLE PAVEMENT CUT

RIGID PAVEMENT NOTES

PAVEMENT REMOVAL AND REPLACEMENT

High early strength cement concrete (3000 psi) meeting the requirements of Standard Specification 346 shall be used for rigid pavement replacement.

Pavement shall be mechanically sawed and restored to conform with existing pavement joints within 12 hours. (See Index No. 305)

GRANULAR BACKFILL

Any edgedrain system that is removed shall be replaced with the same type materials. Any edgedrain system that is damaged shall be repaired with methods approved by the Engineer.

Fill material shall be placed in accordance with the Standard Specifications. Fill material shall be special select soil in accordance with Index No. 505.

In Stage #1, construct compacted fill beneath the haunches of the pipe, using mechanical tamps suitable for this purpose. This compaction applies to the material placed beneath the haunches of the pipe and above any bedding.

In Stage #2, construct fill along the sides of the pipe and up to the bottom of replacement pavement.

*** FLOWABLE FILL OPTION**

If mechanical compaction can not be achieved through normal mechanical methods then flowable fill may be used.

Flowable fill is to be placed in accordance with Section 121 of the Specifications, as approved by the Engineer.

Do not allow the utility being installed to float. If a method is provided to prevent flotation from occurring, Stages #1 and #2 can be combined, if approved by the Engineer.

In Stage #1, place flowable fill midway up on both sides of the utility. Allow to harden before placing Stage #2.

In Stage #2, place flowable fill to the bottom of the stone layer.

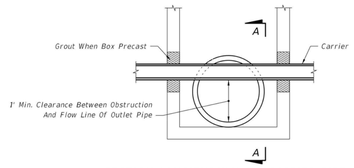
RIGID PAVEMENT CUT

GENERAL NOTES

1. *The details provided in this standard index apply to cases in which jack and bore or directional boring methods are not required by the Engineer.*
2. *Flowable fill shall not be placed directly over loose, or high plastic, or muck material (see Index 505) which will cause settlement due to fill weight. Where highly compressible material exists, the amount, shape and depth of flowable fill must be engineered to prevent pavement settlement.*
3. *These details do not apply to utility cuts longitudinal to the centerline of the roadway which may require the additional use of geotextiles, special bedding and backfill, or other special requirements.*
4. *Method of construction must be approved by the Engineer.*
5. *Some pipe may require special granular backfill up to 6" above top of pipe. Geotextiles may be required to encapsulate the special granular material.*
6. *Where asphalt concrete overlays exist over full slab concrete pavement, the replacement pavement shall have an overlay constructed over the replacement slab. The overlay shall match the existing asphalt pavement thickness. The replacement friction course shall match the existing friction course, except structural course may be used in lieu of dense graded friction course.*
7. *All shoulder pavement, curb, curb and gutter, and their substructure disturbed by utility trench cut construction shall be restored in kind.*
8. *The use of flowable fill to reduce the time traffic is taken off a facility is acceptable but must have prior approval by the Engineer. Flowable fill use is allowed only when properly engineered for pavement crossings, whether straight or diagonal, and shall not be installed for significant depths or lengths. The maximum length shall be fifty (50) feet and a maximum depth of six (6) feet unless supported by an engineering document prepared by a registered professional engineer that specializes in soils engineering. The engineering document shall address the evaluation of local groundwater flow interruption and settlement potential.*
9. *Excavatable flowable fill is to be used when the flowable fill option is selected.*

TRENCH CUTS AND RESTORATIONS ACROSS ROADWAYS

LAST REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/12		2015 DESIGN STANDARDS	MISCELLANEOUS UTILITY DETAILS	307	1 of 3

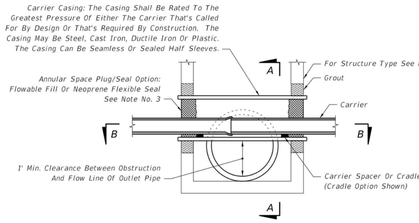


SECTION LONGITUDINAL TO CARRIER PIPE
(Nonpressure Or Nonfluid Carrier Installations)
No Joints Allowed Within Structure

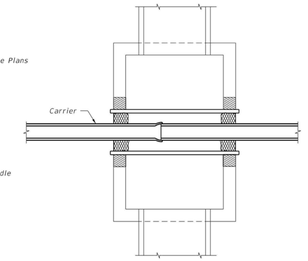
UTILITY CONFLICT CONDITION I

NOTES FOR UTILITY CONFLICT PIPE

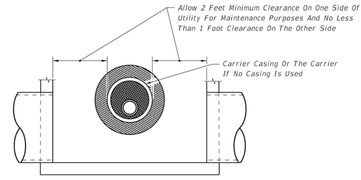
1. *These details are for construction field expediency to resolve utility conflicts that cannot be remedied by relocation. For conflicts determined during design, use the construction shop drawings for structure details.*
2. *Concrete used in conflict structures shall be as specified in ASTM C478. 4000 psi may be used in lieu of Class I concrete.*
3. *Maximum opening for pipe shall be the pipe OD plus 6". Mortar used to seal the pipe into the opening will be of such mix that shrinkage will not cause leakage into or out of the structure.*
4. *If the conflict structure is round or there are multiple inlet or outlet pipes, then the wall section should be reviewed for strength.*
5. *If during construction or the plans design process it is determined that a potable water supply line must pass though a storm drain structure, it must be in compliance with Chapter 62-555.314 (3) F.A.C. and shown on the design or construction plans and submitted to the Florida Department of Environmental Protection (FDEP) Administrator For Drinking Water in the respective FDEP District for review and comment. This index and rule citation provide accepted methods for addressing conflicts when and where they cannot be reasonably avoided. To be submitted along with the plans shall be a justification describing inordinate cost and the impracticality of avoidance. If identified, properly justified, and accomplished in accordance with this index, approval is granted. Upon request, the Utility Agency Owner (UAO) must provide support data on the cost of relocation or adjustment to the FDOT for submittal to the FDEP. See the following web site for District FDEP Drinking Water Contacts: www.dep.state.fl.us/water/drinkingwater/index.htm and click on "Organization" on the menu to the right.*



SECTION LONGITUDINAL TO CARRIER PIPE
(Pressure Or Fluid Carrier Installations)
UTILITY CONFLICT CONDITION II



SECTION BB



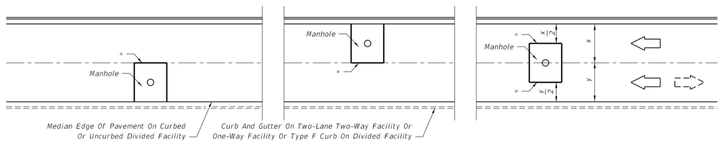
DESIGNER'S NOTE

"Sumped" Conflict Manholes Shall Not Be Used Unless The System Is Hydraulically Designed To Account For The Headloss Generated If The Sump Is Completely Blocked

SECTION AA

UTILITY CONFLICT PIPES THRU STORM DRAIN STRUCTURES

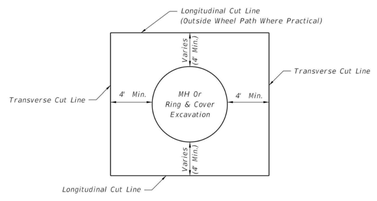
LAST REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/09		2015 DESIGN STANDARDS	MISCELLANEOUS UTILITY DETAILS	307	2 of 3



* *Longitudinal Cut Lines For Both Curbed And Uncurbed Facilities Must Coincide With A Regular Seam Or Midlane Point In Order To Be Outside The Wheel Path*

PLAN VIEW

FOR TWO OR MORE LANES (TWO LANES SHOWN)



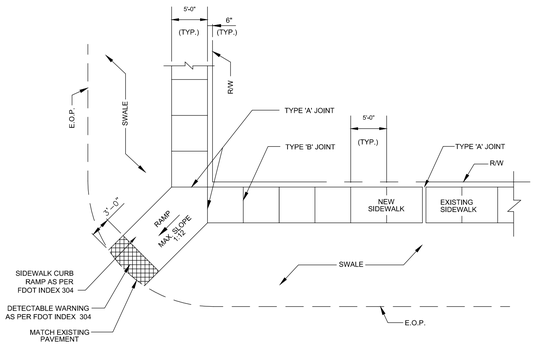
PARTIAL CUTS FOR RING AND COVER ADJUSTMENTS

NOTES

1. *No irregular seams are permitted. All seams must be clean sawed.*
2. *Pavement cut seams for underground utility structures in rigid pavement are the same longitudinally, but the transverse seams shall extend to the nearest existing joint.*
3. *See Sheet 1 for replacement pavement.*

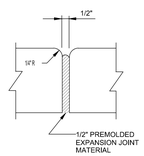
NONTRENCH PAVEMENT CUTS FOR UNDERGROUND UTILITY STRUCTURES IN PAVEMENT

LAST REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/04		2015 DESIGN STANDARDS	MISCELLANEOUS UTILITY DETAILS	307	3 of 3

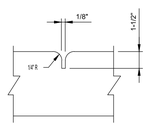


PLAN

SIDEWALK TO BE RESTORED IN FULL FLAGS ONLY, NO PARTIAL FLAG REPAIR/RESTORATION.



TYPE 'A'



TYPE 'B'

TABLE OF SIDEWALK JOINTS

TYPE	LOCATION
'A'	P.C. & P.T. OF CURVES JUNCTION OF EXISTING AND NEW SIDEWALKS, WHERE SIDEWALK ABUTS CONCRETE CURBS, DRIVEWAYS AND SIMILAR STRUCTURES.
'B'	5'-0" CENTER TO CENTER ON SIDEWALKS.

TYPICAL SIDEWALK CONSTRUCTION

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 459-9400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

BY

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

FDOT MISCELLANEOUS UTILITY DETAILS

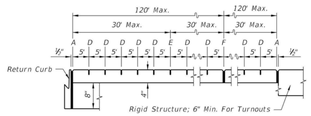
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-203
Sheet

Copyright: Tetra Tech

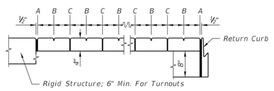
Bar Measures 1 inch

1/19/2016 8:22:11 AM - P:\ER\66798\200-66798-15001\CAD\SHEETFILES\C-203 TO C-206 DETAILS.DWG - MARQUEZ, GERMAIN



NOTE: "E" Joint(s) Required When Length Exceeds 30'

SAWED JOINTS



OPEN JOINTS

LONGITUDINAL SECTION
(NOT TO SCALE)

JOINT LEGEND

A- ½" Expansion Joints (Preformed Joint Filler)

B- ⅛" Dummy Joints, Tooled

C- ⅛" Formed Open Joints

D- 3/16" Saw Cut Joints, 1½" Deep (within 96 hours) Max. 5' Centers

E- 3/16" Saw Cut Joints, 1½" Deep (within 12 hours) Max. 30' Centers

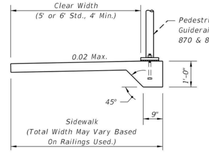
F- ½" Expansion Joint When Run Of Sidewalk Exceeds 120'. Intermediate locations when called for in the plans or at locations as directed by the Engineer.

G- Cold Joint With Bond Breaker, Tooled

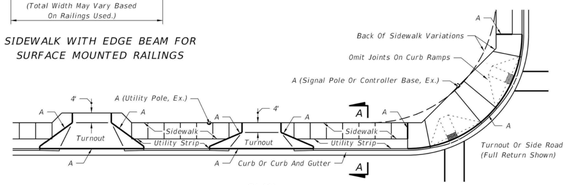
SIDEWALK JOINTS

NOTES FOR CONCRETE SIDEWALK ON CURBED ROADWAYS

1. Sidewalks shall be constructed in accordance with Specification Section 522. Sidewalk curb ramps shall include detectable warnings and be constructed in accordance with Index No. 304. Detectable warnings are not required where sidewalks intersect urban flared turnouts.
2. Bond breaker material can be any impermeable coated or sheet membrane or preformed material having a thickness of not less than 6 mils nor more than ½".
3. For turnouts see Index No. 515.
4. Construct sidewalks with 1' thick Edge Beam through the limits of any surface mounted Pedestrian/Bicycle Picket Railing or Pipe Guiderail shown in the plans.

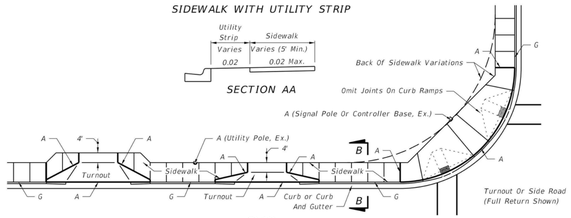


SIDEWALK WITH EDGE BEAM FOR SURFACE MOUNTED RAILINGS

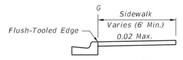


PLAN
SIDEWALK WITH UTILITY STRIP

SECTION AA



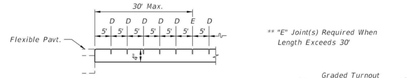
PLAN
SIDEWALK WITHOUT UTILITY STRIP



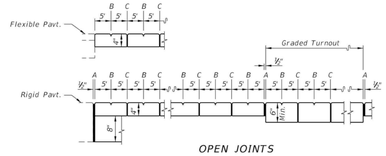
SECTION BB

CONCRETE SIDEWALK ON CURBED ROADWAYS

LAST REVISION 07/01/13	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	CONCRETE SIDEWALK	INDEX NO. 310	SHEET NO. 1 of 2



SAWED JOINTS



OPEN JOINTS

LONGITUDINAL SECTIONS
(NOT TO SCALE)

JOINT LEGEND

A- ½" Expansion Joints (Preformed Joint Filler)

B- ⅛" Dummy Joints, Tooled

C- 3/16" Formed Open Joints

D- 3/16" Saw Cut Joints, 1½" Deep (96 Hour) Max. 5' Centers

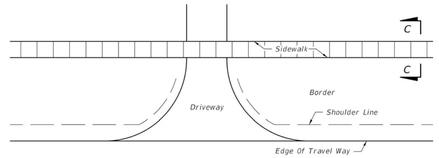
E- ½" Saw Cut Joints, 1½" Deep (12 Hour) Max. 30' Centers

F- ½" Expansion Joint When Run Of Sidewalk Exceeds 120'. Intermediate locations when called for in the plans or at locations as directed by the Engineer.

SIDEWALK JOINTS

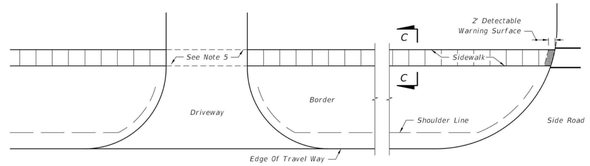
NOTES FOR CONCRETE SIDEWALKS ON UNCURBED ROADWAYS

1. Sidewalks shall be constructed in accordance with Specification Section 522.
2. Detectable Warnings shall conform to the requirements described in Index No. 304. Detectable Warnings are not required for sidewalks that run continuous through driveways.
3. For TURNOUTS see Index No. 515.
4. Construct sidewalks with a 1'-0" thick Edge Beam through the limits of any surface mounted Pedestrian/Bicycle Picket Railing or Pipe Guiderail shown in the plans (see SIDEWALK WITH EDGEBEAM FOR SURFACE MOUNTED RAILINGS detail).
5. When driveways are newly constructed, reconstructed, or altered, cross slopes for discontinuous sidewalks shall not exceed 0.02.



PLAN
CONTINUOUS SIDEWALK

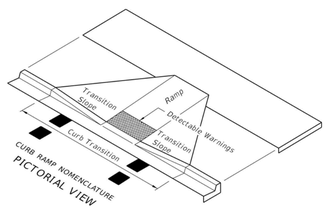
SECTION CC



PLAN
DISCONTINUOUS SIDEWALK

CONCRETE SIDEWALK ON UNCURBED ROADWAYS

LAST REVISION 07/01/13	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	CONCRETE SIDEWALK	INDEX NO. 310	SHEET NO. 2 of 2



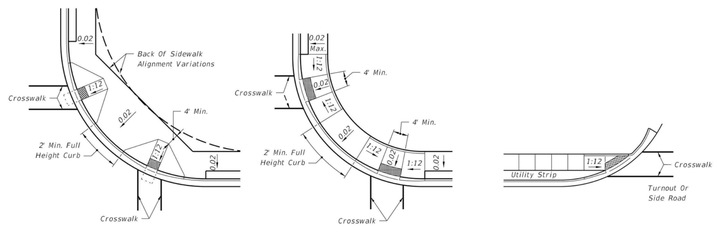
LEGEND

Detectable Warnings

GENERAL NOTES

1. Sidewalk curb ramps shall be constructed at locations that will provide continuous unobstructed pedestrian circulation path to pedestrian areas, elements and facilities within the right of way and to accessible pedestrian routes on adjacent sites. Curbed facilities with sidewalks and those without sidewalks are to have curb ramps constructed for all intersections and turnouts with curbed returns. To accommodate curb ramps, partial curb returns are to extend to the limits prescribed in Index No. 515. Ramps constructed at locations without sidewalks are to have a landing constructed at the top of each ramp, see LANDINGS FOR CURB RAMPS WITHOUT SIDEWALKS.
2. When altering existing pedestrian facilities, where existing restricted conditions preclude the accommodation of a ramp slope of 1:12, a ramp slope between 1:12 and 1:10 is permitted for a rise of 6" maximum. Where compliance with the requirements for cross slope cannot be fully met, the minimum feasible cross slope shall be provided. Ramp slopes are not required to exceed 15' in length.
3. If sidewalk curb ramps are located where pedestrians must walk across the ramp, then provide transition slopes to the ramp; otherwise a sidewalk curb may be required.
4. All sidewalks, ramps, and landings with a cross slope of 0.02 shown in this Index are 0.02 maximum. All ramp slopes shown in this Index as 1:12 are 1:12 maximum. Landings shall have slopes less than or equal to 0.02 in any direction.
5. Grade breaks at the top and bottom of ramps shall be parallel to each other and perpendicular to the direction of the ramp slope.
6. Where a sidewalk curb ramp is constructed within existing curb, curb and gutter and/or sidewalk, the existing curb or curb and gutter shall be removed to the nearest joint beyond the curb transition or to the extent that no remaining section of curb or curb and gutter is less than 5' long. Existing sidewalks shall be removed to the nearest joint beyond the transition slope or to the extent that no remaining section of sidewalk is less than 5' long. For CONCRETE SIDEWALK details refer to Index 310.
7. Sidewalk curb ramp alpha-identifications are for reference purposes (plans, permits, etc.). Alpha-identifications CR-I and CR-J were intentionally omitted.
8. Detectable warnings shall extend the full width of the ramp and to a depth of 2'. Detectable warnings shall be constructed in accordance with Specification Section 527. For the layout of detectable warnings, refer to the TYPICAL PLACEMENT OF DETECTABLE WARNINGS details. Detectable warnings shall not be provided on transition slopes.
9. When detectable warnings are placed on a slope greater than 5%, domes shall be aligned with the centerline of the ramp; otherwise domes are not required to be aligned.
10. Detectable warnings shall be required on sidewalks at:
    a. Intersecting roads,
    b. Median Crossings greater than or equal to 6' in width,
    c. Railroad Crossings,
    d. Signalized driveways.
11. Detectable Warnings – Acceptance Criteria:
    a. Color and texture shall be complete and uniform.
    b. 90% of individual truncated domes shall be in accordance with the Americans with Disabilities Act Standards for Transportation Facilities, Section 705.
    c. There shall be no more than 4 non-compliant domes in any one square foot.
    d. Non-compliant domes shall not be adjacent to other non-compliant domes.
    e. Surfaces shall not deviate more than 0.10" from a true plane.
12. Detectable warnings shall be installed no greater than 5' from the back of curb or edge of pavement.
13. Detectable warnings shall not be installed over grade breaks.

LAST REVISION 07/01/13	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX NO. 304	SHEET NO. 1 of 7



RADIAL SIDEWALK RAMPS

LINEAR SIDEWALK RAMPS

NOTES:

1. Where crosswalk markings are used, ramps shall fall within the crosswalk limits. A clear space of 48" minimum is required at the bottom of the ramp within a marked crosswalk. If crosswalk markings are not present, a clear space of 48" minimum is required at the bottom of the ramp outside of active travel lanes.
2. Crosswalk widths and configurations vary; must conform to Index No. 17344 and 17346.

TYPICAL PLACEMENT OF SIDEWALK CURB RAMPS AT CURBED RETURNS

TABLE OF DETECTABLE WARNINGS

CURB RAMP TYPE	CURB RADIUS (FT)	TOTAL AREA (SF)
CR-A	N/A	8
CR-B	N/A	8
CR-C	N/A	8
CR-D	25	11
CR-E	N/A	8
CR-F	10	9
	20	11
	25	13
	30	14
CR-G	10	10
	20	11
	25	12
	30	14
CR-H	20	8
	25	8
	30	8
CR-K	N/A	8
CR-L	10	18
	15	13
FLUSH SHOULDER OPTION A	10	11
	20	14
	25	15
	30	17
	40	19
	50	21
FLUSH SHOULDER OPTION B	10	10
	20	10
	25	10

Note:
Due to construction applications, CR-L is the only curb ramp for which a detectable warning quantity was calculated using a curb radius of 15'.

For flush shoulder options with 5' sidewalks, the back of sidewalk is measured at 10' from the edge of traveled way.

AREAS OF DETECTABLE WARNINGS FOR SIDEWALK CURB RAMP AND FLUSH SHOULDER APPLICATIONS

LAST REVISION 07/01/13	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX NO. 304	SHEET NO. 7 of 7

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-9400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET
FDOT CONCRETE SIDEWALK DETAILS

Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-204
Sheet

Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:22:20 AM - P:\IER66798\200-66798-15001\CAD\SHEETFILES\C-203 TO C-206 DETAILS.DWG - MARQUEZ, GERMAIN

SITE DESCRIPTION

SITE LOCATION & DESCRIPTION:
NE 6th AVENUE FROM NE 137th STREET TO NE 148th STREET.

TOTAL DISTURBED AREA:
(SEE PLANS).

NATURE OF CONSTRUCTION ACTIVITY:
WATER MAIN REPLACEMENT WITH NEW 12" DIP WM (SEE PLANS), THE EXISTING 6" WM WILL BE PLACED OUT OF SERVICE AND GROUT FILLED.

SEQUENCE OF CONSTRUCTION AND SOIL DISTURBING ACTIVITIES:
IMPLEMENTATION OF MAINTENANCE OF TRAFFIC AND STORMWATER POLLUTION
PREVENTION BEST MANAGEMENT PRACTICES WITHIN CATCH BASINS.
EXCAVATION AND INSTALLATION OF WATER MAIN PIPING
CONNECTION OF EXISTING WATER SERVICES TO INSTALLED WATER MAIN
RESTORATION OF PAVEMENT/CURB/SIDEWALK AREAS

POTENTIAL POLLUTANTS ONSITE:
SAND & SEDIMENTATION
ROCK
ASPHALT
CLEANING SOLVENTS
GASOLINE
OILS
GREASE
PAINT
CEMENT
PAPER
CARDBOARD
DOMESTIC GARBAGE

EXISTING SOIL DATA
(SEE GEOTECHNICAL REPORT).

POLLUTION SOURCE CONTROLS

EROSION AND SEDIMENT CONTROLS
STABILIZATION PRACTICES:
ACCEPTABLE PRACTICES INCLUDE TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, GEOTEXTILES, SOD STABILIZATION, VEGETATIVE BUFFER STRIPS, FENCE PROTECTION OF TREES, PRESERVATION OF MATURE VEGETATION. STABILIZATION SHALL BE INITIATED NO MORE THAN 14 DAYS IN AREAS WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. CONTRACTOR SHALL MAINTAIN A RECORD OF DATES WHEN MAJOR GRADING ACTIVITIES OCCUR, WHEN CONSTRUCTION TEMPORARILY OR PERMANENTLY CEASES AND WHEN STABILIZATION IS INITIATED AND COMPLETED

STRUCTURAL PRACTICES:
ACCEPTABLE STRUCTURAL PRACTICES INCLUDE SILT FENCES, HAY BALES, EARTH DIKES, DRAINAGE SWALES, SEDIMENT TRAPS, CHECK DAMS, TURBIDITY BARRIERS, SUBSURFACE DRAINS, PIPE SLOPE DRAINS, LEVEL SPREADERS, STORM DRAIN INLET PROTECTION, ROCK OUTLET PROTECTION, REINFORCED SOIL RETAINING SYSTEMS, GABIONS, AND TEMPORARY OR PERMANENT SEDIMENT BASINS.
STRUCTURAL PRACTICES SHOULD BE PLACED ON UPLAND SOILS UNLESS SPECIFIED OTHERWISE BY THE FLORIDA WETLAND RESOURCE OR ENVIRONMENTAL RESOURCE PERMIT.
FOR DRAINAGE LOCATIONS SERVING MORE THAN 5 ACRES OF DISTURBED LAND AT ONE TIME, A SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE PER ACRE DRAINED OR EQUIVALENT MEASURE MUST BE PROVIDED UNTIL FINAL STABILIZATION OF THE SITE.
FOR DRAINAGE LOCATIONS SERVING LESS THAN 5 ACRES OF DISTURBED LAND AT ONE TIME, SEDIMENT BASINS OR TRAPS SHOULD BE USED.
SEDIMENT BASINS SHALL BE INSTALLED IN LOCATION OF PERMANENT STORM WATER RETENTION FACILITIES IF POSSIBLE, WHEN PERMANENT STORM WATER RETENTION PONDS ARE TO BE USED AS TEMPORARY SEDIMENT BASINS ACCUMULATED SEDIMENTS MUST BE COMPLETELY REMOVED AND EXCAVATION FOR TEMPORARY SEDIMENT BASIN SHALL NOT EXCEED INCHES ABOVE THE BOTTOM ELEVATION OF THE PERMANENT STORM WATER POND.
SILT FENCES OR EQUIVALENT SEDIMENT CONTROLS ARE REQUIRED FOR ALL SIDE SLOPE AND DOWN SLOPE BOUNDARIES OF THE CONSTRUCTION AREA.

STORM DRAIN INLETS SHALL BE PROTECTED FROM SEDIMENT LOADING DURING THE COURSE OF CONSTRUCTION BY THE USE OF SEDIMENT FILTERS OR AN EXCAVATED IMPOUNDING AREA PROPERLY INSTALLED AND MAINTAINED AROUND THE STORM DRAIN DROP OR CURB INLET. INLET PROTECTION SHALL REMAIN IN PLACE UNTIL PERMANENT STABILIZATION OF DISTURBED AREA TO KEEP POLLUTANTS FORM ENTERING THE CONVEYANCE SYSTEM.

EROSION CONTROL DEVICES TO BE INSTALLED IN ACCORDANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS, JANUARY 200 (OR LATEST EDITION).

STORMWATER MANAGEMENT CONTROLS & BEST MANAGEMENT PRACTICES
WATER QUALITY IS BEING PROVIDED THROUGH LAKES ON SITE PRIOR TO DISCHARGE THROUGH BERM.
POLLUTION RETARDANT BAFFLES IN STRUCTURES PRIOR TO RUNOFF. SITE WILL HOLD RUNOFF UNTIL THE 25YR-3D STORM MAX. STAGE.

WASTE, SANITARY, AND SEPTIC TANK DISPOSAL CONTROLS
SOLID WASTE PRODUCED ON-SITE SHALL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS. SOLID WASTE IS TO BE HAULED OFF-SITE AND DISPOSED OF AT A LICENSED LAND FILL. NO SOLID MATERIALS INCLUDING BUILDING MATERIALS SHALL BE DISCARDED INTO SURFACE WATERS. SPECIFIC LOCATIONS ONSITE SHALL BE DESIGNATED FOR WASTE RECEPTACLES AND A COLLECTION SCHEDULE MUST BE ESTABLISHED. SPECIAL PROVISIONS SHALL BE MADE FOR THE COLLECTION, STORAGE, AND DISPOSAL OF TOXIC AND HAZARDOUS SUBSTANCES IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL HEALTH AND SAFETY REGULATIONS.

WASTE COLLECTION AREAS ARE TO BE MAINTAINED AND ARE TO BE LOCATED IN LOCATIONS LEAST LIKELY TO BE AFFECTED BY CONCENTRATED STORMWATER RUNOFF.

CONTRACTOR SHALL ENSURE AND DEMONSTRATE COMPLIANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS DURING WASTE, SANITARY, AND SEPTIC TANK DISPOSAL.

ADEQUATE SANITARY FACILITIES SHALL BE PROVIDED ON SITE FOR WORKERS IN ACCORDANCE WITH APPLICABLE HEALTH REGULATIONS.

OFF-SITE VEHICLE TRACKING OF SEDIMENTS CONTROLS
OFF-SITE VEHICLE TRACKING OF SEDIMENTS AND GENERATION OF DUST SHALL BE MINIMIZED. CALCIUM CHLORIDE, OILS OR OTHER CHEMICAL DUST CONTROL AGENTS SHOULD NOT BE USED ON CONSTRUCTION ROADS. AREAS SHALL BE PERIODICALLY WATERED TO MINIMIZE DUST.

A STONE STABILIZED PAD SHALL BE LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON THE CONSTRUCTION SITE TO AVOID TRANSPORTING SEDIMENTS TO OFF-SITE ROADS.

SPECIALLY DESIGNATED WASH AREAS FOR WASHING OF VEHICLES SHALL BE LOCATED WHERE WASH WATER WILL NOT DISCHARGE DIRECTLY TO SURFACE WATERS OR STORM WATER CONVEYANCE SYSTEMS. WASH AREAS SHALL BE LOCATED WHERE WASH WATER CAN SPREAD OUT AND EVAPORATE OR INFILTRATE DIRECTLY INTO THE GROUND OR WHERE RUNOFF CAN BE COLLECTED IN TEMPORARY HOLDING OR SEEPAGE BASIN. WASH AREAS SHALL HAVE GRAVEL BASES TO MINIMIZE MUD GENERATION.

DEMOLITION CONTROLS
CALCIUM CHLORIDE, OILS OR OTHER CHEMICAL DUST CONTROL AGENTS SHOULD NOT BE USED TO CONTROL DUST. AREAS SHALL BE PERIODICALLY WATERED TO MINIMIZE THE TRANSPORT OF AIRBORNE POLLUTANTS. WATER OR SLURRY USED TO CONTROL DUST MUST BE RETAINED ONSITE AND NOT ALLOWED TO RUN INTO SURFACE WATERS OR STORM WATER CONVEYANCE SYSTEMS.

FERTILIZER AND PESTICIDE CONTROLS
FERTILIZERS:
A. ALL FERTILIZERS SHALL BE STORED IN A DRY STORAGE AREA PROTECTED FROM RAINFALL AND PONDING.
B. NO FERTILIZER CONTAINING IN EXCESS OF 2% PHOSPHATE/PHOSPHORUS (P2O5) PER GUARANTEED ANALYSIS LABEL (AS DEFINED BY CHAPTER 576, FLORIDA STATUTES) SHALL BE APPLIED TO TURFGRASS, PASTURES, PADDOCKS, OR USED IN NURSERIES UNLESS JUSTIFIED BY A SOIL TEST.
C. FERTILIZER CONTAINING IN EXCESS OF 2% PHOSPHATE/PHOSPHORUS (P2O5) PER GUARANTEED ANALYSIS LABEL SHALL NOT BE APPLIED WITHIN 5 FEET OF THE EDGE OF WATER OR WITHIN 5 FEET OF A DRAINAGE FACILITY.
D. ALL FERTILIZER SHALL BE APPLIED SUCH THAT SPREADING OF FERTILIZER ON ALL IMPERVIOUS SURFACES IS MINIMIZED.
E. LIQUID FERTILIZERS CONTAINING IN EXCESS OF 2% PHOSPHATE/PHOSPHORUS (P2O5) PER GUARANTEED ANALYSIS LABEL SHALL NOT BE APPLIED THROUGH AN IRRIGATION SYSTEM WITHIN 10 FEET OF THE EDGE OF WATER OR WITHIN 10 FEET OF A DRAINAGE FACILITY.
F. LIQUID FERTILIZERS CONTAINING IN EXCESS OF 2% PHOSPHATE/PHOSPHORUS (P2O5) PER GUARANTEED ANALYSIS LABEL SHALL NOT BE APPLIED THROUGH HIGH OR MEDIUM MIST APPLICATION OR DIRECTED SPRAY APPLICATION WITHIN 10 FEET OF THE EDGE OF WATER OR WITHIN 10 FEET OF A DRAINAGE FACILITY.

PESTICIDES:
THE USE OF PESTICIDES, FUNGICIDES, OR HERBICIDES IS LIMITED TO PRODUCTS THAT MEET THE FOLLOWING CRITERIA:
A. MUST BE CONSISTENT WITH THE USDA-NRCS SOIL RATING FOR SELECTING PESTICIDES.
B. MUST HAVE THE MINIMUM POTENTIAL FOR LEACHING INTO GROUNDWATER OR LOSS FROM RUNOFF.
C. PRODUCTS MUST BE EPA APPROVED.
D. THE HALF-LIFE OF PRODUCTS USED SHALL NOT EXCEED SEVENTY (70) DAYS

NON-STORMWATER DISCHARGES

NON-STORMWATER DISCHARGES WHICH MUST BE IDENTIFIED ON THE POLLUTION PREVENTION PLAN INCLUDE:
FIRE HYDRANT FLUSHINGS
WATERS USED TO SPRAY OFF LOOSE SOLIDS FROM VEHICLES OR CONTROL DUST
POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS
IRRIGATION DRAINAGE
ROUTINE EXTERNAL BUILDING WASHDOWN WHICH DOES NOT USE DETERGENTS
PAVEMENT WASHWATERS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED AND WHERE DETERGENTS ARE NOT USED.
AIR CONDITIONING CONDENSATE
SPRINGS
FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH PROCESS MATERIALS SUCH AS SOLVENTS.

APPROVED STATE OR LOCAL PLANS

ALL REQUIREMENTS APPLICABLE TO PROTECTION OF SURFACE WATER QUALITY, SEDIMENT, AND EROSION CONTROL STATED AS GENERAL AND/OR SPECIFIC PROJECT CONDITIONS OF STATE, REGIONAL AND/OR LOCAL ENVIRONMENTAL RESOURCE PERMITS FOR THE PROJECT ARE INCLUDED AS PART OF THIS PLAN. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS STIPULATED IN THE STATE, REGIONAL, AND/OR LOCAL PERMITS.

BCEPD SWM LICENSE NO. _____ APPROVAL DATE: _____ EXPIRATION DATE: _____
FDOT DRAINAGE PERMIT NO. _____ APPROVAL DATE: _____ EXPIRATION DATE: _____

MAINTENANCE

A REGULAR MAINTENANCE PROGRAM SHOULD INSURE INSPECTION AND MAINTENANCE OF BMPS BY THE CONTRACTOR WEEKLY AND/OR AFTER SIGNIFICANT RAIN EVENTS. ANY FAILURES SHOULD BE ANALYZED TO PREVENT RECURRENCE. SUBSTANTIAL CHANGES TO THE APPROVED PLAN MUST BE MADE OR REVIEWED BY THE DESIGNER AND APPROVED BY THE APPROPRIATE REGULATORY AGENCY. POLLUTION PREVENTION CONTROLS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT AND WHEN SEDIMENT HAS OVER ACCUMULATED. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA IN SUCH A MANNER THAT IT WILL NOT ERODE.

EXAMPLE MAINTENANCE ROUTINES INCLUDE:
SILT BARRIERS:
SEDIMENT MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ½ THE HEIGHT OF THE BARRIER.
STORM DRAIN INLET PROTECTION:
SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ½ OF THE DESIGN DEPTH OF THE TRAP. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
SEDIMENT TRAPS:
SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ½ THE DESIGN VOLUME OF THE TRAP.
THE STRUCTURE SHOULD BE CHECKED REGULARLY TO INSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE HEIGHT OF THE OUTLET SHOULD BE CHECKED TO ENSURE THAT ITS CENTER IS AT LEAST ONE FOOT (30 CM) BELOW THE TOP OF THE EMBANKMENT.
TURBIDITY BARRIERS:
THE DEVELOPER/OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE FILTER CURTAIN FOR THE DURATION OF THE PROJECT TO ENSURE THE CONTINUOUS PROTECTION OF THE WATERCOURSE. SHOULD REPAIRS TO THE GEOTEXTILE FABRIC BECOME NECESSARY, THERE ARE NORMALLY REPAIR KITS AVAILABLE FROM THE MANUFACTURERS; MANUFACTURER'S INSTRUCTIONS MUST BE FOLLOWED TO ENSURE THE ADEQUACY OF THE REPAIR. WHEN THE CURTAIN IS NO LONGER REQUIRED AS DETERMINED BY THE INSPECTOR, THE CURTAIN AND RELATED COMPONENTS SHALL BE REMOVED IN SUCH A MANNER AS TO MINIMIZE TURBIDITY.
SEDIMENT SHALL BE REMOVED AND THE ORIGINAL DEPTH (OR PLAN ELEVATION) RESTORED BEFORE REMOVING THE CURTAIN. REMAINING SEDIMENT SHALL BE SUFFICIENTLY SETTLED BEFORE REMOVING THE CURTAIN. ANY SPOILS MUST BE TAKEN TO AN UPLAND AREA AND STABILIZED.

INSPECTIONS

QUALIFIED PERSONNEL (PROVIDED BY THE DISCHARGER) SHALL INSPECT ALL POINTS OF DISCHARGE INTO WATERS OF THE U.S. OR TO A MUNICIPAL SEPARATE STORM SEWER SYSTEM AND ALL DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.25 INCHES OR GREATER. WHERE SITES HAVE BEEN FINALLY STABILIZED, SAID INSPECTION SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH UNTIL THE NOTICE OF TERMINATION (NOT) IS FILED.

SITE OPERATOR'S NPDES INSPECTION REPORT FORM

INSPECTOR: _____ DATE/TIME: _____

DATE OF LAST RAINFALL: _____ RAINFALL AMOUNT: _____

SITE DESCRIPTION
PROJECT NAME AND LOCATION: _____

DISCHARGE LOCATIONS: WHERE ACCESSIBLE, INSPECT TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE.

FINDING: _____

DISTURBED AREAS: INSPECT FOR EVIDENCE OF, OR POTENTIAL FOR, POLLUTANTS ENTERING THE STORM WATER SYSTEM.

FINDING: _____

MATERIALS STORAGE AREAS: INSPECT FOR EVIDENCE OF, OR POTENTIAL FOR, POLLUTANTS ENTERING THE STORM WATER SYSTEM.

FINDING: _____

STRUCTURAL CONTROL DEVICES: INSPECT TO ENSURE PROPER OPERATION.

FINDING: _____

VEHICLE INGRESS/EGRESS LOCATIONS: INSPECT FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING.

FINDING: _____

STORM WATER MANAGEMENT FACILITIES: INSPECT TO ENSURE PROPER INSTALLATION.

FINDING: _____

RECOMMENDED REVISIONS TO PPP BASED ON THIS REPORT:

_____

REVISIONS TO BE COMPLETED ON OR BEFORE: _____ BY: _____ BY: _____

CERTIFICATION
I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

SIGNED: _____ DATE: _____

CERTIFICATION

OWNER/OPERATOR'S CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

SIGNED: _____ DATE: _____

PRINTED NAME/TITLE: _____
(OWNER/OPERATOR OR AUTHORIZED AGENT)

CONTRACTOR/SUBCONTRACTOR CERTIFICATION

ANY AND ALL CONTRACTORS AND SUBCONTRACTORS LISTED IN THE POLLUTION PREVENTION PLAN MUST COMPLETE THE FOLLOWING CERTIFICATION TO BE KEPT WITH THE PLAN.

SITE LOCATION: _____

CONTRACTING FIRM INFORMATION: _____

NAME: _____

ADDRESS: _____

_____

_____

PHONE NO.: (___) _____

I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE FINAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES, PUBLISHED IN THE FEDERAL REGISTER ON MARCH 31, 1998, THAT AUTHORIZES THE STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION SITE IDENTIFIED AS PART OF THIS CERTIFICATION.

SIGNED: _____ DATE: _____

PRINTED NAME/TITLE: _____

CONTRACTOR/ SUB-CONTRACTOR COMPANY NAME	AUTHORIZED REPRESENTATIVE (PRINT NAME/TITLE)	SIGNATURE	DATE	PHONE NO.

REFERENCES

PALM BEACH COUNTY NPDES - STORMWATER MANAGEMENT INSPECTOR TRAINING PROGRAM AND CONSTRUCTION BMPs
PREPARED BY MOCK ROOS (FEB. 2001)

FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS
(JAN. 2008)

EROSION DRAW 4.0
DEVELOPED BY SALIX APPLIED EARTHCARE AND JOHN MCCULLAH AND ASSOCIATES

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-9400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE _____

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

POLLUTION PREVENTION NOTES & SPECS

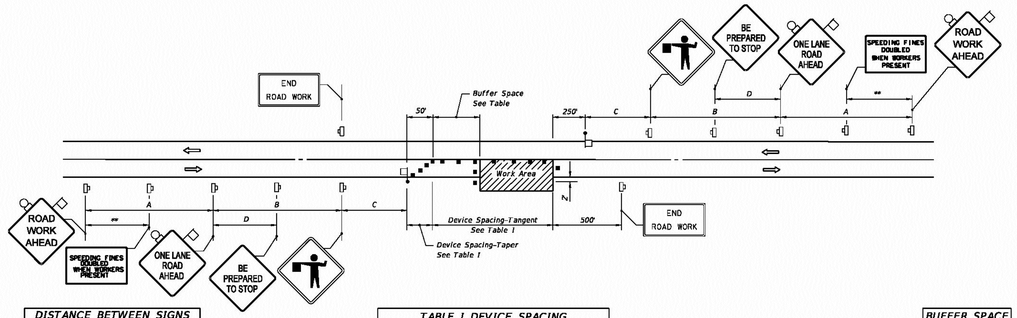
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-205
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

1/19/2016 8:22:24 AM - P:\ER\66798\200-66798-15001\CAD\SHEETFILES\C-203 TO C-206 DETAILS.DWG - MARQUEZ, GERMAIN



DISTANCE BETWEEN SIGNS

Speed (mph)	Spacing (ft.) A	B	C	D
40 or less	200	200	200	100
45	350	350	350	175
50	500	500	500	250
55 or greater	2640	1640	1000	500

* The ROAD WORK 1 MILE sign may be used as an alternate to the ROAD WORK AHEAD sign.

** 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

*** BE PREPARED TO STOP sign may be omitted for speeds of 45 MPH or less.

TABLE I DEVICE SPACING

Speed (mph)	Max. Distance Between Devices (ft.) Cones or Tubular Markers Taper	Tangent	Type I or Type II Barricades or Vertical Panels or Drums Taper	Tangent
25 to 45	20	50	20	50
50 to 70	20	50	20	100

BUFFER SPACE

Speed (mph)	Dist. (ft.)
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

SYMBOLS

- Work Area
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Flagger
- Automated Flagger Assistance Devices (AFAD), With Gate
- Lane Identification + Direction of Traffic

GENERAL NOTES

1. Work operations shall be confined to one traffic lane, leaving the opposite lane open to traffic.
2. Additional one-way control may be effected by the following means:
   1. Flag-carrying vehicle;
   2. Official vehicle;
   3. Pilot vehicles;
   4. Traffic signals.

   When flaggers are the sole means of one-way control, the flaggers shall be in sight of each other or in direct communication at all times.
3. The ONE-LANE ROAD signs are to be fully covered and the FLAGGER signs either removed or fully covered when no work is being performed and the highway is open to two-way traffic.
4. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
5. The two channelizing devices directly in front of the work area and the one channelizing device directly at the end of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
6. For Temporary Raised Rumble Strips, general TCZ requirements and additional information, refer to Index No. 600.

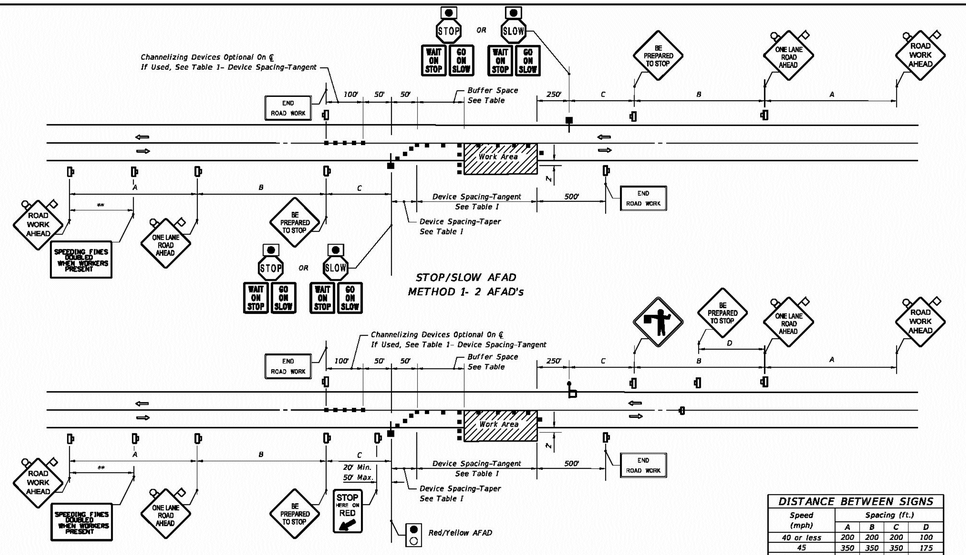
DURATION NOTES

1. 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. No sight obstructions to vehicles approaching the work area for a distance equal to the buffer space.
   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.

CONDITIONS

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

LAST REVISION	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX NO.	SHEET NO.
07/01/14					603	1 of 2



STOP/SLOW AFAD METHOD 1- 2 AFAD's

RED/YELLOW AFAD METHOD 2- 1 AFAD AND A FLAGGER

DISTANCE BETWEEN SIGNS

Speed (mph)	Spacing (ft.) A	B	C	D
40 or less	200	200	200	100
45	350	350	350	175
50	500	500	500	250
55 or greater	2640	1640	1000	500

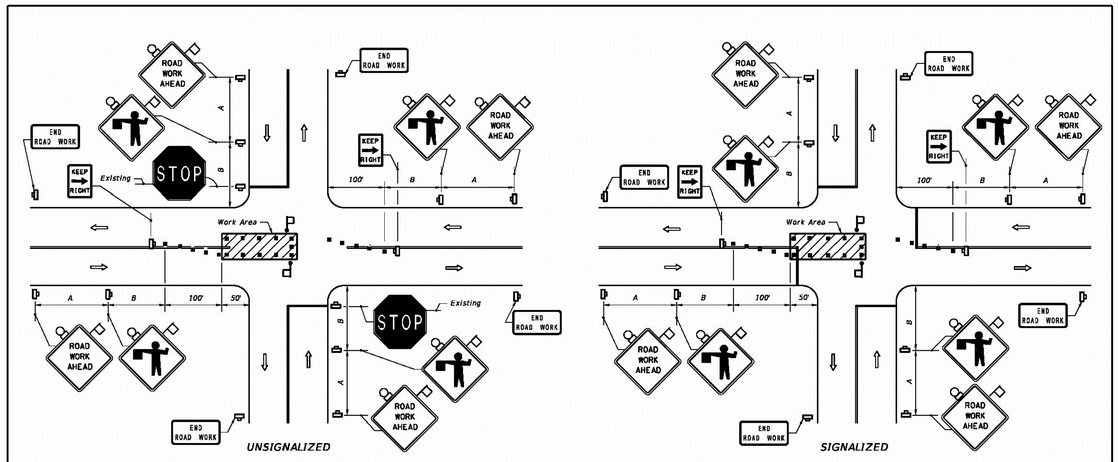
* (See Sheet 1 Notes)
** (See Sheet 1 Notes)

AUTOMATED FLAGGER ASSISTANCE DEVICES (AFAD) NOTES

1. AFAD's shall only be used in situations where there is only one lane of approaching traffic in the direction to be controlled.
2. When used at nighttime, the AFAD flagging station shall be illuminated.
3. When the AFAD is not in use, it shall be moved outside the clear zone or be shielded by a barrier or crash cushion and the signs associated with the AFAD shall be removed or covered.
4. Duration Notes shown on sheet 1 of 2 do not apply when AFAD are used.
5. 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 AFAD:
   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.

A single flagger may simultaneously operate two AFAD (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 AFAD(s);
   b. The flagger has an unobstructed view of approaching traffic in both directions; and
   c. For Method 1, the AFAD's are less than 800 ft apart. For Method 2, the AFAD and the flagger are less than 800 ft apart.
   d. Ensure two trained flaggers are available on-site to provide normal flagging operations should an AFAD malfunction.

LAST REVISION	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX NO.	SHEET NO.
07/01/10					603	2 of 2



SYMBOLS

- Work Area
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- 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 crosswalk 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 Temporary Raised Rumble Strips, general TCZ requirements and additional information, refer to Index No. 600.

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.

DISTANCE BETWEEN SIGNS

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

CONDITIONS

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

LAST REVISION	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK IN INTERSECTION	INDEX NO.	SHEET NO.
07/01/14					604	1 of 1

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-9400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

MOT DETAILS

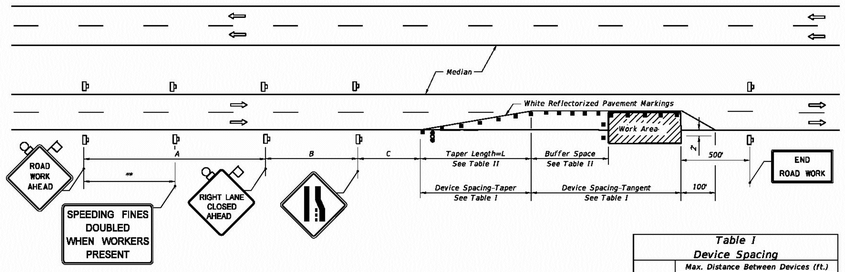
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-206
Sheet

Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:22:29 AM - P:\ER\66798\200-66798-15001\CAD\SHEETFILES\C-203 TO C-206 DETAILS.DWG - MARQUEZ, GERMAIN



DISTANCE BETWEEN SIGNS

Speed	Spacing (ft.)		
	A	B	C
40 mph or less	200	200	200
45 mph	350	350	350
50 mph	500	500	500
*55 mph or greater	2640	1640	1000

* The ROAD WORK 1 MILE sign may be used as an alternate to the ROAD WORK AHEAD sign and the RIGHT LANE CLOSED ½ MILE sign may be used as an alternate to the RIGHT LANE CLOSED AHEAD sign.

** 500' beyond the ROAD WORK AHEAD sign or midway between signs whichever is less.

SYMBOLS

- Work Area
- Sign With 18"x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board

GENERAL NOTES

1. Work operations shall be confined to one traffic lane, leaving the adjacent lane open to traffic.
2. On undivided highways the median signs as shown are to be omitted.
3. When work is performed in the median lane on divided highways, the channelizing device plan is inverted and left lane closed and lane ends signs substituted for the right lane closed and lane end signs.

   The same applies to undivided highways with the following exceptions:
   a. Work shall be confined within one median lane.
   b. Additional barricades, cones, or drums shall be placed along the centerline abutting the work area and across the trailing end of the work area.

   When work on undivided highways occurs across the centerline so as to encroach on both median lanes, the inverted plan is applied to the approach of both roadways.
4. Signs and traffic control devices are to be modified in accordance with INTERMITTENT WORK STOPPAGE details (sheet 2 of 2) when no work is being performed and the highway is open to traffic.
5. 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.
6. When paved shoulders having a width of 8 ft. or more are closed, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the travel way. See Index No. 612 for shoulder taper formulas.
7. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
8. This TCZ plan does not apply when work is being performed in the middle lane(s) of a six or more lane highway. See Index No. 614.
9. For general TCZ requirements and additional information, refer to Index No. 600.

Table I
Device Spacing

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Table II
Buffer Space and Taper Length

Speed (mph)	Buffer Space	Taper Length (12' Lateral Transition)	
	Dist. (ft.)	L (ft.)	Notes (Merge)
25	155	125	$L = \frac{WS^2}{60}$
30	200	180	
35	250	245	
40	305	320	
45	360	540	L = WS
50	425	600	
55	495	660	
60	570	720	
65	645	780	
70	730	840	

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use Where:

L = Length of taper in feet
W = Width of lateral transition in feet
S = Posted speed limit (mph)

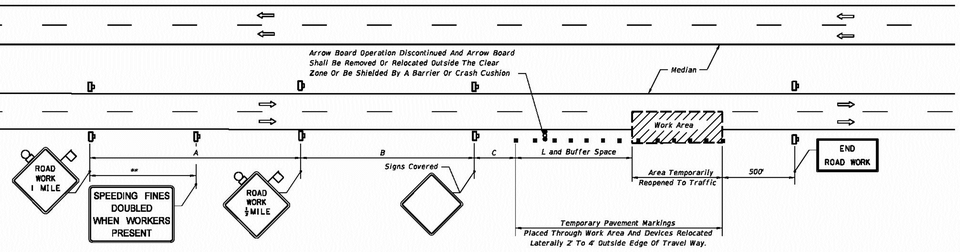
DURATION NOTES

1. Temporary white edgeline may be omitted for work operations less than 3 consecutive calendar days.
2. For work operations up to approximately 15 minutes, signs, channelizing devices, arrow board, and buffer space may be omitted if all of the following conditions are met:
   a. Speed limit is 45 mph or less.
   b. No sight obstructions to vehicles approaching the work area for a distance equal to the buffer space and the taper length combined.
   c. Volume and complexity of the roadway has been considered.
   d. The closed lane is occupied by a class 5 or larger, medium duty truck(s) with a minimum gross weight vehicle rating (GWVR) of 16,001 lb with high-intensity, rotating, flashing, oscillating, or strobe lights mounted above the cab height and operating.
3. For work operations up to 60 minutes, arrow board and buffer space may be omitted if conditions a, b, and c in DURATION NOTE 2 are met, and vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

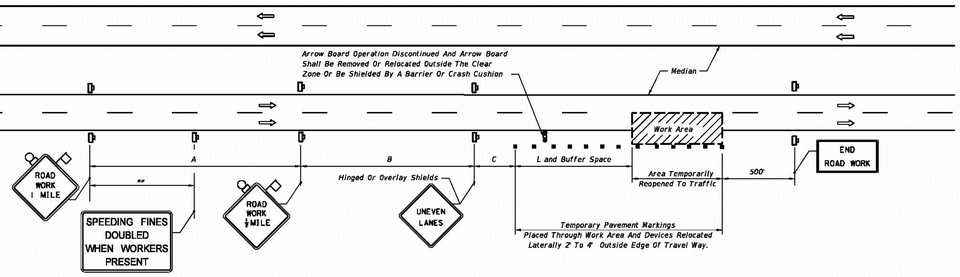
CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON THE LANE ADJACENT TO EITHER SHOULDER AND THE AREA 2' OUTSIDE THE EDGE OF TRAVEL WAY.

LAST REVISION 07/01/09	REVISION DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	MULTILANE, WORK WITHIN TRAVEL WAY MEDIAN OR OUTSIDE LANE	INDEX NO. 613	SHEET NO. 1 of 2



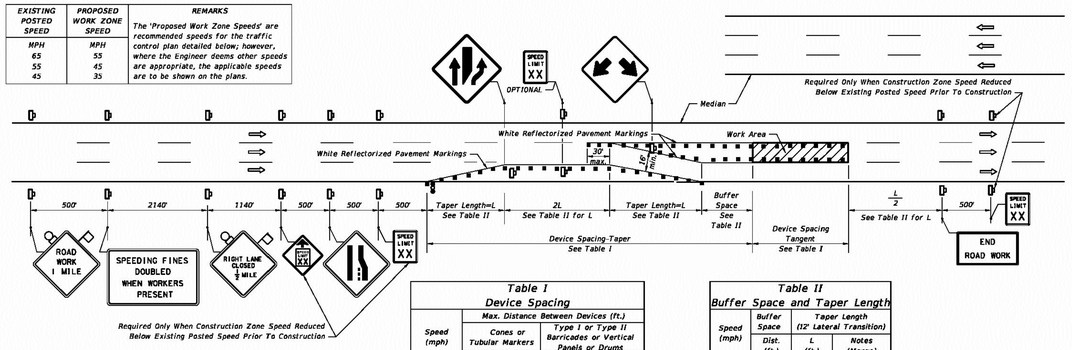
EVEN PAVEMENT



UNEVEN PAVEMENT

INTERMITTENT WORK STOPPAGE - LANE REOPENED TO TRAFFIC

LAST REVISION 07/01/05	REVISION DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	MULTILANE, WORK WITHIN TRAVEL WAY MEDIAN OR OUTSIDE LANE	INDEX NO. 613	SHEET NO. 2 of 2



EXISTING POSTED SPEED	PROPOSED WORK ZONE SPEED	REMARKS
MPH	MPH	The 'Proposed Work Zone Speeds' are recommended speeds for the traffic control plan detailed below; however, where the Engineer deems other speeds are appropriate, the applicable speeds are to be shown on the plans.
65	55	
55	45	
45	35	

Table I
Device Spacing

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Table II
Buffer Space and Taper Length

Speed (mph)	Buffer Space	Taper Length (12' Lateral Transition)	
	Dist. (ft.)	L (ft.)	Notes (Merge)
25	155	125	$L = \frac{WS^2}{60}$
30	200	180	
35	250	245	
40	305	320	
45	360	540	L = WS
50	425	600	
55	495	660	
60	570	720	
65	645	780	
70	730	840	

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use formula for L shown in the notes column.
Where:
L = Length of taper in feet
W = Width of lateral transition in feet
S = Posted speed limit (mph)

CONDITION NOTES

1. The RIGHT LANE CLOSED and lane reduction signs are to be removed or fully covered when no work is being performed and the center lane is opened to traffic.
2. For work performed in the median or outside lane, refer to Index No. 613.
3. When the lane closure exceeds a continuous 24 hour period, all existing pavement markings within the realignment which conflict with the revised traffic pattern are to be removed and removable pavement marking used for marking new edge lines and centerline.

GENERAL NOTES

1. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
2. For general TCZ requirements and additional information, refer to Index No. 600.

DURATION NOTES

1. Temporary pavement markings may be omitted for work operations less than 3 days.

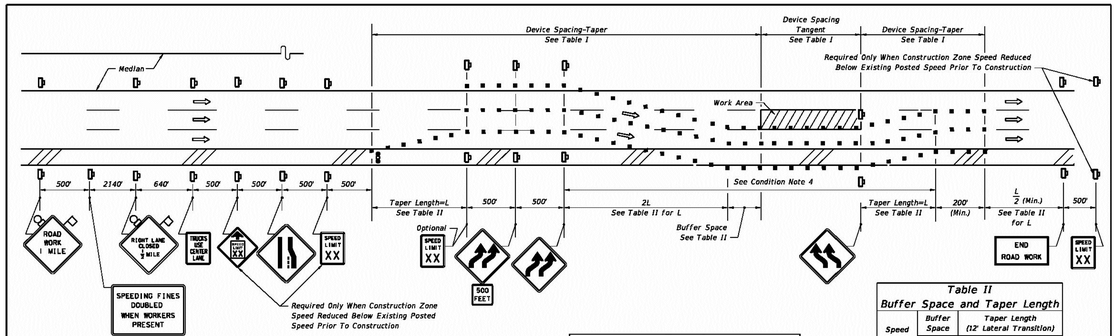
SYMBOLS

- Work Area
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board
- Lane Identification + Direction of Traffic

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON ANY PORTION OF A CENTER LANE OF A MULTILANE HIGHWAY, AND TWO DRIVING LANES ARE MAINTAINED ON THE TRAVEL WAY.

LAST REVISION 07/01/07	REVISION DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	MULTILANE, WORK WITHIN TRAVEL WAY, CENTER LANE	INDEX NO. 614	SHEET NO. 1 of 2



EXISTING POSTED SPEED	PROPOSED WORK ZONE SPEED	REMARKS
MPH	MPH	The 'Proposed Work Zone Speeds' are recommended speeds for the traffic control plan detailed below; however, where the Engineer deems other speeds are appropriate, the applicable speeds.
65	55	
55	45	
45	35	

Table I
Device Spacing

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Table II
Buffer Space and Taper Length

Speed (mph)	Buffer Space	Taper Length (12' Lateral Transition)	
	Dist. (ft)	L (ft)	Notes (Merge)
25	155	125	$L = \frac{WS^2}{60}$
30	200	180	
35	250	245	
40	305	320	
45	360	540	L = WS
50	425	600	
55	495	660	
60	570	720	
65	645	780	
70	730	840	

When Buffer Space cannot be attained due to geometric constraints, the greatest attainable length shall be used, but not less than 200 ft.

For lateral transitions other than 12', use formula for L shown in the notes column.
Where:
L = Length of taper in feet
W = Width of lateral transition in feet
S = Posted speed limit (mph)

CONDITION NOTES

1. See General Notes, Sheet 1.
2. Length of time that traffic is using shoulder should be minimized. For example, remove lane closure and lane shift at night (unless performing night work) if practical.
3. The RIGHT LANE CLOSED, lane reduction and reverse curve signs are to be removed or fully covered when no work is being performed and the travel way is open to traffic.
4. When the lane closure exceeds a continuous 24 hour period, all existing pavement markings within the realignment which conflict with the revised traffic pattern are to be removed and removable pavement markings used for marking new edge lines and centerlines.
5. For general TCZ requirements and additional information, refer to Index No. 600.

SYMBOLS

- Work Area
- Sign With 18" x 18" (Min.) Orange Flag And Type B Light
- Channelizing Device (See Index No. 600)
- Work Zone Sign
- Advance Warning Arrow Board

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON ANY PORTION OF A CENTER LANE OF A MULTILANE HIGHWAY, AND TWO DRIVING LANES ARE MAINTAINED, AND, THE OUTSIDE SHOULDER PAVEMENT IS TEMPORARILY USED AS A TRAVEL LANE.

LAST REVISION 07/01/09	REVISION DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	MULTILANE, WORK WITHIN TRAVEL WAY, CENTER LANE	INDEX NO. 614	SHEET NO. 2 of 2

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-9400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

BY	MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET
MOT DETAILS

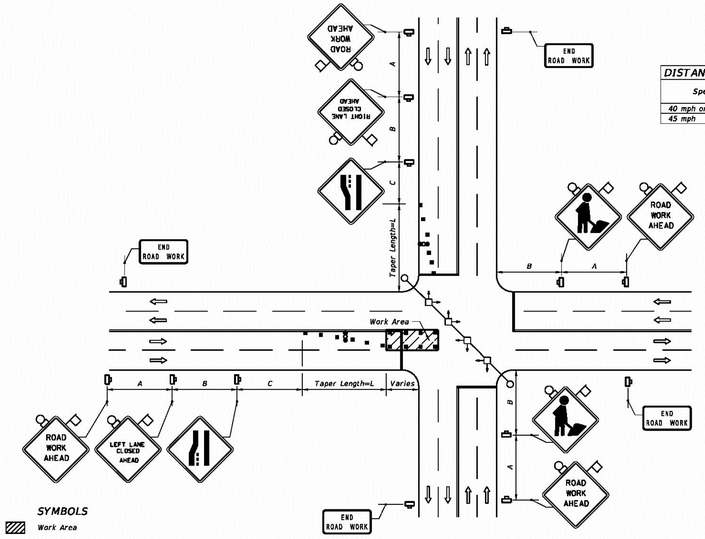
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-207
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

1/19/2016 8:22:35 AM - P:\ER\66798\200-66798-15001\CAD\SHEETFILES\C-203 TO C-206 DETAILS.DWG - MARQUEZ, GERMAIN



SIGNALIZED

DISTANCE BETWEEN SIGNS			
Speed	Spacing (ft.)		
	A	B	C
40 mph or less	200	200	200
45 mph	350	350	350

Table II Taper Length - Merge (12' Lateral Transition)		
Speed (mph)	L (ft.)	Notes (Merge)
25	125	$L = \frac{WS^2}{60}$
30	180	
35	245	
40	320	
45	540	L=WS

For lateral transitions other than 12', use formula for L shown in the notes column. Where:
L = Length of taper in feet
W = Width of lateral transition in feet
S = Posted speed limit (mph)

GENERAL NOTES

1. *The WORKERS 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 crosswalk should be closed using the information in Index No. 660.*
4. *Dual signs are required for divided roadways.*
5. *Maximum spacing between barricades, vertical panels, cones, tubular markers and drums shall not be greater than 25'.*
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.*

DURATION NOTES

1. *Signs and arrow board 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 twice the taper length.*
   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.*

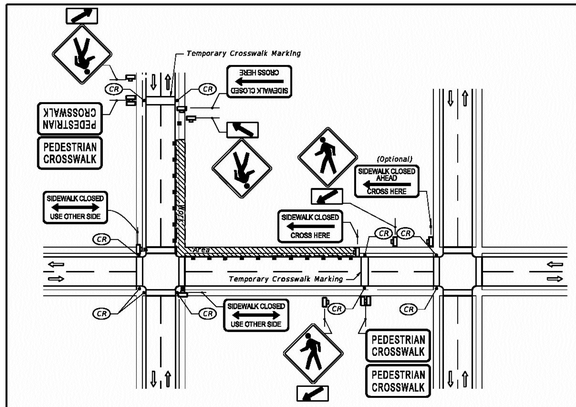
CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH ON THE PAVEMENT REQUIRING THE CLOSURE OF AT LEAST ONE MEDIAN TRAFFIC LANE.

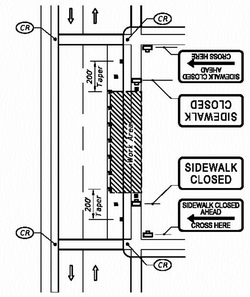
SYMBOLS

- *Work Area*
- *Sign With 18"x 18" (Min.) Orange Flag And Type B Light*
- *Channelizing Device (See Index No. 600)*
- *Work Zone Sign*
- *Stop Bar*
- *Advance Warning Arrow Board*
- *Lane Identification + Direction of Traffic*

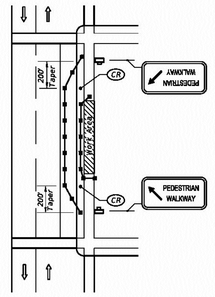
LAST REVISION 07/01/12	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	MULTILANE WORK IN INTERSECTION	INDEX NO. 615	SHEET NO. 1 of 1



CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALKS



MID-BLOCK SIDEWALK CLOSURE



MID-BLOCK SIDEWALK CLOSURE WITH TEMPORARY WALKWAY

GENERAL NOTES

1. *Only the signs controlling pedestrian flows are shown. Other work zone signs will be needed to control traffic on the streets.*
2. *For spacing of traffic control devices and general TCZ requirements refer to Index No. 600. Maximum spacing between barricades, vertical panels, drums or tubular markers shall not be greater than 25'.*
3. *Street lighting should be considered.*
4. *For nighttime closures use Type A flashing warning lights on barricades supporting signs and closing sidewalks. Use Type C steady-burn lights on channelizing devices separating the work area from vehicular traffic.*
5. *Pedestrian traffic signal display controlling closed crosswalks shall be covered or deactivated.*
6. *Post Mounted Signs located near or adjacent to a sidewalk shall have a 7' minimum clearance from the bottom of sign to the sidewalk.*
7. *When construction activities involve sidewalks on both sides of the street, efforts should be made to stage the construction so that both sidewalks are not out of service at the same time.*
8. *In the event that sidewalks on both sides of the street are closed, pedestrians shall be guided around the construction zone.*
9. *Temporary walkways shall be a minimum of 4' wide with a maximum 0.02 cross slope and a maximum 0.05 running slope between ramps. Temporary walkways less than 5' in width shall provide for a 5' x 5' passing space at intervals not to exceed 200'. Temporary ramps shall meet the requirements for curb ramps specified in Index No. 304. Temporary walkway surfaces and ramps shall be stable, firm, slip resistant, and kept free of any obstructions and hazards such as holes, debris, mud, construction equipment, stored materials, etc.*
10. *Temporary ramps and temporary crosswalk markings shall be removed with reopening of the sidewalk, unless otherwise noted in the plans. All work and materials associated with constructing temporary curb ramps and temporary crosswalk markings, removal and disposal of temporary curb ramps and temporary crosswalk markings, and restoration to original condition shall be paid for as Maintenance of Traffic, Lump Sum.*
11. *A pedestrian longitudinal channelizing device shall be placed across the full width of the closed sidewalk.*

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT WORKERS OR THEIR ACTIVITIES ENCROACH ON THE SIDEWALK FOR A PERIOD OF MORE THAN 60 MINUTES.

SYMBOLS

- *Work Area*
- *Channelizing Device (See Index No. 600)*
- *Work Zone Sign*
- CR *Required Locations For Either Temporary Or Permanent Curb Ramps.*
- *Lane Identification + Direction of Traffic*
- *Pedestrian Longitudinal Channelizing Device*

LAST REVISION 07/01/13	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	PEDESTRIAN CONTROL FOR CLOSURE OF SIDEWALKS	INDEX NO. 660	SHEET NO. 1 of 1

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 507-3898 FAX: (786) 439-9400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

BY

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

MOT DETAILS

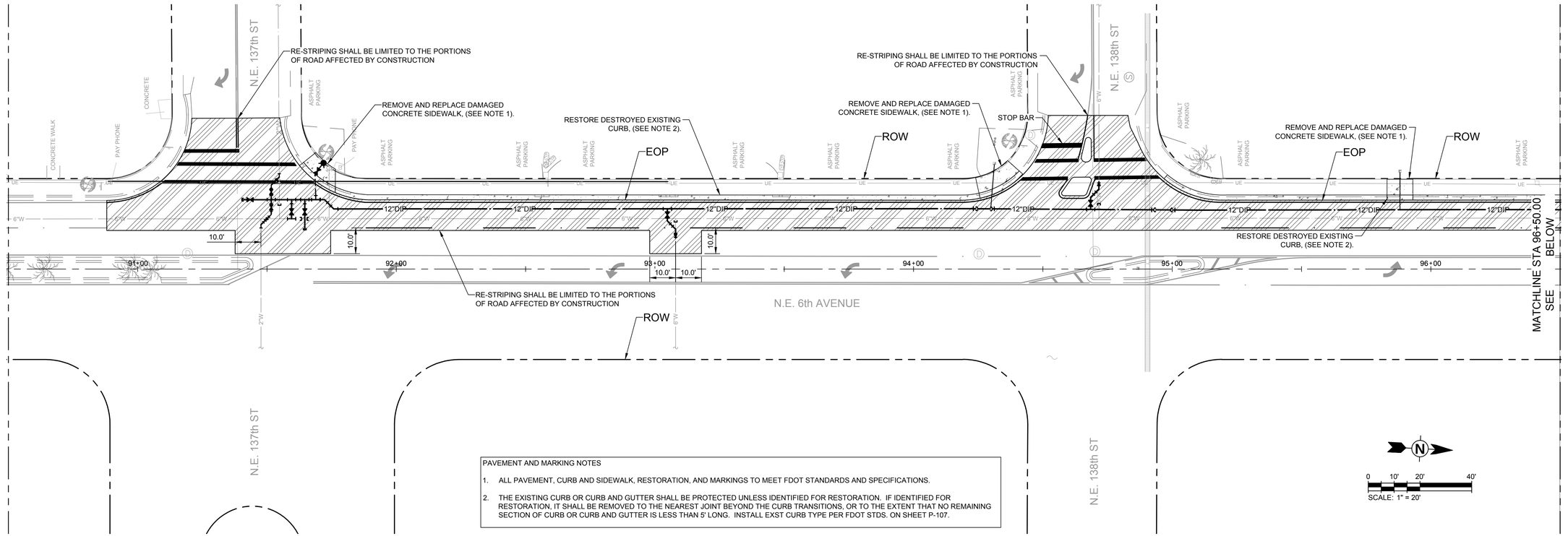
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

C-208
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

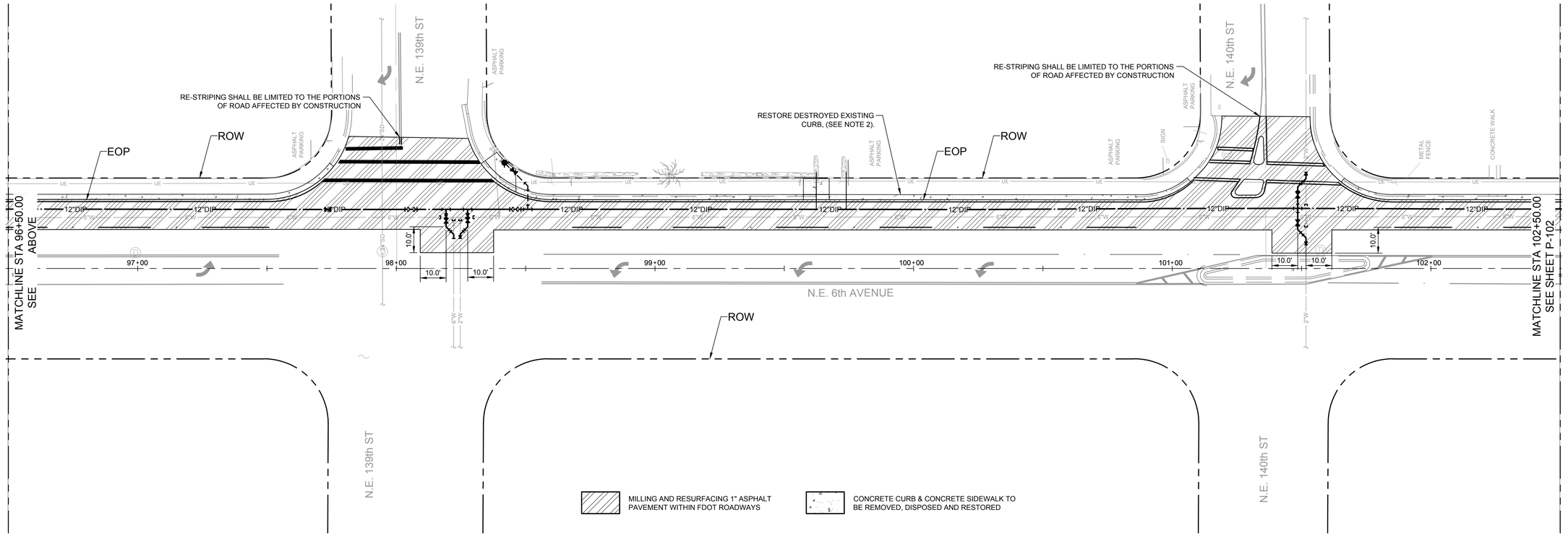
1/19/2016 8:22:38 AM - P:\ER\66798\200-66798-15001\CAD\SHEETFILES\C-203 TO C-206 DETAILS.DWG - MARQUEZ, GERMAIN



PAVEMENT AND MARKING NOTES

1. ALL PAVEMENT, CURB AND SIDEWALK, RESTORATION, AND MARKINGS TO MEET FDOT STANDARDS AND SPECIFICATIONS.
2. THE EXISTING CURB OR CURB AND GUTTER SHALL BE PROTECTED UNLESS IDENTIFIED FOR RESTORATION. IF IDENTIFIED FOR RESTORATION, IT SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS, OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. INSTALL EXST CURB TYPE PER FDOT STDS. ON SHEET P-107.

SCALE: 1" = 20'



MILLING AND RESURFACING 1" ASPHALT PAVEMENT WITHIN FDOT ROADWAYS

CONCRETE CURB & CONCRETE SIDEWALK TO BE REMOVED, DISPOSED AND RESTORED

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PAVEMENT, MARKING & STRIPING PLAN

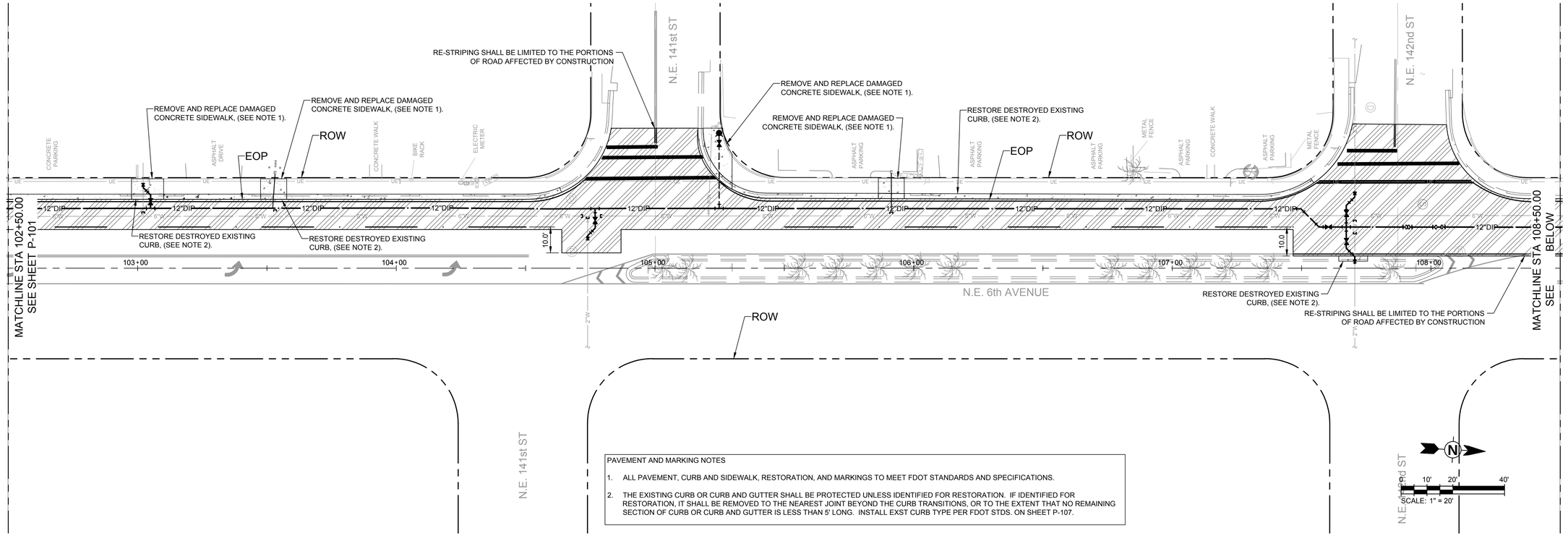
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

P-101
Sheet

Copyright: Tetra Tech

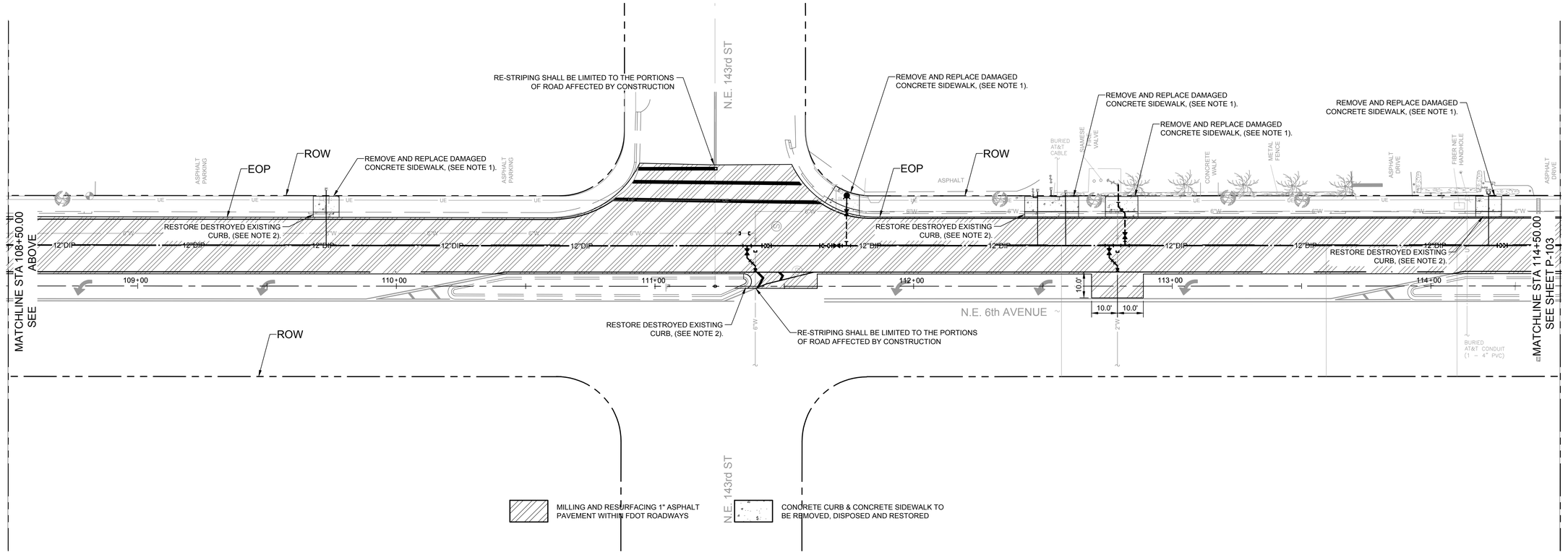
Bar Measures 1 inch

1/19/2016 8:23:23 AM - P:\ER\66798\200-66798-15001\CAD\SHEETFILES\P-PVMNT REST PLANS.DWG - MARQUEZ, GERMAIN



PAVEMENT AND MARKING NOTES

1. ALL PAVEMENT, CURB AND SIDEWALK, RESTORATION, AND MARKINGS TO MEET FDOT STANDARDS AND SPECIFICATIONS.
2. THE EXISTING CURB OR CURB AND GUTTER SHALL BE PROTECTED UNLESS IDENTIFIED FOR RESTORATION. IF IDENTIFIED FOR RESTORATION, IT SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS, OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. INSTALL EXST CURB TYPE PER FDOT STDS. ON SHEET P-107.



MILLING AND RESURFACING 1" ASPHALT PAVEMENT WITHIN FDOT ROADWAYS

CONCRETE CURB & CONCRETE SIDEWALK TO BE REMOVED, DISPOSED AND RESTORED

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PAVEMENT, MARKING & STRIPING PLAN

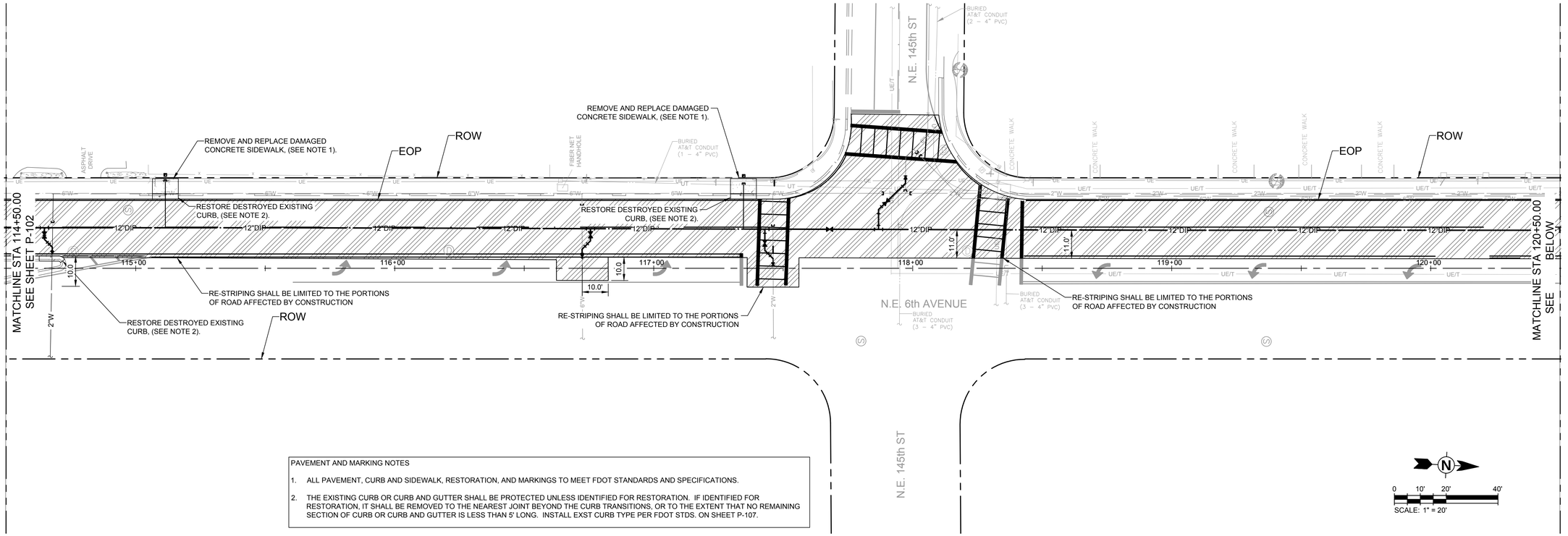
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

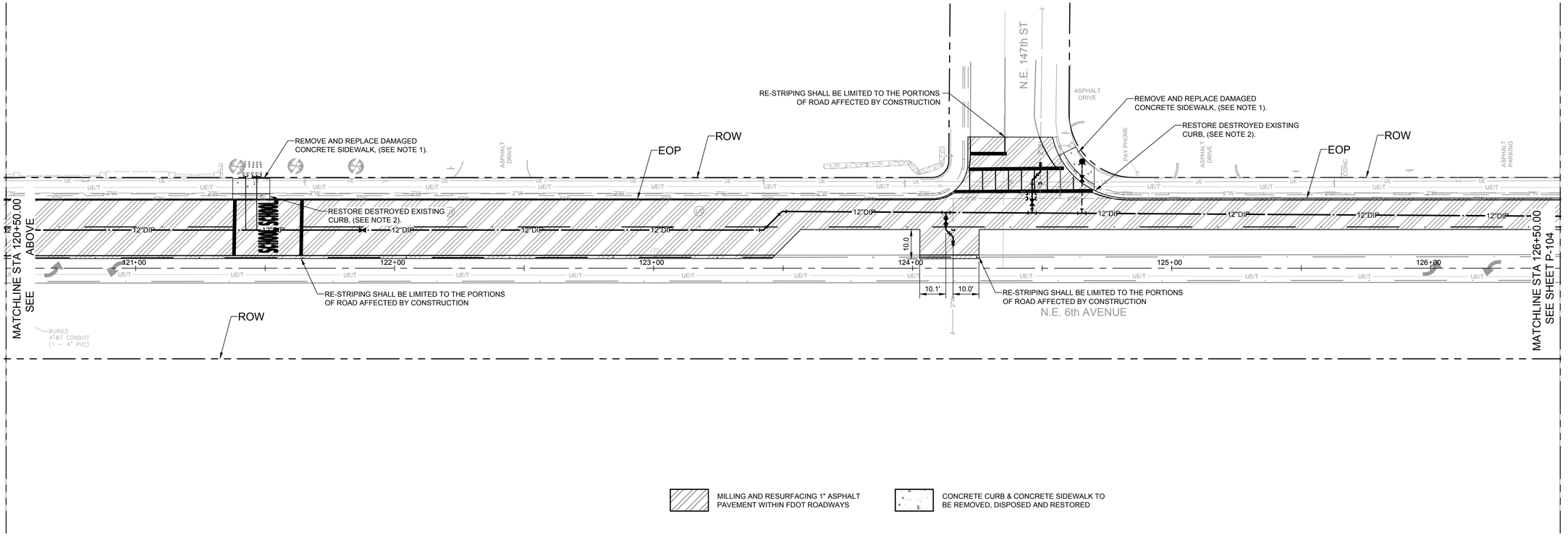
P-102
Sheet

Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:23:26 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\P-PVMNT REST PLANS.DWG - MARQUEZ, GERMAIN





TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PAVEMENT, MARKING & STRIPING PLAN

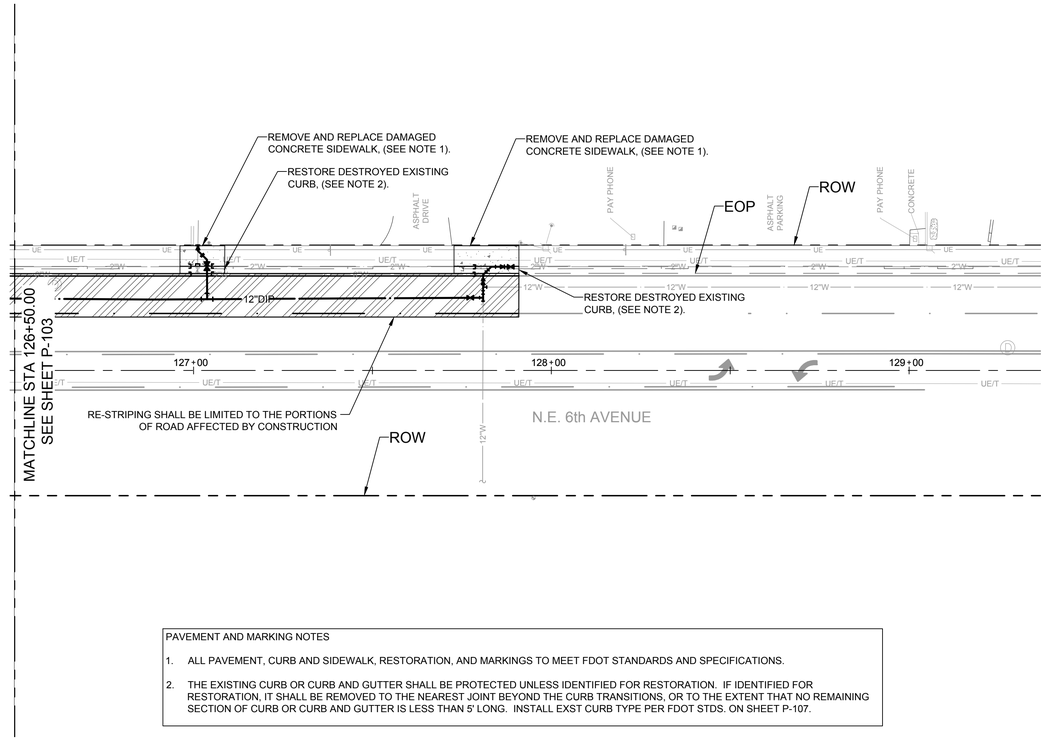
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

P-103
Sheet

Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:23:29 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\P-PVMNT REST PLANS.DWG - MARQUEZ, GERMAIN



PAVEMENT AND MARKING NOTES

1. ALL PAVEMENT, CURB AND SIDEWALK, RESTORATION, AND MARKINGS TO MEET FDOT STANDARDS AND SPECIFICATIONS.
2. THE EXISTING CURB OR CURB AND GUTTER SHALL BE PROTECTED UNLESS IDENTIFIED FOR RESTORATION. IF IDENTIFIED FOR RESTORATION, IT SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS, OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. INSTALL EXST CURB TYPE PER FDOT STDS. ON SHEET P-107.

N

0 10' 20' 40'
SCALE: 1" = 20'

MILLING AND RESURFACING 1" ASPHALT PAVEMENT WITHIN FDOT ROADWAYS

CONCRETE CURB & CONCRETE SIDEWALK TO BE REMOVED, DISPOSED AND RESTORED

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PAVEMENT, MARKING & STRIPING PLAN

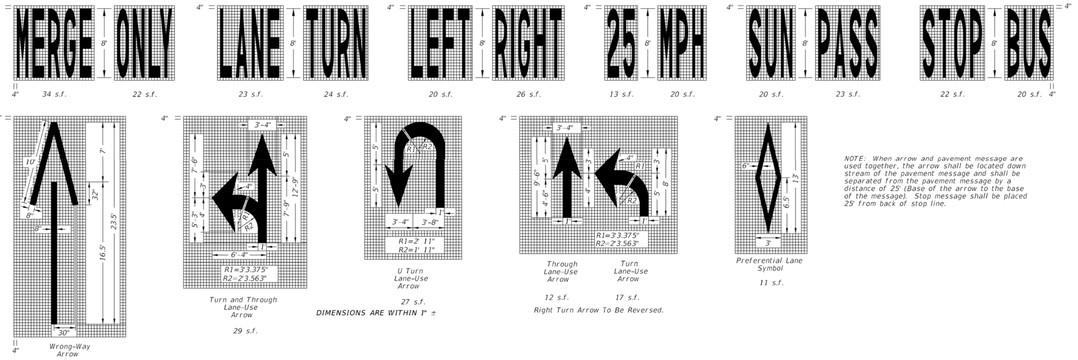
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

P-104
Sheet

Bar Measures 1 inch

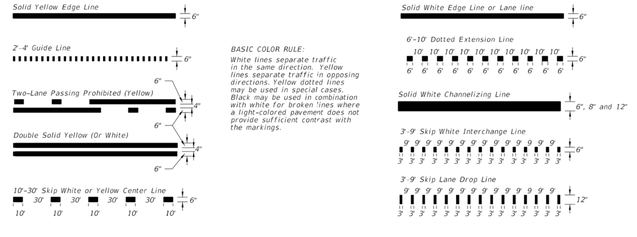
Copyright: Tetra Tech

1/19/2016 8:23:31 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\P-PVMNT REST PLANS.DWG - MARQUEZ, GERMAIN



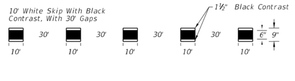
NOTE: When arrow and pavement message are used together, the arrow shall be located down stream of the pavement message and shall be separated from the pavement message by a distance of 25' (Base of the arrow to the base of the message). Stop message shall be placed 25' from back of stop line.

PAVEMENT ARROW AND MESSAGE DETAILS

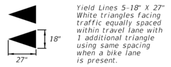


BASIC COLOR RULE:
White lines separate traffic in the same direction. Yellow lines separate traffic in opposing directions. Yellow dotted lines may be used in special cases. Black may be used in combination with white for broken lines where a light-colored pavement does not provide sufficient contrast with the markings.

TYPES OF PAVEMENT MARKING LINES

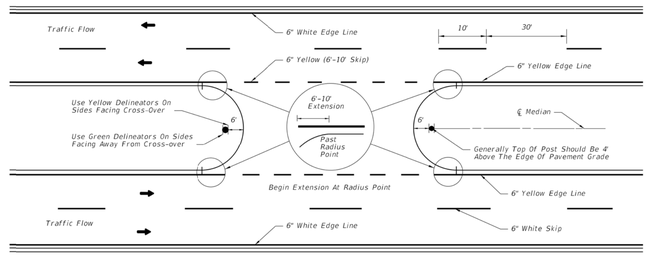


CONTRAST MARKINGS

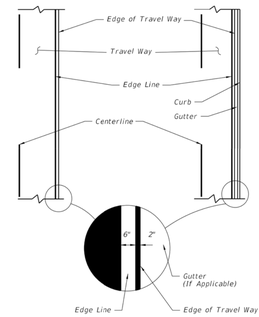


YIELD MARKINGS

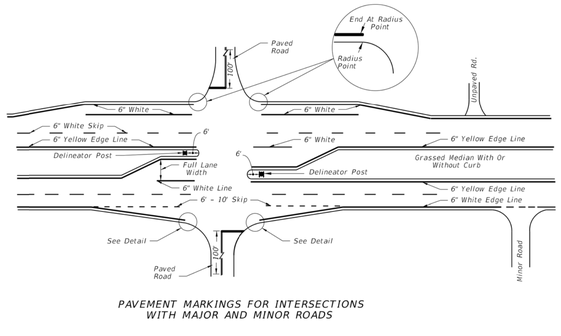
LAST REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	SPECIAL MARKING AREAS	INDEX NO.	SHEET NO.
07/01/14				17346	1 of 14



PAVEMENT MARKINGS AND DELINEATORS FOR MEDIAN CROSS-OVER

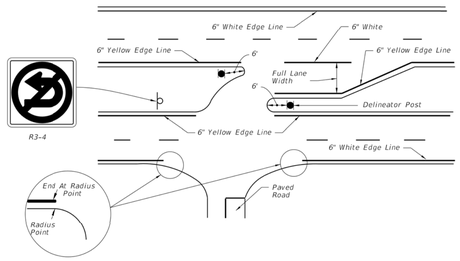


PLACEMENT OF EDGE LINES

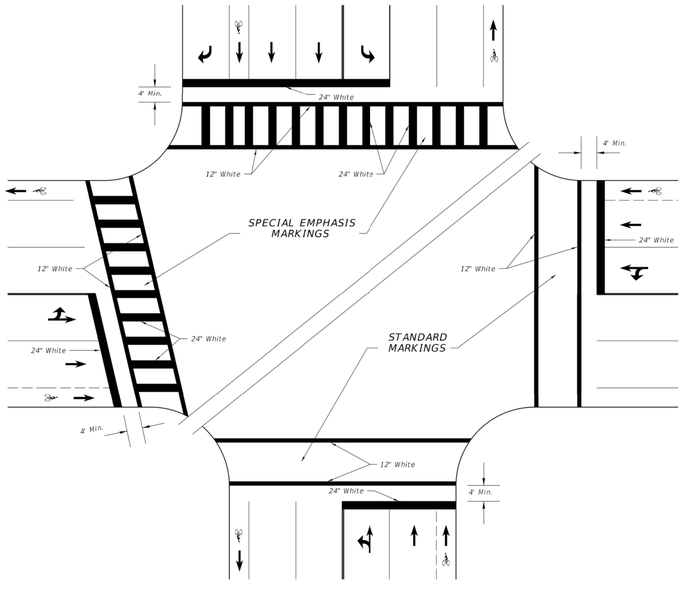


PAVEMENT MARKINGS FOR INTERSECTIONS WITH MAJOR AND MINOR ROADS

NOTE:
Markings applied to median noses shall be yellow in color.



LAST REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	SPECIAL MARKING AREAS	INDEX NO.	SHEET NO.
01/01/10				17346	2 of 14



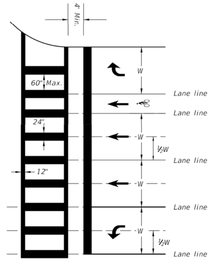
SPECIAL EMPHASIS AND STANDARD CROSSWALKS SIGNALIZED OR STOP SIGN CONTROLLED INTERSECTION

GENERAL NOTES

1. For traffic and pedestrian signal installation, refer to Index No. 17721 through 17890.
2. For public sidewalk curb ramps, refer to Index No. 304.
3. For pavement marking and sign installation, refer to Indexes 11200 through 17356.
4. Crosswalk minimum widths: Intersection Crosswalk 6'. Midblock Crosswalk 10'.
5. All crosswalk marking shall be white.
6. Longitudinal lines in Special Emphasis Crosswalk shall be 24" wide and spaced to avoid the wheel path of vehicles as shown in detail. The maximum space between markings shall not exceed 60". A longitudinal marking shall be centered at each lane line. Additional longitudinal markings shall be placed at the center of each lane (1/2W).

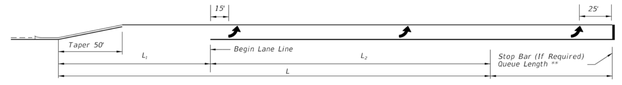
   Where the Crosswalk is skewed to the lane lines, the Special Emphasis longitudal lines should be parallel to the lane line.

   Longitudinal lines in Special Emphasis Crosswalk shall be preformed thermoplastic.



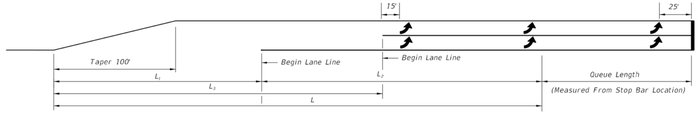
SPECIAL EMPHASIS CROSSWALK MARKING DETAIL

LAST REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	SPECIAL MARKING AREAS	INDEX NO.	SHEET NO.
07/01/14				17346	9 of 14

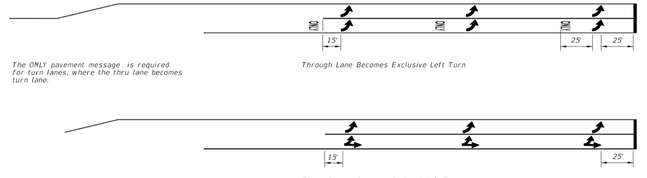


SINGLE LEFT TURNS

** Queue Length Is Measured From The Median Nose Radial Point Or, When A Stop Bar Is Required, From The Stop Bar.

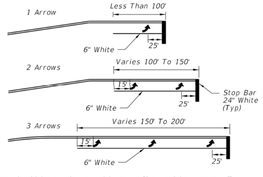


DOUBLE LEFT TURNS



DOUBLE LEFT TURN MARKINGS

Design Speed (mph)	TURN LANES - CURBED AND UNCURBED MEDIANS						
		URBAN CONDITIONS			RURAL CONDITIONS		
	Clearance Distance L1	Brake To Stop Distance L2	Total Decel. Distance L	Clearance Distance L3	Brake To Stop Distance L2	Total Decel. Distance L	Clearance Distance L3
35	70'	75'	145'	110'	— —	— —	— —
40	80'	75'	155'	120'	— —	— —	— —
45	85'	100'	185'	135'	— —	— —	— —
50	105'	135'	240'	160'	185'	290'	160'
55	125'	— —	— —	— —	225'	350'	195'
60	145'	— —	— —	— —	260'	405'	230'
65	170'	— —	— —	— —	290'	460'	270'



Arrow should be evenly spaced between first and last arrow. Turn lanes longer than 200' add one arrow for each 100' additional length.

ARROW SPACING

NOTES:

1. The "Begin Lane Line" locations are based on the standard lengths shown in Design Standard 301. These locations must be adjusted on a case by case basis for turn lanes not meeting the standard lengths.
2. Yellow left turn edge marking may be used adjacent to raised curb or grass medians if lane use is not readily apparent to drivers approaching a left turn storage lane.
3. Refer to Design Standard Index 301 for Roadway Details.
4. This Index also applies to right turn lanes.

LAST REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	SPECIAL MARKING AREAS	INDEX NO.	SHEET NO.
07/01/09				17346	11 of 14

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PAVEMENT RESTORATION AND MARKING DETAILS

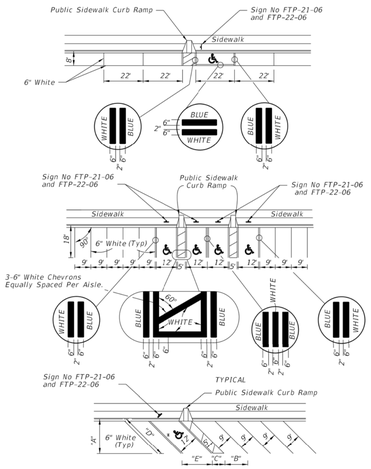
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

P-105
Sheet

Bar Measures 1 inch

Copyright: Tetra Tech

1/19/2016 8:24:15 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\P-501 TO P-505 DETAILS.DWG - MARQUEZ, GERMAIN

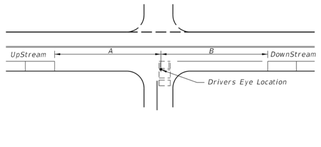


* FOR ACCESSIBLE MARKINGS - SEE ABOVE

	"DIMENSIONS"				
∠ θ	"A"	"B"	"C"	"D"	"E"
45°	19'-1"	12'-9"	7'-0"	27'-0"	17'-0"
60°	20'-1"	10'-5"	5'-9"	23'-2"	13'-10"

NOTES:
1. Dimensions are to the centerline of markings.
2. An Access Aisle is required for each accessible space when angle parking is used.
3. Criteria for pavement markings only, not public sidewalk curb ramp locations. For ramp locations refer to plans.
4. Blue pavement markings shall be tinted to match shade 15180 of Federal Standards 595a.
5. The FTP-22-06 panal shall be mounted below the FTP-21-06 sign.

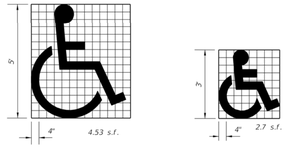
PAVEMENT MARKING FOR PUBLIC SIDEWALK CURB RAMPS IN REST AREAS



SPEED MPH	UP STREAM (A)	DOWN STREAM (B)	
		2 LANE	4 LANE
0-30	85'	60'	45'
35	100'	70'	50'

NOTES
1. Distances measured longitudinally along the street from driver location of entering vehicle to end of parking restriction.
2. Distances applicable to intersecting street, major driveways and other driveways to the extent practical.
3. For nonsignalized intersections, the values above shall be compared with the values for signalized intersections and the maximum restrictions implemented. These restrictions apply to both accessible and nonaccessible parking.

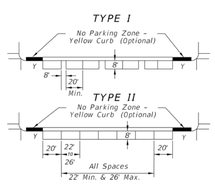
MINIMUM PARKING RESTRICTION FOR NONSIGNALIZED INTERSECTIONS



♿ Use of pavement symbol in accessible parking spaces is optional, when used the symbol shall be 3' or 5' high and white in color.

UNIVERSAL SYMBOL OF ACCESSIBILITY

GENERAL NOTES (Signalized & Nonsignalized)
1. For entrances to a one-way street, the downstream restriction may be reduced to 20'.
2. Parking shall not be allowed within 20' of a crosswalk.
3. All parking lane markings shall be 6" white.
4. Parking lane lines shall be broken at driveways.
5. Refer to Chapter 316, Fla. Statutes, for laws governing parking spaces.
6. Where curb and gutter is used, the gutter pan width may be included as part of the minimum width of parking lane, but desirably the lane width should be in addition to that of the gutter pan.



SPEED LIMIT MPH	SIGNALIZED INTERSECTIONS
0-30	30'
35	50'

DISTANCE FROM CURB RADIUS (Y)

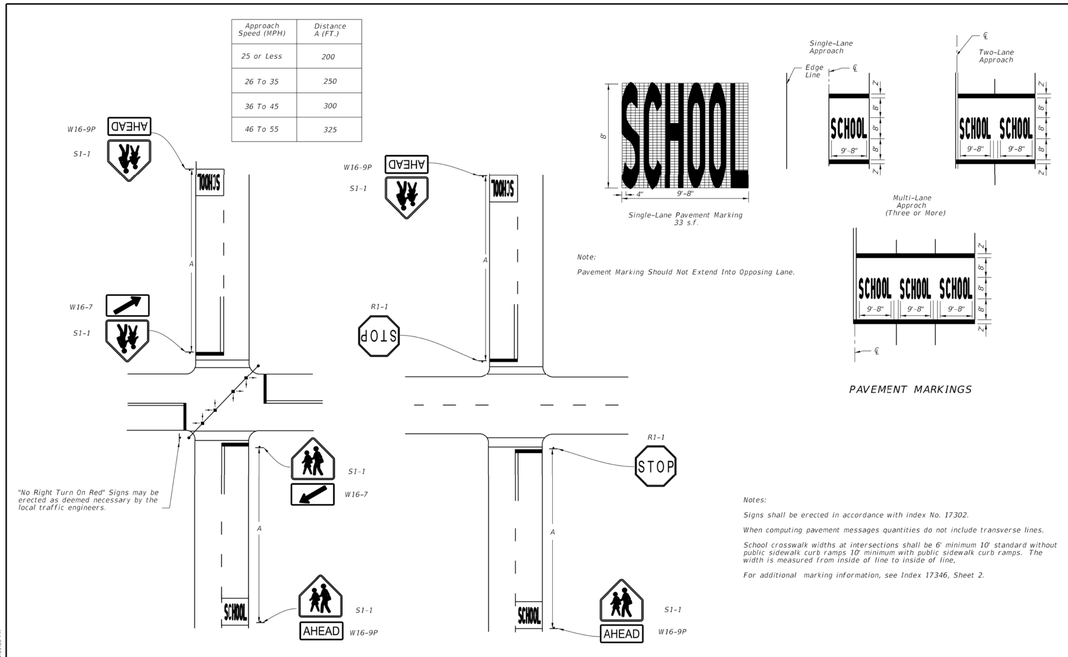
PARKING RESTRICTION (FT.) FOR SIGNALIZED INTERSECTION

NOTES:
1. Parking restrictions measured from curb radius point.
2. Restrictions for accessible parking are the same as those applied to nonsignalized intersections.

MINIMUM PARKING RESTRICTION FOR SIGNALIZED INTERSECTION

LAST REVISION	DESCRIPTION:	2015 DESIGN STANDARDS	SPECIAL MARKING AREAS	INDEX NO.	SHEET NO.
07/01/09				17346	12 of 14

Approach Speed (MPH)	Distance A (FT.)
25 or Less	200
26 To 35	250
36 To 45	300
46 To 55	325



PAVEMENT MARKINGS

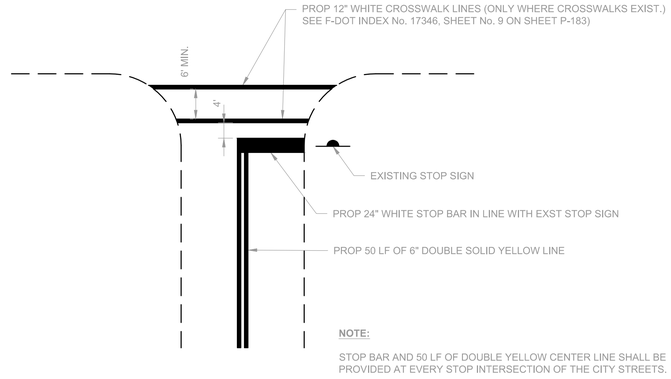
Notes:
Signs shall be erected in accordance with index No. 17302.
When computing pavement messages quantities do not include transverse lines.
School crosswalk widths at intersections shall be 6' minimum 10' standard without public sidewalk curb ramps 10' minimum with public sidewalk curb ramps. The width is measured from inside of line to inside of line.
For additional marking information, see Index 17346, Sheet 2.

1. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK AT A SIGNALIZED INTERSECTION

2. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK AT A STOP CONTROLLED INTERSECTION

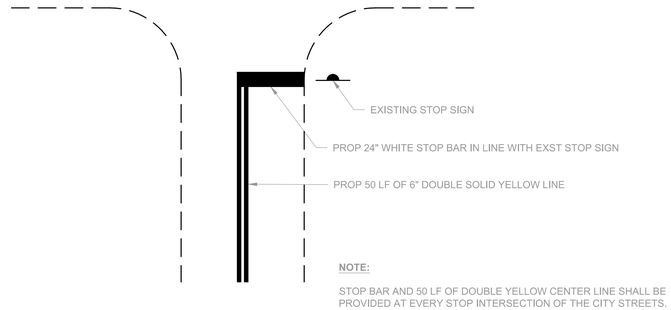
Note:
Special speed restrictions are not normally applicable to these two cases.

LAST REVISION	DESCRIPTION:	2015 DESIGN STANDARDS	SCHOOL SIGNS & MARKINGS	INDEX NO.	SHEET NO.
01/01/12				17344	1 of 6



NOTE:
STOP BAR AND 50 LF OF DOUBLE YELLOW CENTER LINE SHALL BE PROVIDED AT EVERY STOP INTERSECTION OF THE CITY STREETS.

PAVEMENT MARKINGS PLACEMENT DETAIL (WITH CROSSWALK)
SCALE: N.T.S.



NOTE:
STOP BAR AND 50 LF OF DOUBLE YELLOW CENTER LINE SHALL BE PROVIDED AT EVERY STOP INTERSECTION OF THE CITY STREETS.

PAVEMENT MARKINGS PLACEMENT DETAIL (WITHOUT CROSSWALK)
SCALE: N.T.S.

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET
PAVEMENT RESTORATION AND MARKING DETAILS

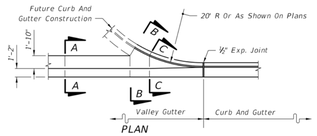
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

P-106
Sheet

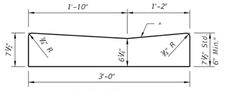
Copyright Tetra Tech

Bar Measures 1 inch

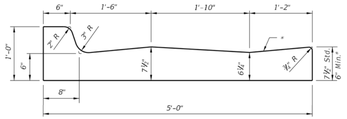
1/19/2016 8:24:18 AM - P:\ER\66798\200-66798-15001\CAD\SHEETFILES\P-501 TO P-505 DETAILS.DWG - MARQUEZ, GERMAIN



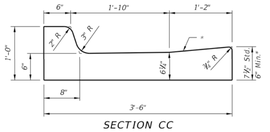
PLAN



SECTION AA



SECTION BB



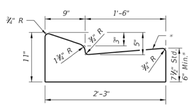
SECTION CC

VALLEY GUTTER

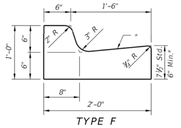
* When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement. The thickness of the lip shall be 6", unless otherwise shown on plans.

◪ Rotate entire section so that gutter cross slope matches slope of adjacent circulating roadway pavement.

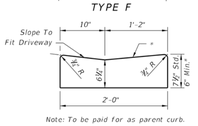
For use adjacent to concrete or flexible pavement. For details depicting usage adjacent to flexible pavement, see Sheet 2. Expansion joint, preformed joint filler and joint seal are required between curb & gutter and concrete pavement only, see Sheet 2.



TYPE E

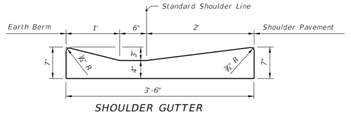


TYPE F

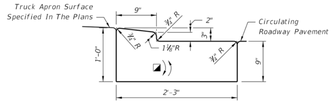


Note: To be paid for as parent curb.

DROP CURB

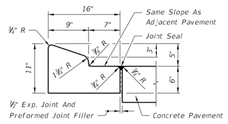


SHOULDER GUTTER



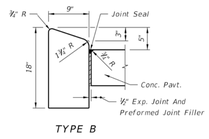
TRAFFIC BEARING SECTION FOR USE IN ROUNDABOUT CENTRAL ISLAND CONSTRUCTION

TYPE RA

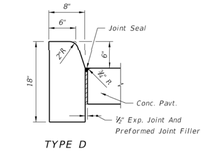


For details depicting usage adjacent to flexible pavement, see diagram right.

TYPE A



TYPE B



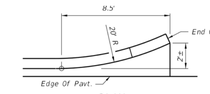
TYPE D

Note: For use adjacent to concrete or flexible pavement, concrete shown. Expansion joint, preformed joint filler and joint seal are required between curbs and concrete pavement only, see Sheet 2.

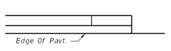
CONCRETE CURB

CONCRETE CURB AND GUTTER

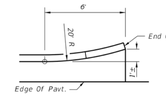
LAST REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	CURB & CURB AND GUTTER	INDEX NO.	SHEET NO.
07/01/00				300	1 of 2



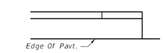
PLAN



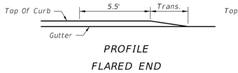
PLAN



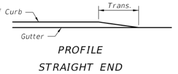
PLAN



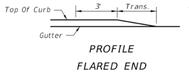
PLAN



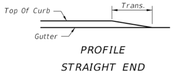
PROFILE FLARED END



PROFILE STRAIGHT END



PROFILE FLARED END

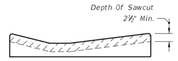


PROFILE STRAIGHT END

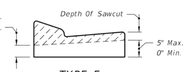
CURB TYPE A

CURB AND GUTTER TYPES E & F

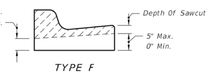
CURB AND GUTTER ENDINGS



SHOULDER GUTTER



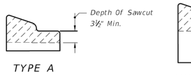
TYPE E



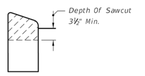
TYPE F

Sawcuts should be avoided within valley gutter and within curb and gutter endings.

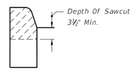
CONTRACTION JOINT IN CURB AND GUTTER



TYPE A

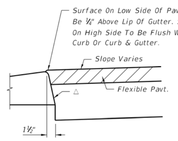


TYPE B



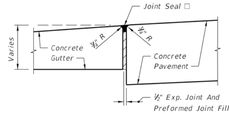
TYPE D

CONTRACTION JOINT IN CURB



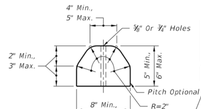
△ Applies to both high and low sides of pavement, low side shown. Applies to shoulder gutter only where adjoining traffic lanes.

CURB AND GUTTER AND TYPE A CURB ADJACENT TO FLEXIBLE PAVEMENT

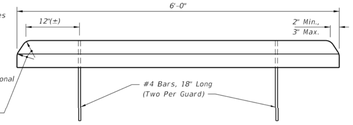


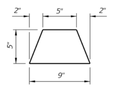
□ Applies to both high and low sides of pavement, low side shown.

EXPANSION JOINT BETWEEN GUTTER AND CONCRETE PAVEMENT



CONCRETE BUMPER GUARD





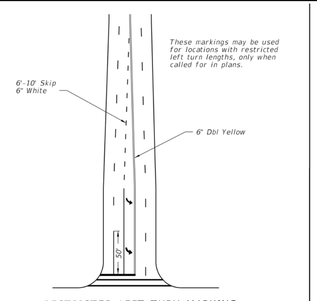
ASPHALTIC CONCRETE CURB

GENERAL NOTES

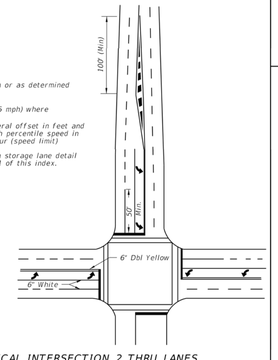
1. For curb, gutter and curb & gutter provide ½" - ½" contraction joints at 10' centers (max.). Contraction joints adjacent to concrete pavement on tangents and flat curves are to match the pavement joints, with intermediate joints not to exceed 10' centers. Curb, gutter and curb & gutter expansion joints shall be located in accordance with Section 520 of the Standard Specifications.

2. Ends of Curbs Types B and D shall transition from full to zero heights in 3'.

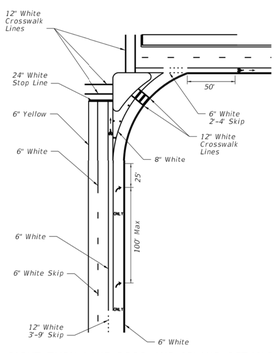
LAST REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	CURB & CURB AND GUTTER	INDEX NO.	SHEET NO.
07/01/00				300	2 of 2



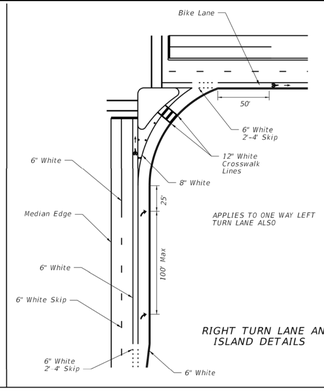
RESTRICTED LEFT TURN MARKING



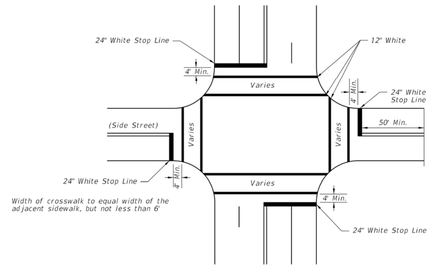
TYPICAL INTERSECTION 2 THRU LANES PLUS LEFT TURN LANE, WITH CROSSWALK



RIGHT TURN LANE DROP AND ISLAND DETAILS
LEFT TURN LANE DROP IS MIRROR IMAGE



RIGHT TURN LANE AND ISLAND DETAILS



NOTES:

1. When public sidewalk curb ramps are present, refer Index No. 17344 and Index No. 304 for crosswalk widths.
2. Double yellow longitudinal center lines on all roadway approaches shall be extended back 100' for projects involving intersection improvements only.
3. When specified, "stop" message shall be placed 25' back of stop lines.

STOP BARS, CROSSWALKS AND DOUBLE CENTER LINE DETAILS

SPECIAL MARKING AREAS

LAST REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	SPECIAL MARKING AREAS	INDEX NO.	SHEET NO.
07/01/14				17346	4 of 14

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI

WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PAVEMENT RESTORATION AND MARKING DETAILS

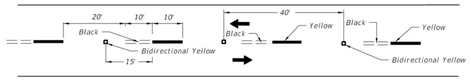
Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

P-107
Sheet

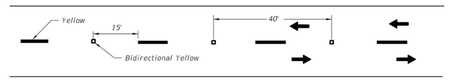
Copyright: Tetra Tech

Bar Measures 1 inch

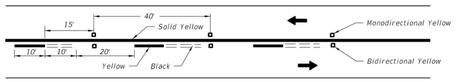
1/19/2016 8:24:21 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\P-501 TO P-505 DETAILS.DWG - MARQUEZ, GERMAIN



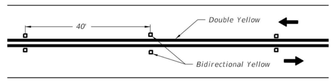
ALTERNATING SKIP LINE



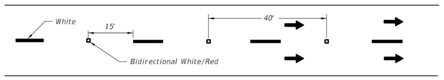
SKIP LINE



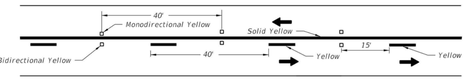
SOLID LINE WITH ALTERNATING SKIP



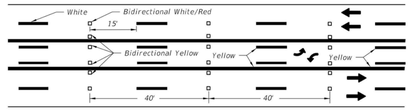
DOUBLE SOLID LINE



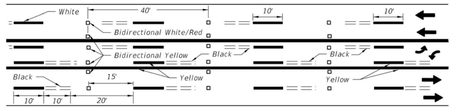
MULTILANE



SOLID LINE WITH SKIP



SKIP LINE WITH TWO-WAY LEFT TURN LANE



ALTERNATING SKIP LINE WITH TWO-WAY LEFT TURN LANE

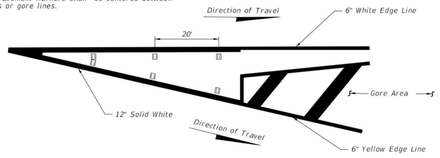
1. *Reflective Pavement Markers shall be spaced at 40' on all skip lane lines and skip center lines. This spacing may be reduced to 20' if specifically called for in the plans.*
2. *The spacing on solid lines and solid/skip combination lines shall be 40'.*
3. *All RPM's shall be offset 1" from solid longitudinal lines.*
4. *These spacings may be reduced for sharp curves if required.*
5. *All RPM's shall be class "B".*

LAST REVISION 01/01/10	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	TYPICAL PLACEMENT OF REFLECTIVE PAVEMENT MARKERS	INDEX NO. 17352	SHEET NO. 1 of 2

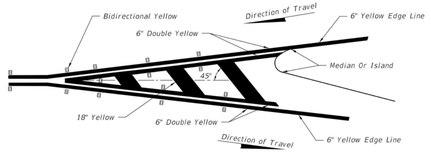
5/21/2014 1:07:37 PM

NOTES

1. *Raised pavement markers shall be set 1" from line.*
2. *Raised Pavement Markers shall be centered between chevrons or gore lines.*



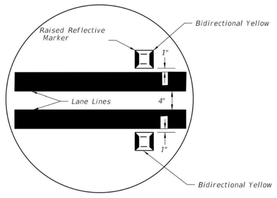
RPM PLACEMENT FOR TRAFFIC CHANNELIZATION AT GORE
(TRAFFIC FLOWS IN SAME DIRECTION)

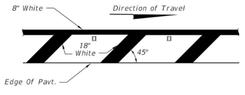


RPM PLACEMENT FOR TRAFFIC SEPARATION
(TRAFFIC FLOWS IN OPPOSITE DIRECTION)

NOTE

Raised pavement markers (Bidirectional White/Red) should be used in all gores of this type

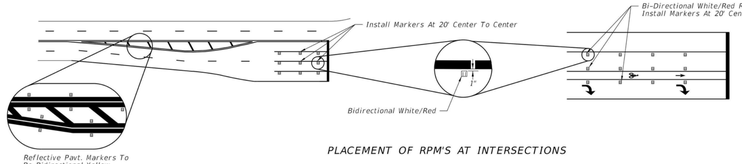




PLACEMENT OF RPM'S ON SHOULDER MARKINGS

For Left Side Of Roadway The Plan Is Opposite Hand And Markings Shall Be Yellow.

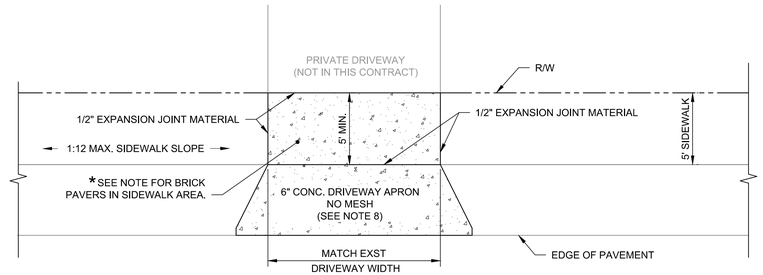
For Placement Of Rpm's On Ramps See Index 17345.



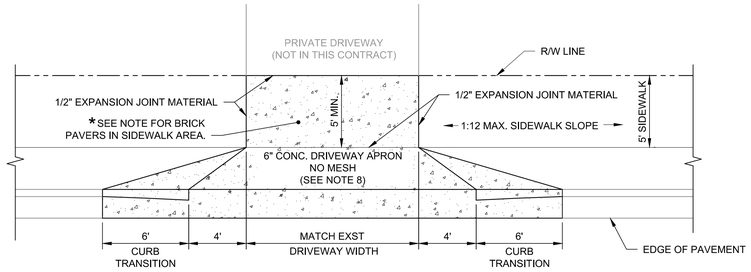
PLACEMENT OF RPM'S AT INTERSECTIONS

LAST REVISION 01/01/10	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	TYPICAL PLACEMENT OF REFLECTIVE PAVEMENT MARKERS	INDEX NO. 17352	SHEET NO. 2 of 2

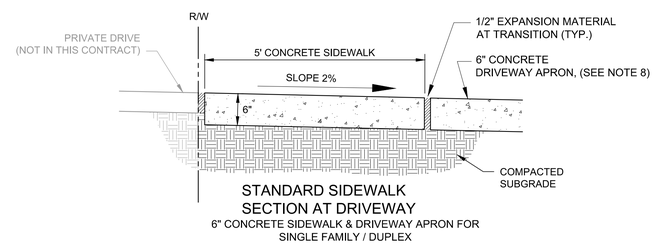
5/21/2014 1:07:37 PM



RESTORATION WITHOUT CURB AND GUTTER



RESTORATION WITH CURB AND GUTTER



STANDARD SIDEWALK
SECTION AT DRIVEWAY
6" CONCRETE SIDEWALK & DRIVEWAY APRON FOR
SINGLE FAMILY / DUPLEX

GENERAL NOTES:

1. IF BUILDING IS SET BACK MORE THAN 75' FROM THE EDGE OF PAVEMENT, SPECIAL CONDITIONS MAY APPLY.
2. REPLACEMENT OF NONSTANDARD MATERIAL (I.E., PAVERS IMPRINTED CONCRETE, SPECIAL COATING, ETC.) IN WHOLE OR IN PART BY THE CITY FOR REQUIRED UTILITY, DRAINAGE OR STREET REPAIRS, SHALL BE REPLACED BY THE OWNER AT THEIR EXPENSE.

* PAVER BRICK CONSTRUCTION REQUIRED TO BE SET ON CONCRETE BASE WITH NO BEVELED EDGES IN SIDEWALK AREA IN ORDER TO MEET A.D.A. REQUIREMENTS..

CONSTRUCTION NOTES:

1. TYPICAL SCORE OR SAW CUT WALKS 1-1/2" DEEP, 5'-0" O.C., 4" THICK SIDEWALK, 6" THICK THROUGH DRIVEWAY. EXPANSION JOINTS TO BE A MAX OF EVERY 100'.
2. CONCRETE FDOT CLASS 1 3000 p.s.i. MIN. MAX. SLUMP 4" OR FIBROUS CONCRETE ACCEPTED.
3. NO REINFORCING IN CONCRETE IN RIGHT-OF-WAY. SIDEWALK FINISH TO BE LIGHT BROOM.
4. ALL DISTURBED AREAS NEXT TO WALK TO BE RESTORED TO MATCH ORIGINAL SOD. IF NO ORIGINAL SOD THEN SEED, FERTILIZE AND STRAW.
5. NO PATCHING OF ANY KIND WILL BE ALLOWED IN CONCRETE WORK.
6. A RIGHT-OF-WAY PERMIT IS REQUIRED FROM ENGINEERING DIVISION FOR DRIVEWAY CONSTRUCTION. DRIVEWAY PERMITS ARE REQUIRED FOR SINGLE FAMILY AND DUPLEX ONLY.
7. DRIVEWAYS ON STATE ROADS - PERMITS OBTAINED FROM FDOT. DRIVEWAYS ON CITY OF HOLLYWOOD - PERMITS OBTAINED FROM COH BUILDING DEPARTMENT
8. ASPHALT DRIVES SHALL BE CONSTRUCTED OF 6" COMPACTED LIMEROCK BASE OVER A SUITABLY COMPACTED SUBGRADE AND SURFACED WITH 1-1/2" OF ASPHALT CONCRETE.
9. DRIVEWAYS WITH CURB AND GUTTER MUST BE A MINIMUM OF FIVE FEET FROM PROPERTY LINE AND TEN FEET FROM RIGHT-OF-WAY LINE AS SHOWN UNLESS REPLACING AN EXISTING DRIVEWAY.

RESIDENTIAL - DRIVEWAY AND SIDEWALK RESTORATION DETAIL

SCALE: N.T.S.

TETRA TECH
CA License No.: 2429
www.tetratech.com
150 WEST FLAGLER STREET, SUITE 1625
MIAMI, FL 33130
PHONE: (786) 597-3898 FAX: (786) 439-0400

Janine M. Alexander, P.E.
P.E. No. 59244, FL
150 W. Flagler Street, Suite 1625
Miami, Florida 33130

DATE

100% SUBMITTAL

NOT FOR CONSTRUCTION

NORTH MIAMI FLORIDA

MARK	DATE	DESCRIPTION	BY

CITY OF NORTH MIAMI
WATER TRANSMISSION SYSTEM DESIGN
NE 6th AVENUE FROM NE 137th STREET TO 148th STREET

PAVEMENT RESTORATION AND MARKING DETAILS

Project No.:	200-66798-15001
Designed By:	DEM
Drawn By:	NB
Checked By:	JA

P-108
Sheet

Copyright: Tetra Tech

Bar Measures 1 inch

1/19/2016 8:24:22 AM - P:\IER\66798\200-66798-15001\CAD\SHEETFILES\P-501 TO P-505 DETAILS.DWG - MARQUEZ, GERMAIN